Agenda Item I.1
Situation Summary
April 2012

NATIONAL MARINE FISHERIES SERVICE REPORT

National Marine Fisheries Service (NMFS) Northwest Region (NWR) will briefly report on recent regulatory developments relevant to groundfish fisheries and issues of interest to the Pacific Fishery Management Council (Council).

NMFS Northwest Fisheries Science Center (NWFSC) will also briefly report on groundfish-related science and research activities.

Council Task:

1. Discussion.

Reference Materials:

None.

Agenda Order:

a.	Agenda Item Overview	Kelly Ames
b.	Regulatory Activities	Frank Lockhart
c.	Fisheries Science Center Activities	Michelle McClure and John Stein
d.	Reports and Comments of Advisory Bodies and Management Entities	
e.	Public Comment	
f.	Council Discussion	

PFMC
03/13/12

Groundfish and Halibut Notices
2/13/12 through 3/16/12

Documents available at NMFS Sustainable Fisheries Groundfish Web Site
http://www.nwr.noaa.gov/Groundfish-Halibut/Groundfish-Fishery-Management/index.cfm

77FR10466 *(PDF 164KB)*: Proposed rule for 2012 Pacific whiting fishery to establish tribal allocation; request for comments

77FR12503 *(PDF 157KB)*: Inseason adjustments to biennial groundfish management measures in Pacific Coast Groundfish Fishery; request for comments

Science, Service, Stewardship

NMFS Groundfish Science Report

April 2012

Michelle McClure and John Stein

NOAA FISHERIES SERVICE

Overview

- Hake survey status
- Recently released reports
- Hook and Line survey review
- Schedule for finalizing observer data

NOAA FISHERIES SERVICE

Joint Hake and Sardine Survey

- Ongoing planning – NW/SW
  - Transect design matching biology of both species
  - Consistency with existing time series
  - Fishing capability for full range of survey
  - Maximize use of Shimada
- Cooperative with hake industry
  - F/V Forum Star, committed by American Sea Foods

NOAA FISHERIES SERVICE

Recently Released Reports

- Salmon Bycatch Report
  - http://www.nwfsc.noaa.gov/research/divisions/fram/observer/datareport/docs/Salmon_0210Rpt_Final.pdf
- Commercial/Recreational Allocation Tech Memo
  - http://www.nwfsc.noaa.gov/assets/25/8065_03262012_120926_AllocationFishHarvestsTM115WebFinal.pdf

NOAA Technical Memorandum NMFS-NWFSC-115

Allocation of Fishery Harvests under the Magnuson-Stevens Fishery Conservation and Management Act

Principles and Practice

Mark L. Plummer, Wendy Morrison,* and Erin Steiner

Northwest Fisheries Science Center
2725 Montlake Boulevard East
Seattle, Washington 98112

*NMFS Office of Sustainable Fisheries
Domestic Fisheries Division
1315 East West Highway
Silver Spring, Maryland 20910

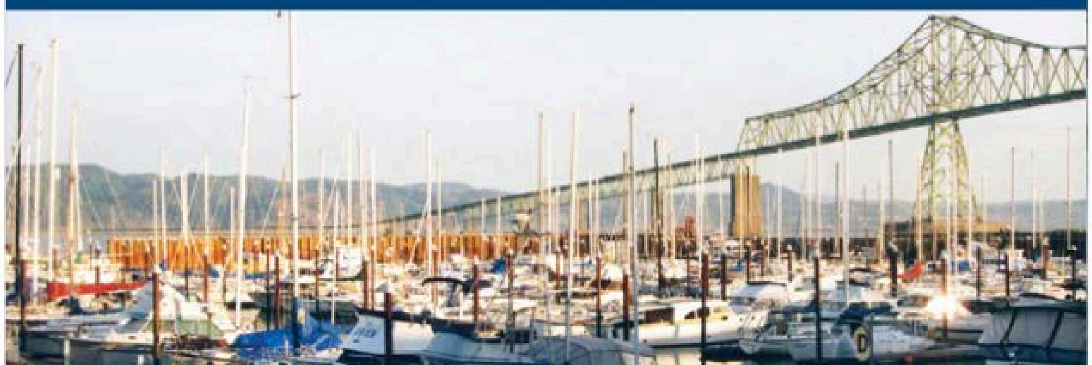
February 2012

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service

Science, Service, Stewardship

NOAA
FISHERIES
SERVICE

Observed and Estimated Total Bycatch of Salmon in the 2002-2010 US West Coast Fisheries

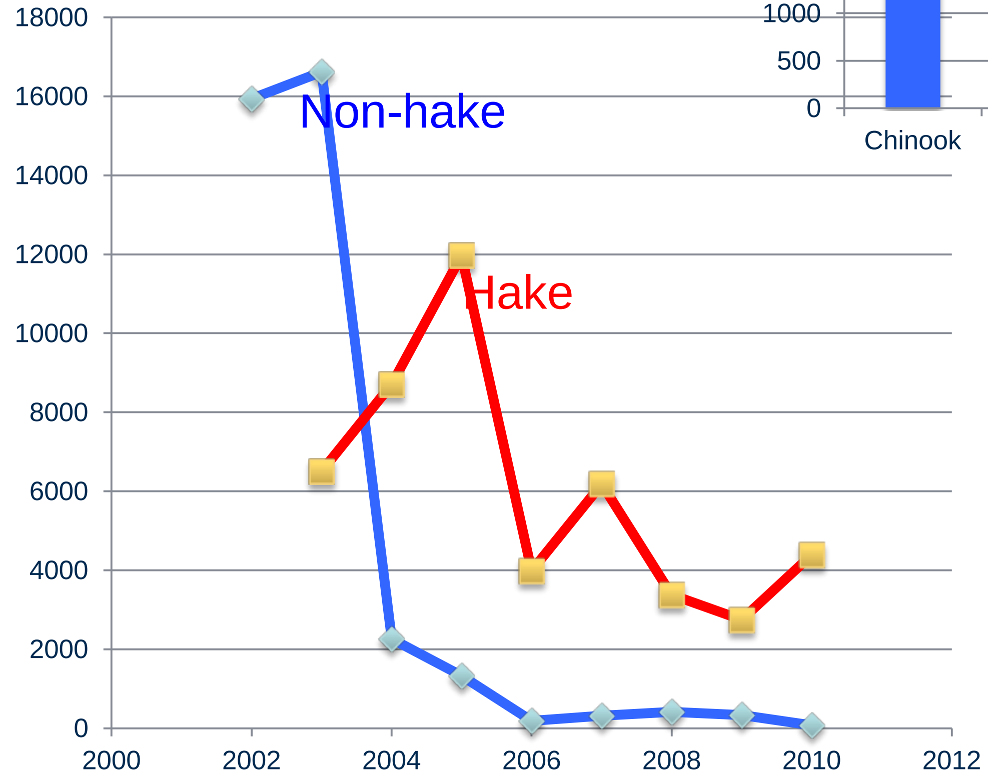


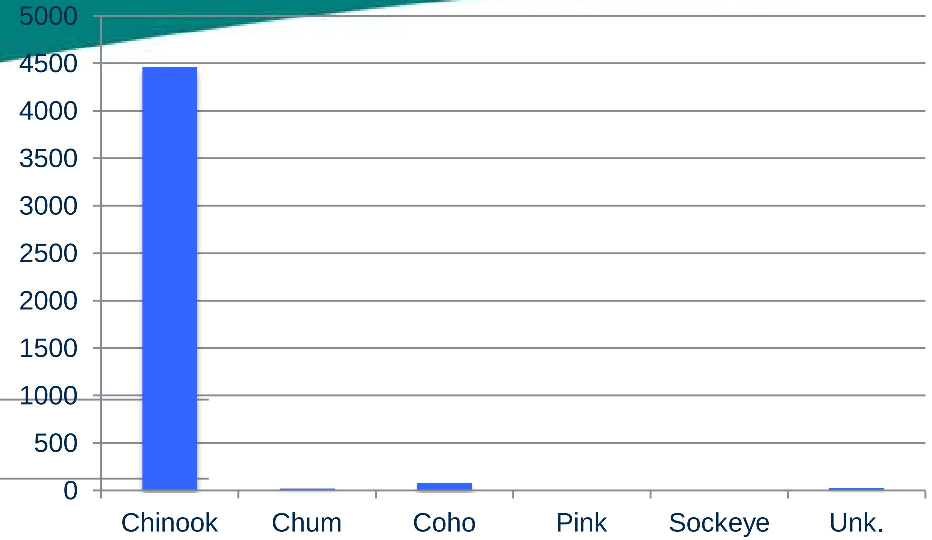
Alia W. Al-Humaidhi[1]
Marlene A. Bellman[2]
Jason Jannot[2]
Janell Majewski[2]

Publication date: March 2012

U.S. Department of Commerce | National Oceanic and Atmospheric Administration | National Marine Fisheries Service

Chinook Salmon





NOAA
FISHERIES
SERVICE

Hook and Line Survey Review

- April 4-5, NWFSC.
  - Webex and phone lines available

- Agendas available on table (supplemental NMFS report)

- CIE to review methods, design, use

NOAA FISHERIES SERVICE

Catch Shares Observer Data Schedule

- March
  - All data to Seattle
  - Letters to permit owners with halibut-related data delays sent out
- April 9 – Final IFQ data sent to PSMFC and VA
- April 10 – Posting of all corrected data to VA
  - All permit holders should review their accounts
- October 2012 – 2011 Groundfish Mortality Report released
  - Catch shares and non-catch shares fisheries
  - All data final at this point

NATIONAL MARINE FISHERIES SERVICE
NORTHWEST FISHERY SCIENCE CENTER REPORT

The Northwest Fishery Science Center (NWFSC) Shelf Rockfish Hook and Line Survey will be reviewed by a three-person panel including two representatives from the Center for Independent Experts (CIE) to evaluate the survey's objectives, design, protocols, and analytical approach. The review panel consists of chair Dr. Mark Wilkins (AFSC, ret.), Dr. Noel Cadigan (CIE), and Dr. Sven Kupschus (CIE). The hook and line survey was developed to generate a fishery-independent time series of abundance and biological data for important species of shelf rockfish, including overfished species as bocaccio. This survey is a collaborative effort among NOAA Fisheries, Pacific States Marine Fisheries Commission, and the sportfishing industry in southern California. The 2012 survey represents the ninth year in the time series. The review will be held April 4-5, 2012 on the campus of the NWFSC - 2725 Montlake Blvd. E, Seattle, WA 98112.

The review will convene at 8:00 a.m. in room 370W on both days. The meeting may be accessed remotely via webex. Contact 541-867-0536 if you would like remote access.

Southern California Shelf Rockfish Hook & Line Survey Review
Northwest Fisheries Science Center
2725 Montlake Blvd. E Room 370-W
Seattle, Washington
(Obtain Visitor's Pass at Guard Gate)

The meeting will also be accessible via webex/phone connection. Call 541-867-0536 for information.

Wednesday, April 4, 2012 (Meeting Location: Room 370, West Building)

8:00 a.m.	Welcome, Introductions, and Objectives of the Review Panel (M. Wilkins)
8:30 a.m.	Presentation on Survey Objectives, Rationale, and Design (J. Harms)
9:30 a.m.	Q&A Session with Review Panel
9:45 a.m.	Presentation on Survey Operations and Sampling Protocols (M. Barnhart)
10:15 a.m.	Q&A Session with Review Panel
10:30 a.m.	Break
10:45 a.m.	Presentation on Descriptive Results (J. Benante)
11:30 a.m.	Q&A Session with Review Panel
12:00 p.m.	Lunch (On Your Own)
1:30 p.m.	Presentation on Analytical Methods (I. Stewart)
2:30 p.m.	Q&A Session with Review Panel
3:00 p.m.	Break
3:30 p.m.	Presentation on Future Research (J. Harms)
4:15 p.m.	Q&A Session with Review Panel and Discussion as needed
5:00 p.m.	Meeting ends for the day

Thursday, April 5, 2012 (Meeting Location: Room 370, West Building)

8:00 a.m.	Re-cap of yesterday's presentations and discussion (M. Wilkins)
8:15 a.m.	Continued Discussion on Presented Material as needed
11:30 a.m.	Review Objectives and Structure of Review Summary Report (M. Wilkins)
12:00 p.m.	Lunch

1:30 p.m.	Report Drafting
4:00 p.m.	Review Draft Report
5:00 p.m.	Meeting Adjourns

IMPLEMENTATION OF THE 2012 PACIFIC WHITING FISHERY UNDER THE U.S.-CANADA PACIFIC WHITING AGREEMENT

The U.S. - Canada Pacific Whiting Treaty was first implemented this year. A new stock assessment for Pacific whiting has been conducted and reviewed and used for decision-making in the new international whiting treaty process. The Joint Management Committee (JMC), the decision-making body in the new international whiting treaty process, adopted a coastwide (U.S. + Canada) 2012 total allowable catch (TAC) at their March 14-15 meeting in Vancouver British Columbia. The U.S. share of the coastwide whiting TAC according to the allocation specified in the treaty is 73.88 percent.

According to the U.S. - Canada Pacific Whiting Treaty, the Secretary of Commerce shall implement the recommendations of the JMC if both parties to the JMC reach agreement on the Pacific whiting TAC. In the event the JMC had not reached agreement, the Secretary of Commerce would have established the U.S. Pacific whiting TAC based on (1) any recommendations from the Pacific Fishery Management Council, the JMC, and the various advisory bodies and technical committees in the treaty process; (2) the best scientific information available; (3) the default harvest rate of $F_{40\%,}$ with a 40-10 adjustment, unless the Secretary determines that the scientific evidence demonstrates that a different rate is necessary to sustain the offshore whiting resource; and (4) establish the U.S. share of the TAC and make any adjustments consistent with the agreement.

The JMC did reach agreement on the 2012 Pacific whiting TAC and the Council is expected to only receive a briefing on this decision. The 2012 U.S. Pacific whiting TAC, according to the specified allocation and a 15 percent carry-over of the unattained 2011 U.S. allocation, is 186,037 mt. The tribal whiting allocation and a set-aside to accommodate research activities and bycatch in non-groundfish fisheries will be subtracted from the U.S. TAC before the non-tribal sector allocations (42 percent to shoreside trawl, 34 percent to catcher-processors, and 24 percent to motherships) are made.

Council Action:

1. Receive a briefing on the 2012 Pacific whiting decision.

Reference Materials:

None.

Agenda Order:

a. Agenda Item Overview — John DeVore
b. JMC Report — Phil Anderson, Frank Lockhart
c. Reports and Comments of Advisory Bodies and Management Entities
d. Public Comment
e. **Council Action:** Consider any Necessary Action for Implementation of the 2012 Pacific Whiting Fishery

PFMC
03/19/12

GROUNDFISH ADVISORY SUBPANEL REPORT ON IMPLEMENTATION OF THE 2012 PACIFIC WHITING FISHERY UNDER THE U.S.-CANADA PACIFIC WHITING AGREEMENT

Mr. John DeVore and Mr. Dan Waldeck briefed the Groundfish Advisory Subpanel (GAP) about the 2012 Total Allowable Catch (TAC) determination by the Whiting Treaty Joint Management Committee (JMC). The JMC process effectively addressed issues relevant to setting the 2012 TAC and reached a consensus recommendation, which was forwarded to the Parties for implementation.

The GAP also reviewed the Quileute Tribal Council letter about the 2012 tribal whiting fishery included under Agenda Item I.2. The GAP strongly affirms our prior recommendation for National Marine Fisheries Service to (NMFS) to reinstate its regulatory authority to reapportion whiting from the tribal set aside to the non-tribal fishery when the tribes participating in the fishery will not take the entire tribal allocation during the fishing year. Without this fix, there is a high likelihood that whiting harvest will be foregone, causing harm to the non-tribal whiting fishery sectors and contravening National Standard 1.

Specific to determination of the 2012 tribal whiting set aside, the GAP strongly believes that NMFS is obligated to make a good faith determination of the actual amount the tribes could realistically harvest, including past performance in catching requested amounts and demonstration of tribal fishery management plans that describe how each tribe will manage their respective fisheries and how bycatch and impacts on protected species will be minimized. If the tribal whiting set aside is not based on a clear ability for the participating tribes to catch the fish, there is a high likelihood that whiting will be stranded in the 2012 tribal fishery, which will limit the non-tribal fishery's ability to maximize harvest, potentially foregoing tens of millions of dollars in gross revenue and millions of dollars in foregone wages for harvesters and processors.

PFMC
04/02/12

QUILEUTE TRIBAL COUNCIL
POST OFFICE BOX 279
LA PUSH, WASHINGTON 98350-0279
TELEPHONE (360) 374-6163
FAX (360) 374-6311

QUILEUTE

March 21, 2012

Mr. Will Stelle, Regional Administrator
NMFS, NW Region
7600 Sand Point Way N.E.
Seattle, WA 98115

Re: Quileute Tribe's comments on proposed rule; 2012 Tribal Fishery for Pacific Whiting (RIN 0648-BB85)

Dear Mr. Stelle,

The Quileute Tribe has reviewed the National Marine Fisheries Service ("NMFS")' proposed rule establishing a tribal allocation of 17.5 percent of the U.S. total allowable catch for 2012, published at 77 Federal Register 10466 (February 22, 2012). *See* RIN 0648-BB85. The proposed rule seeks not only to establish a tribal allocation for 2012, but to impose a reapportionment of unused tribal allocation to non-tribal fisheries. The Quileute Tribe has comments on the following sections:

1. Proposed § 660.50(f) (4). The tribal allocation of 17.5% is inappropriate, because it is based upon the erroneous assumption that only the Makah Tribe will participate in the 2012 fishery. Quileute intends to participate in the 2012 fishery as well, and the tribal allocation must account for this.

2. Proposed § 660.60(d) (1) (iv) and proposed § 660.131(h).

   a. The proposed reapportionment of whiting from the tribal sector to non-tribal sectors is an unacceptable abrogation of treaty rights. First, by only engaging *participating* tribes in discussions regarding reapportionment, NMFS permits the tribal share to be given to non-tribal entities without consent of all tribes with rights to whiting. Second, to the extent reapportionment is required in the formal rule, it occurs too early in the season. A substantial amount of fishing takes place after September 1, making it difficult if not impossible to project the tribal harvest for the remainder of the season as of that date.

   b. It is not appropriate to regulate tribal fisheries in § 660.131, because tribal fisheries are regulated by a different process, as detailed in § 660.50. To the extent regulations regarding reapportionment of the tribal share are included in the final rule, they should be located in § 660.50.

3. Background. We do not believe that this rule was proposed properly under 50 CFR § 660.50, which requires that for tribal fisheries, there first be consultation with the affected tribes, and insofar as possible, with tribal consensus. Consultation is a formal process that NMFS did not follow with respect to the Quileute Tribe.

Tribal Allocation for 2012 (Proposed § 660.50(f) (4))

Proposed Section 660.50(f) (4) allocates 17.5 percent of the U.S. TAC to the Pacific Coast treaty Indian fisheries in 2012. 77 Fed. Reg. 10470. According to NMFS' "Background" narrative, this allocation was based on the assumption that "only the Makah tribe will participate in the Pacific whiting fishery in 2012, and they have requested 17.5% of the U.S. TAC." 77 Fed. Reg. 10468.

Quileute intends to enter the 2012 whiting fishery. Therefore, a 17.5% tribal allocation based on the erroneous assumption that the Makah Tribe would be the sole participant is inadequate to fulfill NFMS' obligations.

Quileute's request for 16,000 mt of Pacific whiting is based on its fishermen's expressed intention to participate in the whiting fishery in 2012. It is well within the 50% treaty right. *See* Comment from Seth Berntsen, Quileute Tribe, Document ID NOAA-NMFS-2009-0001-0005 (March 23, 2009). Where a tribe requests less than its full treaty entitlement to whiting, it is appropriate for NMFS to allocate the requested amount to the tribes. *See Midwater Trawlers Co-operative v. Dep't of Commerce*, 393 F.3d 994, 1004 (9th Cir. 2004); Comment from Michael Lawrence, Document ID NOAA-NMFS-2010-0059-0004, p. 14 (June 8, 2010).

In consideration of this information, the proposed rule will need to be revised to reflect that the Quileute Indian Tribe does intend to participate in the 2012 Pacific whiting fishery and requests 16,000 mt of Pacific whiting in 2012.

Reapportionment (Proposed § 660.60(d) (1) (iv) and § 660.131(h))

Proposed Section 660.60(d) (1) (iv) is a provision requiring "reapportionment of the unused portion of the tribal allocation of Pacific whiting to the IFQ, mothership and catcher processor Pacific whiting fisheries." Proposed Section 660.131(h) describes the process by which the unused portion of the tribal allocation will be reapportioned. There are several rationales in the preamble for this.

1. Allegedly, the PMFC recommends it. We note that the preamble first states that the PMFC recommends conserving groundfish (page 10467), and then that the PFMC recommends utilizing all of the annual TAC at page 10468. That in itself is contradictory. But we find the representation that PFMC recommended reapportionment of unharvested tribal shares to the non-tribal share to be incorrect. The PFMC did not make this formal recommendation, according to its meeting minutes and decision records, which the Tribe has reviewed. Further, the PFMC does not make these decisions; as we describe in more detail below, NOAA must make them *in consultation with the applicable tribal sovereigns* under 50 CFR § 660.50.

2. This step is in furtherance of monetary concerns of the non-tribal fishers. We quote from p. 10469, justifying reapportionment "to allow unharvested tribal allocations of whiting to be fished by the non-tribal fleets, benefitting both large and small entities...there may be uncaught whiting [otherwise]." On page 10470: This rule "allows unharvested tribal fish to be harvested by non-tribal harvesters." These monetary reasons are not grounds for distribution of treaty fish. Moreover; this is a one-way rule; there is no process in place for redistributing unharvested whiting from the non-tribal share to tribes.

Quileute objects to proposed sections 660.60(d) (1) (iv), 660.131(h) and 660.140(d) (ii) in their entireties. Whiting are not like salmon; they live to swim another year. There is no reason why these fish cannot remain "undepleted" to live and spawn another day, to everyone's benefit. The Quileute Tribe has consistently and strongly voiced its opposition (as have other treaty tribes) to this "taking" of treaty fish to give to the non-treaty fishery. Such taking threatens to abrogate Quileute's treaty right. Under the Magnuson-Stevens Act, fishery management regulations must be consistent with "applicable law" defining Native American treaty fishing rights. *See, e.g., Parravano v. Babbitt*, 70 F.3d 539, 544 (9th Cir. 1995). Indeed, "because the right . . . arises from a treaty with the United States, that right is reserved and protected under the supreme law of the land." *United States v. Washington*, 384 F.Supp. 312, 402 (W.D. Wash. 1974). NMFS cannot jeopardize the treaty right by reapportioning the tribal share to non-tribal interests. Thus, the Quileute Tribe can only support that portion of the "Action" alternative that grants NMFS the authority to reinstate the "interim tribal allocation."

If NMFS determines to permit reapportionment in the final rule, three further changes should be made. First, the rule must not exclude from reapportionment discussions tribes with treaty rights to whiting who are not participating in the fishery in the current year. Section 660.131(h) (1) states that

> By September 15 of the fishing year, the Regional Administrator will, based on discussions with representatives of the tribes *participating* in the Pacific whiting fishery for that fishing year, consider the tribal harvests to date and catch projections for the remainder of the year relative to the tribal allocation as specified at § 660.50.

(emphasis added.) This rule results in decisions being made about the tribal share of whiting without involving the very tribes who have rights in the resource. This rule should not be limited to participating tribes, but instead include all tribes with rights in the fishery.

Second, because a substantial amount of fishing takes place after NMFS' proposed cutoff date of September 1, it would be difficult, if not impossible, to project the tribal harvest for the remainder of the season as of that date. This augments the risk that a tribe's treaty share would be cut short by non-tribal harvesters. If it is absolutely necessary to set a date for reapportionment, the date should be set after consultation with all treaty tribes regarding the appropriate time for reapportionment.

Finally, this rule mixes governance of the state share of whiting with the tribal share, which is contrary to 50 CFR 660.50. Under Section 660.50, tribal fisheries are regulated under a different process from the non-tribal fisheries. Tribal fisheries are distinct from the non-tribal fisheries. Per paragraph (a), the tribes are entitled to 50 percent of the harvestable fish that pass through their respective U&As. Per paragraph (d) on procedures, the rights in paragraph (a) are implemented either by an allocation managed by the tribes, or through regulations in this section (660.50) that will apply specifically to the tribal fisheries. The allocations are initiated under subparagraph (1) by a request from a tribe, in writing. Otherwise, under (2), co-management, NOAA recognizes tribal sovereignty and the tribal co-manager role, and so tribal allocations and regulations are developed "in consultation with the affected tribes, and insofar as possible with tribal consensus."

It is entirely possible that in consultation, a tribe might agree with certain exchanges of state/tribal shares, but any rulemaking must contemplate full consultation and a two-way process. Contrary to its assertions, NMFS proposal to reinstate reapportionment *did not* involve consultation with the Quileute Tribe.

While we have already said this rule is promulgated improperly, we disagree with it in concept as well, because a tribe with a treaty interest, even if a future interest, has an absolute right to participate in rulemaking and must not be excluded. This is well established in the *Midwater Trawler* cases, wherein treaty rights are "self-executing." *See* 139 F. Supp. 2d 1136, 1144 (W.D. Wash. 2000). We also object to the language in Section 660.131(h) (2) that provides for reapportionment by the Regional Administrator, at any time of the year. And we object to (h) (3) relying on "best information" available to the Regional Administrator. Technically this approach is also unsound. The fishing season goes until December and often the most fishing occurs as late as October or November. So any decision, even if made only for the non-tribal fishery, as early as September, is unwise.

Background

The Quileute Tribe has repeatedly objected to NMFS' characterization of interactions and communication between the two entities. *See, e.g.*, Comment from Seth Berntsen, Quileute Tribe, Document ID NOAA-NMFS-2009-0001-0005 (March 23, 2009); Comment from Lonnie Foster, Document ID NOAA-NMFS-2010-0059-0006 (June 8, 2010). This year, NMFS has again erroneously stated that it engaged in "meaningful consultation and collaboration with tribal officials" from Quileute. 77 FR 10466, 10470 (Feb. 22, 2012).

First, in its notice, NMFS states that "based on exchanges with the tribes during November 2011, and again in January 2012, it appears that only the Makah Tribe will participate in the Pacific whiting fishery in 2012." 77 Fed. Reg. 10466, 10467 (Feb. 22, 2012). While staff from the Quileute Tribe did have a brief conversation with NMFS Northwest Regional staff at the November 2011 Pacific Fishery Management Council ("PFMC") meeting, this conversation related to the 2013-2014 Pacific whiting, fishery and not the 2012 fishery. In January, Quileute staff and a tribal policy representative informed the NMFS Northwest Regional Office that the 2012 whiting fishery would be a discussion topic on the Quileute Natural Resources Committee at their next meeting. Following the meeting, Quileute staff informed NMFS Northwest Regional staff that the Quileute Natural Resources Committee approved a motion to request that NMFS apportion 16,000 mt of Pacific whiting to the Quileute Tribe for the 2012 fishing season..

Second, as mentioned above, NMFS proposal to reinstate reapportionment *did not* involve consultation with the Quileute Tribe. This is a serious concern, since reapportionment directly affects the tribal allocation of whiting. Any decision regarding reapportionment *must* involve the affected parties by consultation per 50 CFR 660.50.

The Quileute Tribe values consultation as a relationship that begins with a robust exchange of information and perspectives at the technical level, followed by policy discussions. Under Executive Order 13175, federal agencies must be able to describe how their rules are meeting the concerns of the tribe. Brief exchanges such as those described above do not constitute consultation, nor do they contribute to establishing a meaningful co-management relationship between NMFS and the Quileute Tribe. We look forward to collaboratively building improvements in our dialogue in the future.

Thank you for your time and consideration. Should you need further clarification on the issues discussed in this letter, please contact Mel Moon, Director, Quileute Department of Natural Resources at 360-374-3133 or mel.moon@quileutenation.org. We would be happy to answer any questions you may have.

Sincerely,

Tony Foster

Tony Foster, Chair
Quileute Tribal Council
Quileute Indian Tribe

Cc: Maria Lopez, Chair, Hoh Indian Tribe
Fawn Sharp, President, Quinault Nation
Stan Speaks, Regional Administrator, BIA
Dan Wolford, Chairperson, Pacific Fisheries Management Council

TENTATIVE ADOPTION OF 2013-2014 BIENNIAL HARVEST SPECIFICATIONS AND MANAGEMENT MEASURES

The process to adopt the 2013-2014 harvest specifications and management measures began in 2011 and continues under Agenda Items I.3 and I.8. Attachment 1 summarizes the anticipated Council actions and references that inform the decisions. Under this agenda item, the Council is scheduled to tentatively adopt preferred harvest specifications and preliminary preferred management measures, including allocations. Under Agenda Item I.8, the Council will confirm or modify actions from Agenda Item I.3. Final action for 2013-2014 harvest specifications and management measures is scheduled for the June Council meeting.

At its November 2011 and March 2012 meetings, the Council adopted overfishing limits (OFLs) as recommended by the Scientific and Statistical Committee, acceptable biological catches (ABCs) that incorporate scientific uncertainty buffers, and preliminary preferred annual catch limits (ACLs) for species and stock complexes (Attachment 2). An error in the adopted ABCs/ACLs for lingcod north of 40º10' N. latitude was discovered subsequent to the March Council meeting. The appropriate 2013 and 2014 ABCs/ACLs for lingcod north of 40º10' N. latitude according to the Council's decision on the overfishing probability ($P^* = 0.45$) are 3,187 mt and 3,023 mt, respectively, not the 3,036 mt and 2,878 mt values adopted in March (Attachment 2). Attachment 3 shows the estimated time to rebuild the overfished species under each alternative ACL – an important consideration for deciding those ACLs and the associated rebuilding plans. The Council also provided guidance on the range of management measures for more detailed analysis at the September and November 2011 meetings. Attachment 4 provides a summary of the analysis and results.

The process and schedule for adopting the 2013-2014 harvest specifications and management measures is different from past cycles since it relies on a narrow scope of action, earlier decision-making, and the publication of a draft Environmental Impact Statement (DEIS) prior to final Council action in June. Staff has been preparing this environmental analysis over the winter based on Council action to date. Attachment 5 (*Available on the Council's Briefing Book Website and CD Only*) and Supplemental Attachment 6 both excerpt appropriate parts of the current preliminary DEIS relevant to decision-making at this meeting. The full document will be updated to include actions taken at this meeting, and the DEIS is scheduled for filing with the Environmental Protection Agency (triggering a 45-day public comment period) prior to the June Council meeting.

Agenda Item I.3 is scheduled later in the Council meeting to provide the opportunity for the Groundfish Management Team and Groundfish Advisory Subpanel to prepare any additional analysis or material relevant to completing the Council tasks required at the April Council meeting. Agenda Item I.3.a, Attachment 1, provides a listing of anticipated Council actions and specific references to facilitate tentative identification of needed decisions. The Council should identify any outstanding questions or analytical needs under this agenda item to enable timely completion of Agenda Item I.8.

It is important to note there is less scope for the Council to make substantial changes when crafting the final preferred alternative at the June Council meeting because of this accelerated schedule. The final preferred alternative can only vary slightly from any one of the alternatives evaluated in the DEIS so that forecasted impacts fall within the range of those disclosed in the DEIS. If the final preferred alternative does not meet those criteria, it is likely that the DEIS would have to be revised to disclose any substantially different impacts and republished for public review. This would jeopardize the objective of implementing new regulations on January 1, 2013 (the start of the next management period).

Council Action:

1. **Adopt the revised lingcod ABCs.**
2. **Tentatively adopt preferred 2013 and 2014 ACLs for all groundfish stocks and stock complexes.**
3. **Tentatively adopt preliminary preferred management measures, including allocations.**

Reference Materials:

1. Agenda Item I.3.a, Attachment 1: Anticipated Council Actions and References Relevant to Decision-Making.
2. Agenda Item I.3.a, Attachment 2: Preferred 2013 and 2014 overfishing limits (OFLs in mt) and acceptable biological catches (ABCs in mt) and preliminary preferred 2013 and 2014 annual catch limits (ACLs in mt) for west coast groundfish stocks and stock complexes.
3. Agenda Item I.3.a, Attachment 3: Estimated time to rebuild and spawning potential ratio (SPR) harvest rate relative to alternative 2013-2014 ACLs for overfished west coast groundfish stocks.
4. Agenda Item I.3.a, Attachment 4: Summary of the Management Measures Analysis.
5. Agenda Item I.3.a, Attachment 5: Excerpts from the Preliminary DEIS **(Available on the Council's Briefing Book Website and CD Only)**.
6. Agenda Item I.3.a, Supplemental Attachment 6: Further Excerpts from the Preliminary DEIS.
7. Agenda Item I.3.c, Public Comments.

Agenda Order:

a. Agenda Item Overview — John DeVore and Kelly Ames
b. Reports and Comments of Advisory Bodies and Management Entities
c. Public Comment
d. **Council Action:** Adopt Tentative Preferred Annual Catch Limits and Preliminary Preferred Management Measures and Allocations

PFMC
03/16/12

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ANTICIPATED COUNCIL ACTIONS AND REFERENCES RELEVANT TO DECISION-MAKING

Anticipated Actions	Preliminary DEIS Section a/
1. Preferred Non-Overfished Species Harvest Specifications	
1a. Modify lingcod ABC, based on corrections from March 2012	Section 2.1.2
1b. Adopt preferred ACLs, including modifications to lingcod based on the revised ABC	Sections 2.1.3, 4.1-4.4, Appendices C and D
2. Preferred Overfished Species Harvest Specifications	
2a. Confirm or modify the rebuilding plan parameters and preferred ACLs	Section 2.1.3, 2.2-2.4, 4.1-4.4, Appendices C and D
3. Preliminary Preferred Management of Flexible Set-Asides and Allocations	
3a. Adopt preliminary preferred option for flexible management of set-asides	Supplemental Attachment 6
3b. Confirm or modify the FMP within trawl allocation for widow rockfish	Section 2.2-2.4, 4.2-4.4, Appendices C and D
3c. Two-year trawl and non-trawl allocations for bocaccio, canary, cowcod, petrale, and yelloweye	Section 2.2-2.4, 4.2-4.4, Appendices C and D
3d. HGs for black rockfish (OR and CA), blackgill (south of 40°10), blue rockfish (CA), spiny dogfish	Section 2.2-2.4, 4.2-4.4, Appendices C and D
4. Adopt Preliminary Preferred Season Structures	
4a. IFQ --Trawl RCAs configurations	Section 2.4, 4.2-4.4, Appendix C
4b. Non-Nearshore --Non-trawl RCA seaward configurations	Section 2.4, 4.2-4.4, Appendix C
4c. Nearshore --Non-trawl RCA shoreward configurations	Section 2.4, 4.2-4.4, Appendix C
4d. Washington Recreational --Season dates --Bag limits --Area closures	Section 2.4, 4.2-4.4, Appendix C
4e. Oregon Recreational --Season dates --Bag limits	Section 2.4, 4.2-4.4, Appendix C

Anticipated Actions	Preliminary DEIS Section a/
--Area closures	
4f. California Recreational --Season dates --Bag limits --Area closures	Section 2.4, 4.2-4.4, Appendix C
5. Adopt Preliminary Preferred Management Measures	
5a. RCA boundary modifications --Washington and Oregon 150 and 200 fm lines --Oregon 200 fm lines --California Usal and Noyo Canyons 150 fm line	Section 2.2-2.4, 4.2-4.4, Appendix D
5b. Sorting requirements for aurora (north 40°10), shortraker (north 40°10), rougheye (north 40°10), blackgill (south of 40°10)	Section 2.2-2.4, 4.2-4.4, Appendix D
5c. Catch accounting between limited entry and open access	Section 2.2-2.4, 4.2-4.4, Appendix D
5d. Remove or reduce to 20 inches the lingcod minimum length limit in the shorebased IFQ fisheries (all legal gears)	Section 2.2-2.4, 4.2-4.4, Appendix D
5e. Modifications to the shorebased IFQ accumulation limits	Section 2.2-2.4, 4.2-4.4, Appendix D
5f. Modifications to the shorebased IFQ surplus carry-over	Section 2.2-2.4, 4.2-4.4, Appendix D
5g. Regulatory correction for moving between the sablefish primary fishery to the daily trip limit fishery	Section 2.2-2.4, 4.2-4.4, Appendix D
5h. Proposed changes to sablefish limited entry and open access bi-monthly cumulative landing limits	Section 2.2-2.4, 4.2-4.4, Appendix D
5i. Modifications to blackgill rockfish (south of 40°10 N. latitude) bi-monthly cumulative landing limits for limited entry and open access fixed gear	Section 2.2-2.4, 4.2-4.4, Appendix D
5j. Modifications to longnose skate bi-monthly cumulative landing limits and RCAs	Section 2.2-2.4, 4.2-4.4, Appendix D
5k. Modifications to spiny dogfish bi-monthly cumulative landing limits and RCAs	Supplemental Attachment 6
5l. Recreational shelf rockfish retention in the CCA	Section 2.2-2.4, 4.2-4.4, Appendix D
5m. Remove the California recreational bocaccio size limit	Section 2.2-2.4, 4.2-4.4, Appendix D
5o. Increase the California recreational bocaccio bag limit	Section 2.2-2.4, 4.2-4.4, Appendix D
5p. Increase the California recreational greenling bag limit	Section 2.2-2.4, 4.2-4.4, Appendix D

Table 1. Preferred 2013 and 2014 overfishing limits (OFLs in mt) and acceptable biological catches (ABCs in mt) and preliminary preferred 2013 and 2014 annual catch limits (ACLs in mt) for west coast groundfish stocks and stock complexes (stocks with new assessments in bold; PPA = preliminary preferred alternative).

Stock	2013 OFL	2014 OFL	2013 ABC	2014 ABC	2012 ACL	PPA ACLs		2013-14 ACL Range for Analysis a/
						2013	2014	Alt. a
OVERFISHED STOCKS								
BOCACCIO S. of 40⁰10’	**884**	**881**	**845**	**842**	274	**320**	**337**	
CANARY	**752**	**741**	**719**	**709**	107	**116**	**119**	see Att. 3
COWCOD S. of 40⁰10’	11	12	9	9	3	3	3	
DARKBLOTCHED	**541**	**553**	**517**	**529**	296	**317**	**330**	
PACIFIC OCEAN PERCH	**844**	**838**	**807**	**801**	183	**150**	**153**	see Att. 3
PETRALE SOLE	**2,711**	**2,774**	**2,592**	**2,652**	1,160	**2,592**	**2,652**	
YELLOWEYE	**51**	**51**	**43**	**43**	17	**18**	**18**	
NON-OVERFISHED STOCKS								
Arrowtooth Flounder	7,391	6,912	6,157	5,758	12,049	6,157	5,758	
Black Rockfish (OR-CA)	1,159	1,166	1,108	1,115	1,000	1,000	1,000	
Black Rockfish (WA)	430	428	411	409	415	411	409	
Cabezon (CA)	170	165	163	158	168	163	158	
Cabezon (OR)	49	49	47	47	48	47	47	
California scorpionfish	126	122	120	117	126	120	117	
Chilipepper S. of 40⁰10’	1,768	1,722	1,690	1,647	1,789	1,690	1,647	
Dover Sole	**92,955**	**77,774**	**88,865**	**74,352**	25,000	**25,000**	**25,000**	
English Sole	7,129	5,906	6,815	5,646	10,151	6,815	5,646	
Lingcod N. of 42º (OR & WA) a/	2,102	1,984	2,010	1,897	2,151	2,010	1,897	
Lingcod S. of 42º (CA) a/	2,566	2,454	2,137	2,044	2,164	2,137	2,044	
Lingcod N. of 40º10' a/	3,334	3,162	3,187	3,023	NA	3,187	3,023	
Lingcod S. of 40º10' a/	1,334	1,276	1,111	1,063	NA	1,111	1,063	
Longnose skate	2,902	2,816	2,774	2,692	1,349	2,000	2,000	

Stock	2013 OFL	2014 OFL	2013 ABC	2014 ABC	2012 ACL	PPA ACLs		2013-14 ACL Range for Analysis a/
						2013	2014	Alt. a
Longspine Thornyhead (coastwide)	3,391	3,304	2,825	2,752	NA	NA	NA	
Longspine Thornyhead N. of 34°27'	NA	NA	NA	NA	2,064	2,009	1,958	
Longspine Thornyhead S. of 34°27'	NA	NA	NA	NA	366	356	347	
Pacific Cod	3,200	3,200	2,221	2,221	1,600	1,600	1,600	
Sablefish (coastwide)	**6,621**	**7,158**	**6,045**	**6,535**	NA	**NA**	**NA**	
Sablefish N. of 36°	**NA**	**NA**	**NA**	**NA**	5,347	**4,012**	**4,349**	
Sablefish S. of 36°	**NA**	**NA**	**NA**	**NA**	1,298	**1,439**	**1,560**	
Shortbelly	6,950	6,950	5,789	5,789	50	50	50	
Shortspine Thornyhead (coastwide)	2,333	2,310	2,230	2,208	NA	NA	NA	
Shortspine Thornyhead N. of 34°27'	NA	NA	NA	NA	1,556	1,540	1,525	
Shortspine Thornyhead S. of 34°27'	NA	NA	NA	NA	401	397	393	
Splitnose S. of 40°10’	1,684	1,747	1,610	1,670	1,538	1,610	1,670	
Starry Flounder	1,825	1,834	1,520	1,528	1,360	1,520	1,528	
Widow	**4,841**	**4435**	**4,598**	**4,212**	600	**1,500**	**1,500**	**2,500**
Yellowtail N. of 40°10’	4,579	4,584	4,378	4,382	4,371	4,378	4,382	
STOCK COMPLEXES								
Minor Nearshore Rockfish North	110	110	94	94	99	94	94	
Minor Shelf Rockfish North	2,183	2,195	1,920	1,932	968	968	968	
Minor Slope Rockfish North	1,518	1,553	1,381	1,414	1,160	1,160	1,160	
Minor Nearshore Rockfish South	1,164	1,160	1,005	1,001	990	990	990	
Minor Shelf Rockfish South	1,910	1,913	1,617	1,620	714	714	714	
Minor Slope Rockfish South	681	685	618	622	626	618	622	
Other Flatfish	10,060	10,060	6,982	6,982	4,884	4,884	4,884	
Other Fish b/	6,832	6,802	4,717	4,697	5,575	4,717	4,697	

a/ The Council requested analysis of shifting the lingcod management line from the OR-CA border at 42° N. latitude to 40°10’ N. latitude. An analysis using swept area biomass estimates of lingcod derived from the NWFSC trawl survey indicates 48% of the biomass south of 42° N. latitude occurs north of 40°10' N. latitude. The 40°10' N. latitude management line for lingcod is the Council preferred alternative for lingcod specifications to be analyzed in the DEIS.

b/ Values for these specifications are the sum of known contributions of component stocks.

Table 2. Estimated time to rebuild and spawning potential ratio (SPR) harvest rate relative to alternative 2013-2014 ACLs for overfished west coast groundfish stocks (alphabetic alternatives are those that were decided for detailed analysis in the DEIS; PPA = preliminary preferred alternative).

Stock	Current Ttarget	Current SPR or Harvest Control Rule	PPA Ttarget	ACL Alt.	ACLs (mt) 2013	ACLs (mt) 2014	SPR or Harvest Control Rule	Median Time to Rebuild	Rebuilding Duration Beyond T@F=0 (yrs.)	Prob. of Rebuilding by Ttarget	Prob. of Rebuilding by Tmax
Bocaccio S of 40°10' N lat. a/	2022	77.7%	2022		0	0	100%	2019	0	88.0%	99.0%
					133	143	90.0%	2019	0	77.0%	97.0%
					248	263	82.3%	2020	1	NA	NA
				a, PPA	320	337	77.7%	2021	2	60.0%	90.0%
					453	471	70.0%	2023	4	49.0%	70.0%
					691	705	60.0%	2027	8	33.0%	63.0%
					837	843	53.9%	2031	12	23.0%	51.0%
Canary	2027	88.7%	2030	a	0	0	100%	2028	0	48.2%	75.0%
				b	48	49	95.1%	2028	0	41.2%	75.0%
				c	101	104	90.0%	2029	1	36.4%	75.0%
				d, PPA	116	119	88.7%	2030	2	34.4%	75.0%
				e	147	151	85.9%	2030	2	31.7%	75.0%
					184	187	82.9%	2031	3	29.9%	75.0%
				f	216	220	80.3%	2032	4	27.9%	74.9%
					302	306	74.0%	2035	7	26.1%	73.6%
					394	397	67.9%	2040	12	25.1%	66.3%
					449	451	64.7%	2045	17	25.0%	59.4%
					752	753	62.2%	2050	22	25.0%	50.0%
Cowcod b/	2068	82.7%	2068		0	0	100%	2060	0	NA	78.4%
					2	2	90.0%	2064	4	NA	72.4%
				a, PPA	3	3	82.7%	2068	8	50.0%	66.2%
					4	4	79.0%	2071	11	NA	66.2%
					5	5	74.2%	2074	14	NA	66.2%
					9	9	59.7%	2097	37	NA	53.3%

Stock	Current Ttarget	Current SPR or Harvest Control Rule	PPA Ttarget	ACL Alt.	ACLs (mt)		SPR or Harvest Control Rule	Median Time to Rebuild	Rebuilding Duration Beyond T@F=0 (yrs.)	Prob. of Rebuilding by Ttarget	Prob. of Rebuilding by Tmax
					2013	2014					
Darkblotched	2025	64.9%	2025		0	0	100%	2016	0	100.0%	100.0%
				a, PPA	317	330	64.9%	2017	1	100.0%	100.0%
					347	360	62.6%	2017	1	100.0%	100.0%
					353	366	62.1%	2018	2	100.0%	100.0%
					372	385	60.7%	2018	2	100.0%	100.0%
					423	437	57.1%	2018	2	100.0%	100.0%
					488	501	53.0%	2020	4	72.8%	91.0%
					553	565	49.0%	2025	9	NA	NA
					676	685	43.0%	2037	21	NA	50.0%
POP	2020	86.4%	2051	a	0	0	100%	2043	0	25.0%	85.5%
					16	17	98.4%	2043	0	25.0%	84.0%
					35	36	96.5%	2044	1	25.0%	83.0%
					58	60	94.3%	2045	2	25.0%	81.0%
				b	74	76	92.9%	2046	3	25.0%	79.0%
					89	91	91.6%	2047	4	25.0%	78.0%
					106	108	90.1%	2048	5	25.0%	77.0%
					122	124	88.8%	2049	6	25.0%	76.0%
					131	134	88.0%	2050	7	25.0%	75.0%
					136	139	87.6%	2050	7	25.0%	75.0%
				c, PPA	150	153	86.4%	2051	8	25.0%	73.0%
					158	161	85.8%	2052	9	25.0%	72.6%
					163	167	85.4%	2052	9	25.0%	72.0%
					175	178	84.5%	2053	10	25.0%	71.0%
					182	186	83.9%	2054	11	25.0%	70.1%
					199	203	82.6%	2055	12	25.0%	68.0%
					209	213	81.9%	2056	13	25.0%	NA
				d	222	226	80.9%	2057	14	25.0%	NA
				e	247	251	79.2%	2060	17	25.0%	62.0%
					291	295	76.2%	2065	22	25.0%	55.8%
					328	333	73.8%	2071	28	25.0%	50.0%
Petrale	2016	25-5 Rule	2016		0	0	100%	2013	0	100.0%	100.0%
					867	1,008	60%	2013	0	100.0%	100.0%
					1,265	1,432	50%	2013	0	100.0%	100.0%
					1,831	1,994	40%	2013	0	100.0%	100.0%
				a, PPA	2,592	2,652	25-5 Rule (=ABC @ 28% depletion in 2013)	2013	0	100.0%	100.0%

Stock	Current Ttarget	Current SPR or Harvest Control Rule	PPA Ttarget	ACL Alt.	ACLs (mt)		SPR or Harvest Control Rule	Median Time to Rebuild	Rebuilding Duration Beyond T@F=0 (yrs.)	Prob. of Rebuilding by Ttarget	Prob. of Rebuilding by Tmax
					2013	2014					
Yelloweye	2074	76.0%	2074		0	0	100%	2045	0	99.2%	99.9%
					9	9	86.4%	2053	8	85.3%	93.7%
					14	14	80.5%	2060	15	75.1%	82.8%
					15	15	79.5%	2061	16	73.2%	81.0%
					17	18	76.5%	2066	21	64.1%	73.9%
				a, PPA	18	18	76.0%	2067	22	62.1%	72.9%
					21	21	72.7%	2074	29	50.0%	61.3%
					24	25	69.7%	2083	38	37.2%	50.0%

a/ All bocaccio alternatives have been reduced from the rebuilding analysis results by 6% to represent the portion of the stock south of 40°10' N lat.

b/ All cowcod alternatives have been doubled from the rebuilding analysis to account for the Monterey contribution.

SUMMARY OF THE MANAGEMENT MEASURE ANALYSIS

At its September and November 2011 meetings, the Council adopted a range of management measures for the 2013-2014 groundfish fisheries, which were analyzed in Appendix D and incorporated into the preliminary draft Environmental Impact Statement (Current Briefing Book on the Council's website and CD only). This document, created by the Groundfish Management Team (GMT) and Council staff, provides an overview and references to Appendix D where the detailed analysis can be found. The management measures listed below are displayed in the same order as the anticipated Council actions outlined in Agenda Item I.3.a, Attachment 1.

Widow Rockfish Within Trawl Allocations (D.4)

Widow rockfish is formally allocated in the groundfish Fishery Management Plan (FMP) with 91 percent of the fishery harvest guideline (HG) [1] allocated to the trawl sector. Within the trawl sector, the allocation is further divided between the Pacific whiting sectors (shoreside, catcher-processors, and motherships) and the non-whiting trawl sector. The current sector allocation in the FMP specifies that 52 percent of the trawl allocation of widow rockfish is allocated to the trawl whiting sectors. Of that amount, widow yield is allocated to the whiting sectors according to the pro-rata allocation of whiting (42 percent to shoreside whiting, 34 percent to catcher-processors, and 24 percent to motherships). The shoreside whiting and non-whiting trawl widow allocations are then combined to form the shorebased trawl allocation.

For the 2013-2014 cycle, the Council requested an analysis of three widow rockfish annual catch limits (ACLs) – 600 mt (No Action), 1,500 mt (preferred), and 2,500 mt (Table 1). Additionally, the Council is contemplating a change to the within trawl sector widow rockfish allocation to provide more widow to the shorebased sector to allow greater opportunity to target widow and yellowtail rockfish. In addition to the No Action overfished allocation specified in the FMP, five alternative allocation options are considered under the widow rockfish range of ACLs (Table 1). Under the options, the allocation provided to the at-sea sectors is further divided using the same apportionment used to allocate Pacific whiting (i.e., 41.4 percent to motherships and 58.6 percent to catcher-processors). The remainder of the widow trawl

[1] Deductions from most groundfish ACLs are made to account for groundfish mortality in the Pacific Coast treaty Indian tribal fisheries, scientific research, non-groundfish target fisheries (hereinafter incidental open access fisheries), and, as necessary, EFPs. The resulting value that is allocated to groundfish fishing sectors is called the fishery HG.

allocation is provided to the shorebased sector (non-whiting and whiting shoreside sectors combined).

Under the Option 1 allocation scheme, the at-sea widow allocation is 290.0 mt under the range of widow rockfish ACLs, while the shorebased sector allocation ranges from 180.6 to 1,909.6 mt (Table 1). Under option 2 the at-sea allocation is 147.9 mt (the 2012 allocation specified in regulation) under all widow rockfish ACL alternatives, while the shorebased sector ranges from 322.7 to 2,051.7 mt. Widow allocation options 3-5 would allocate 200, 250, and 300 mt of widow to the at-sea sectors. The shorebased allocation ranges from 170.6 mt (600 mt, option 4) to 1,999.6 mt (2,500 mt, option 3).

The needs of the shorebased trawl sector would best be met by allocating as much of the trawl allocation of widow rockfish as possible since a healthy widow rockfish stock is a valuable target for that sector. The needs of the at-sea sectors would best be met by allocating enough widow rockfish to prevent impeding the ability of these sectors to target Pacific whiting. Widow rockfish is bycatch in the at-sea whiting fisheries, but the amount of widow rockfish allocated to the at-sea sectors has the potential to limit their ability to attain whiting allocations. Exceeding the widow allocation would result in fishery closure, even if the sector had not attained their whiting allocation. The analysis of sector needs for widow therefore compares the recent historical catches and catch rates of widow with respect to whiting by the at-sea sectors to understand whether the widow allocation options meet the needs of the at-sea sectors (Table 2).

Given the widow rockfish ACL alternatives analyzed for 2013-2014 and the finding that the widow rockfish stock is successfully rebuilt, the FMP allocation to whiting sectors is 500 mt, of which 290 mt is allocated to the at-sea sectors, which is close to the maximum allocation of 300 mt analyzed (Table 2). The range of at-sea whiting sector allocation options of 147.9 mt to 300 mt results in a range of widow allocations to catcher-processors of 86.7-175.9 mt and to motherships of 61.2-124.1 mt (Table 1). Recent bycatch of widow rockfish has ranged from 1-73 mt in the catcher-processor sector and from 13-73 mt in the mothership sector (Table 2). Table 3 depicts the projected sector whiting catch for the at-sea sectors under each of the widow allocation options assuming the recent year average and maximum widow bycatch rates observed in the fishery. The two options with lowest widow allocations to the at-sea sectors (options 2 and 3) have the potential of limiting access to whiting in the mothership sector assuming the average. In the last three years, both sectors have been able to attain their respective whiting allocations by avoiding widow rockfish. The at-sea sectors, especially the catcher-processor sector, have concentrated their fishing efforts later in the year when bycatch rates are reduced. If this pattern continues, the sectors may be able to access significantly larger allocations of whiting with lower widow allocations.

Table 1. Trawl sector allocations, including No Action and five options, for widow rockfish under a range of widow ACLs (mt).

ACL Alt.	Fishery HG a/	Trawl Alloc.	Widow Alloc. Option	SS Trawl Alloc. b/	At-sea Trawl Alloc.	MS Alloc.	CP Alloc.
600	513.4	467.2	No Action c/	326.3	140.9	58.3	82.6
			Option 1 d/	177.2	290.0	120.0	170.0
			Option 2	319.3	147.9	61.2	86.7
			Option 3	267.2	200.0	82.8	117.2
			Option 4	217.2	250.0	103.4	146.6
			Option 5	167.2	300.0	124.1	175.9
1,500	1,413.4	1,286.2	No Action c/	898.3	387.9	160.5	227.4
			Option 1 d/	996.2	290.0	120.0	170.0
			Option 2	1,138.3	147.9	61.2	86.7
			Option 3	1,086.2	200.0	82.8	117.2
			Option 4	1,036.2	250.0	103.4	146.6
			Option 5	986.2	300.0	124.1	175.9
2,500	2,413.4	2,196.2	No Action c/	1,533.8	662.4	274.1	388.3
			Option 1 d/	1,906.2	290.0	120.0	170.0
			Option 2	2,048.3	147.9	61.2	86.7
			Option 3	1,996.2	200.0	82.8	117.2
			Option 4	1,946.2	250.0	103.4	146.6
			Option 5	1,896.2	300.0	124.1	175.9

a/ The ACL is reduced by 86.6 mt to accommodate groundfish mortality in the tribal fisheries (60 mt), non-groundfish fisheries (3.3 mt), research (5.3 mt), and EFPs (18 mt). The resulting value is the fishery HG.

b/ The shorebased individual fishing quota (IFQ) sector includes vessels that target whiting and non-whiting.

c/ The No Action option is the initial FMP allocation formula that assumes the stock is overfished, which is the sector allocation currently in Federal regulations.

d/ Option 1 applies the FMP allocation assuming the stock is rebuilt.

Table 2. Bycatch of widow rockfish by non-tribal whiting trawl sectors, 2005-2011.

Year	Sector								
	Shoreside a/			Catcher-processors			Motherships		
	Widow Catch (mt)	Whiting Catch (mt)	Widow Catch Rate (Widow/Whiting)	Widow Catch (mt)	Whiting Catch (mt)	Widow Catch Rate (Widow/Whiting)	Widow Catch (mt)	Whiting Catch (mt)	Widow Catch Rate (Widow/Whiting)
2011	123.84	90,988	0.001361010	24.41	71,679	0.000340584	12.85	50,051	0.000256646
2010	54.97	62,319	0.000882075	5.01	54,285	9.22907E-05	34.02	35,714	0.000952568
2009	108.64	40,801	0.002662680	0.96	34,620	2.77296E-05	24.90	24,091	0.001033581
2008	99.09	50,423	0.001965175	52.37	108,121	0.000484365	60.75	57,432	0.001057773
2007	88.97	73,280	0.001214110	72.77	73,263	0.000993271	72.99	47,809	0.001526700
2006	49.38	97,297	0.000507518	67.00	78,864	0.000849564	71.80	55,355	0.001297082
2005	77.15	97,381	0.000792249	43.14	78,890	0.000546837	35.50	48,571	0.000730889
05-11 avg	86.01	73,213	0.001340688	37.95	71,389	0.000476377	44.69	45,575	0.000979320
05-11 max	123.84	97,381	0.002662680	72.77	108,121	0.000993271	72.99	57,432	0.001526700
05-11 min (year)	49.38	40,801	0.000507518 (2006)	0.96	34,620	0.000027730 (2009)	12.85	24,091	0.000256646 (2011)

a/ Beginning in 2011 the shoreside whiting and non-whiting sectors were combined into a single sector and managed with IFQs. For this table, the 2011 data were analyzed at the trip level to determine trips that targeted whiting vs. those that targeted other groundfish species. The 2011 catch data presented in the table are the sum of catches from all whiting target trips to make these data comparable with previous years.

Table 3. Projected potential whiting catch at the average and maximum widow bycatch rates for whiting sectors during 2005-2011. Highlighted cells show projected potential whiting catch levels that are below the "Highest plus 50%" whiting HG, indicating a potential widow rockfish bycatch constraint under that scenario.

Widow ACL Alt.	Widow Alloc. Option	Projected potential whiting catch (mt) at the average widow bycatch rate			Projected potential whiting catch (mt) at the highest widow bycatch rate		
		Shorebased a/	MS	CP	Shorebased a/	MS	CP
600	Option 1	184,374	122,534	356,860	118,269	78,601	171,152
	Option 2	329,475	62,492	181,999	211,345	40,086	87,287
	Option 3	276,274	84,506	246,110	177,219	54,208	118,036
	Option 4	225,219	105,633	307,638	144,469	67,759	147,545
	Option 5	174,163	126,759	369,166	111,719	81,311	177,053
1,500	Option 1	1,020,669	122,534	356,860	654,720	78,601	171,152
	Option 2	1,165,769	62,492	181,999	747,797	40,086	87,287
	Option 3	1,112,569	84,506	246,110	713,671	54,208	118,036
	Option 4	1,061,513	105,633	307,638	680,920	67,759	147,545
	Option 5	1,010,458	126,759	369,166	648,170	81,311	177,053
2,500	Option 1	1,949,885	122,534	356,860	1,250,777	78,601	171,152
	Option 2	2,094,986	62,492	181,999	1,343,853	40,086	87,287
	Option 3	2,041,786	84,506	246,110	1,309,728	54,208	118,036
	Option 4	1,990,730	105,633	307,638	1,276,977	67,759	147,545
	Option 5	1,939,674	126,759	369,166	1,244,227	81,311	177,053

a/ The shorebased IFQ sector includes vessels that target whiting and non-whiting; however the rates in this table refer only to the those vessels targeting whiting.

Modifications to the Boundaries Defining the Rockfish Conservation Areas (D.1)
Rockfish conservation areas (RCAs) are large area closures intended to protect a complex of species, such as the overfished shelf rockfish species. The boundaries for RCAs are defined by straight lines connecting a series of latitude and longitude coordinates that approximate depth contours. A set of coordinates are defined for each depth contour and the RCA structures are implemented by gear and/or fishery (e.g., trawl RCA, a non-trawl RCA, and a recreational RCAs). For the 2013-2014 cycle, changes to selected coordinates are proposed that more closely approximate the boundaries with depth contours based on the best available data (Table 4). The recommended coordinates, figures, and analysis can be found in Appendix D, Section D.1. These modifications should provide improved and more efficient access to target species while minimizing interactions with overfished species.

Table 4. Summary of boundary adjustments proposed for 2013-2014 and included in the analysis of the integrated alternatives.

Area	**Proposed Modifications**
Washington and Oregon	200 fm and 150 lines
Oregon	200 fm lines
California – Usal and Noyo Canyons	150 fm lines

Rockfish Sorting Requirements (D.2)
The Council will consider whether to require the sorting of aurora, rougheye, and shortraker rockfishes prior to the first weighing after offloading in the area north of 40°10 N. latitude. Current regulations only require landings of these stocks to be reported at the stock complex level. All three are currently managed within the minor slope rockfish north complex. The Council may identify a preliminary preferred option and request further analysis to inform its final recommendation in June.

The intended purpose of such a sorting designation is to improve the accuracy and timeliness of landings information. Preliminary estimates indicate that catch of these three stocks may be too high. These estimates are based on sampling data collected by the states, for landings, and by the West Coast Groundfish Observer Program, for at sea discards. A sorting designation is intended to reduce the uncertainty inherent in the current statistical estimates by replacing the current sampling methods with a complete census of landings. A sorting designation does not directly affect the monitoring of fish discarded at sea.

There is uncertainty in how effective the sorting designation would be. Proper species identification of slope rockfish can be challenging. The chance of species misidentification and improper sorting raise the risk that the sorting designation could result in inaccurate reporting of landings of these stocks. The current system relies on expert biologists for species identification. The risk posed by species misidentification by fishing vessels and first receivers is mitigated to some degree by the 100 percent observer coverage and presence of catch monitors at all offloads in the shorebased individual fishing quota (IFQ) fishery, where the majority of catch occurs for these species. Observers and catch monitors could aid vessels and first receivers with proper species identification.

At this meeting, the GMT is expected to further discuss and inform the Council on this tradeoff between the sampling uncertainty involved with the current catch accounting system and the risk posed by species misidentification. Other factors for the Council to consider include the impact that sorting may have on the operations of fishing vessels and first receivers, as well as the potential impacts to the state sampling and landings tracking systems. The GMT will also further discuss and advise the Council on how inseason catch monitoring of aurora, shortraker, and rougheye could be improved without a sorting designation.

Lastly, the analysis highlights the fact that the sorting designation does not alter the available management measures for controlling catch of aurora, rougheye, and shortraker. The Council's options for reducing catch of individual stocks managed in stock complexes are limited in the IFQ fishery. A seaward expansion of the RCA is the most likely option for reducing encounters with aurora, rougheye, and shortraker. RCA changes would be the best option for management. The GMT will provide additional guidance to the Council in a supplemental report. It is not clear at this time whether management measures for aurora, rougheye, and shortraker are needed.

Catch Accounting between Limited Entry and Open Access (D.3)

This proposed FMP amendment reinstates a provision that was inadvertently deleted when Amendment 21 was implemented, and clarifies the application of that provision with respect to catch accounting for set-asides. The provision that was inadvertently deleted specified the decision rules for determining the allocation against which a vessel's catch would count, i.e., whether it would count against the limited entry allocation or the open access allocation. As it was specified, the provision also set up the situation in which catch might be deducted from both the ACL before sector allocations are made and deducted from an open access or limited entry sector allocation. In this regard, this amendment would add a clarification to eliminate the possibility of a duplicate deduction.

Remove or Modify the Lingcod Minimum Length Limit in the IFQ Fisheries (D.7)

Lingcod length limits have been in place since the late 1990's and were implemented to minimize harvest of immature fish while maintaining the reproductive potential of the stock. Current commercial length limits vary north and south of 42° N. latitude, and are 22 inches and 24 inches, respectively. In 2011, the limited entry trawl fishery was rationalized with total catch IFQ issued for many species, including lingcod. Since the IFQ program monitors total catch, the existing length limit induces regulatory discards for some fish that may be marketable. Lingcod discarded in the trawl fishery are assumed to have a 50 percent survival rate. The purpose of the proposed management measures would be to remove the lingcod length limit or reduce it to 20 inches coastwide while still maintaining the reproductive potential of the stock.

The biological impacts of reducing the trawl minimum size limit are negligible. Lingcod are a productive stock and estimated abundance is high coastwide. Projected biomass and depletion in the 2009 assessment are high and above target levels at higher catches than realized recently on the west coast. The RCAs and other management strategies implemented to reduce mortality have effectively reduced lingcod mortality; the 2007-2010 catches averaged slightly over 10 percent of specified optimal yields. The 2011 trawl IFQ fishery attained only 15 percent of the sector quota, which includes all discarded lingcod of which 50 percent are assumed to survive. Relative survival rates of discarded lingcod may be even greater under the IFQ program since tow duration is shorter allowing quicker catch sorting and discarding.

There is likely no discernible difference in catches between the alternative 20 inch size limit and removing the size limit altogether. While lingcod smaller than 24 inches are marketable, lingcod less than 20 inches are not. The processors will establish market limits of the size of lingcod they are willing to buy. While some processors may well impose a market limit greater than 20 inches, it is unlikely lingcod less than 20 inches in length will be accepted at buying stations if the minimum size limit was removed. Trawl fishermen will not retain unmarketable lingcod since hold space is reserved for fish that have value.

Shorebased IFQ Accumulation Limits (D.5)

The maximum number of quota shares (QSs) and quota pounds (QPs) an entity may control in the shorebased IFQ fishery is limited by accumulation limits (defined in regulation at 50 CFR 660.111). These limits vary according to the management unit for the stock or stock complex and are intended to restrict the consolidation of quota holdings by just a few entities. The QS limits restrict the amount an individual or entity may control through ownership or other means. The annual QP limits refer to the maximum amount that may be assigned to any one vessel during a given year to cover catch. The annual QP vessel limits are larger than control limits to allow several QS holders to work together on a single vessel. Additionally, there are daily vessel limits that regulate the unused QP in vessel accounts for Pacific halibut and overfished species. Performance of the accumulation limits have been evaluated based on fishery performance in 2011 and revisions to the harvest specifications are proposed for 2013-2014.

Aggregate nonwhiting quota share

Based on information gathered in June 2009, the 167 LE trawl permits that received initial quota share allocations in December 2010 under the trawl rationalization program are thought to be owned or controlled by a total of 114 identified business entities. Applying the species-quota weighting factors in the FMP, two of those entities may have received initial quota share allocations in excess of the aggregate nonwhiting species accumulation limit of 2.7%. If adjustments are made to the species weighting factors based on the 2013 and 2014 preliminary preferred ACLs (and shoreside trawl allocations) for quota share species, these same two entities plus one additional entity (i.e., total of 3) may control quota share amounts that exceed the aggregate nonwhiting species accumulation limit of 2.7%.

Lingcod quota pounds

Splitting the formerly coastwide quota for lingcod into two portions restricted to use north and south of 40°10' N. latitude, respectively, may introduce unintended constraints on certain participants. The vessel use limit for lingcod of 3.8% of coastwide lingcod quota translated into 70.8 mt of lingcod based on the 2011 lingcod ACL. Splitting the coastwide lingcod quota in two and applying the 2013 lingcod ACL means that participating vessels will be limited to 46.6 mt of lingcod north of 40°10' N. latitude and 18.8 mt south of 40°10' N. latitude. Since rather than fish extensively coastwide most vessels tend to concentrate activities in a particular geographic area, this split may limit some participants or force them to acquire additional lingcod quota in one area or the other. Also vessels needing to acquire additional lingcod quota pounds to cover their bycatch may experience more difficulty in finding the required amounts of available area-specific lingcod quota in the relatively smaller markets.

Shorebased IFQ Carry-Over (D.6)

Current regulations provide for a carry-over provision that allows a limited amount of surplus QP or individual bycatch quota (IBQ) pounds in a vessel account to be carried over from one year to the next or allows a deficit in a vessel account in one year to be covered with QP or IBQ pounds from a subsequent year, up to a carryover limit (50 CFR 660.140(e)(5)). The carry-over provision is anticipated to increase individual flexibility for harvesters, improve economic efficiency, and achieve optimum yield while preserving the conservation of stocks. The proposed action seeks to clarify regulations with regard to current accountability measures, which include modifications (reductions or suspension) to the eligible surplus carry-over percentages, in the event it is necessary to address Magnusson-Stevens Fisheries Conservation and Management Act conservation requirements. The proposed alternative seeks to implement such accountability measures through routine inseason actions based on recommendations generated at a Council meeting. Lastly, the current list of automatic actions that may be implemented by the National Marine Fisheries Service would be revised to include closing the non-whiting shorebased IFQ fisheries, in addition to the IFQ shorebased whiting fishery (see regulations at 660.60 (d)).

Regulatory fix: Threshold for Switching from the Primary Sablefish Fishery to the Daily Trip Limit Fishery (D.11)

The purpose of the proposed action is to remedy unforeseen complications to the limited entry fixed gear sablefish primary fishery north of 36° N. lat., which resulted from the 2009 elimination of the daily trip limit in the sablefish daily trip limit (DTL) fishery in this area at the request of the Groundfish Advisory Subpanel, and following analysis by the GMT. Elimination of the daily limit inadvertently impacted the amount of sablefish that primary fishery participants are allowed land, as they conclude fishing on their tier limits.

Two simple potential solutions exist, which could be implemented as a result of these 2013-14 harvest specifications and management measures analysis. One would be to simply insert the following text into the regulations at 50 CFR 660.232:

> *"in the absence of a daily limit, 300 pounds would serve as a proxy for the daily limit, only acting as the threshold to facilitate the transition of a vessel from participation in the sablefish primary fishery, to the sablefish DTL fishery",*

We propose that 300 pounds should be this amount, as it was the most common daily trip limit in this fishery over the past seven years, and would give maximum access of a fisher to their tier pounds.

Alternatively, the threshold for transitioning from the sablefish primary fishery to the DTL fishery could be permanently set to 300 pounds, regardless of what the daily limit in the DTL fishery north of 36° N. lat. might be, whether or not a daily limit was in place.

Limited Entry and Open Access Fixed Gear Sablefish DTL Fishery (D.10)
Proposed bi-monthly cumulative landing limits (hereinafter trip limits) for the limited entry and open access sablefish DTL fixed gear fisheries north and south of 36° N. latitude were produced to keep landings within the respective HGs (Table 5 and Table 6). The projected landings under the proposed trip limits are approximately 91 percent of the HG for each fishery to allow sufficient buffer for uncertainty surrounding model projections.

Table 5. 2013 Limited entry and open access DTL limits for all alternatives other than No Action.

<table>
<tr><th>Area</th><th>Fishery</th><th>Jan-Feb</th><th>Mar-Apr</th><th>May-Jun</th><th>July-Aug</th><th>Sept-Oct</th><th>Nov-Dec</th></tr>
<tr><td rowspan="2">North of 36° N. lat. (U.S./Canada Border to 36° N. lat.)</td><td>LE N.</td><td colspan="6">1,100 lb. per week, not to exceed 4,200 lb. per 2 mo.</td></tr>
<tr><td>OA N.</td><td colspan="6">300 lb. per day, or 1 landing per week of up to 610 lb., not to exceed 1,220 lb. per 2 mo.</td></tr>
<tr><td rowspan="2">South of 36° N. lat.</td><td>LE S.</td><td colspan="6">1,880 lb. per week</td></tr>
<tr><td>OA S.</td><td colspan="6">300 lb. per day, or 1 landing per week of up to 1,460 lb., not to exceed 2,920 lb. per 2 mo.</td></tr>
</table>

Table 6. 2014 Limited entry and open access DTL limits for all alternatives other than No Action.

Area	Fishery	Jan-Feb	Mar-Apr	May-Jun	July-Aug	Sept-Oct	Nov-Dec
North of 36° N. lat. (U.S./Canada Border to 36° N. lat.)	LE N	1,100 lb. per week, not to exceed 4,400 lb. per 2 mo.					
	OA N	300 lb. per day, or 1 landing per week of up to 675 lb., not to exceed 1,350 lb. per 2 mo.					
South of 36° N. lat.	LE S	1,930 lb. per week					
	OA S	300 lb. per day, or 1 landing per week of up to 1,525 lb., not to exceed 3,050 lb. per 2 mo.					

Blackgill Rockfish South of 40°10 N. latitude (D.12)

A trip limit analysis was conducted to keep blackgill harvest south of 40°10' N latitude within the allowable harvest limits. The analysis examined the projected landings compared to No Action that are associated with continuing to manage blackgill rockfish within the slope rockfish complex south of 40°10' N latitude and applying a HG and removing it from the complex and applying a species specific ACL. In the IFQ fishery, the only management measures available to slow catches if managing to a HG would be modifying the RCAs or requesting voluntary avoidance by the fleet; whereas if an ACL was implemented, species specific quota pounds could be issued and total mortality would be limited by available quota pounds. In the non-trawl fleet, the management measures to reduce catches would be the same under both a HG and an ACL, mainly large trip limit reductions. Blackgill rockfish trip limits for the limited entry non-trawl fishery ranged from 1,200 lb/2 months to 1,375 lb/2 months; the open access fishery ranged from 410 lb/2 months to 480 lb/2 months.

Longnose Skate and *Spiny Dogfish Management Measures* (Supplemental Attachment 6)

Management measures to reduce the total mortality for longnose skate and dogfish shark were developed and included in the preliminary draft EIS, Appendix D. However, modifications to the analysis are necessary because assumed discard mortality rates for the two species were revised at the March Council meeting based on Science and Statistical Committee guidance. This analysis will therefore be provided in Supplemental Attachment 6.

Recreational Shelf Rockfish Retention in the Cowcod Conservation Area (D.8)

An analysis was conducted on the impacts associated with reducing bycatch in the recreational fishery by allowing retention of shelf rockfish inside the Cowcod Conservation Area (CCA). The analysis examined the projected mortality compared to No Action that are associated with allowing retention of shelf rockfish within the current depth and season constraints, aligning species retention and depth restriction regulations inside and outside the CCA, and prohibiting the retention of all federal groundfish anywhere within the CCAs. Allowing retention of shelf rockfish within the current depth and season constraints is not expected to increase mortality of overfished species compared to No Action. Some increase mortality of minor shelf rockfish is expected, but the risk of exceeding the recreational HG and the minor shelf rockfish ACL is low.

Remove the California Recreational Bocaccio Size Limit (D.9)

Eliminating the ten inch size limit on bocaccio is projected to increase bocaccio mortality by 0.2 mt, compared to the No Action Alternative. The total California recreational projected impact, including this management measures is 50.9 mt, which is within the 167.9 mt HG.[2] This size limit has not functioned as originally intended and has proven ineffective in reducing impacts on juvenile bocaccio. No additional impacts on other overfished species are expected.

Increase the California Recreational Bocaccio Bag Limit (D.15)

Increasing the statewide sub-bag limit from two to three fish within the ten fish rockfish, cabezon, and greenling complex bag is expected to increase bocaccio mortality by 5.8 mt, compared to the No Action Alternative. The total California recreational projected bocaccio mortality is 56.6 mt, which is within the 167.9 mt HG.[3] Increasing the bag limit is expected to reduce bocaccio bycatch and is not anticipated to result in increased catch of other overfished species.

Increase the Recreational Greenling Bag Limit in California (D.16)

Increasing the greenling sub-bag limit from 2 to 10 fish is projected to increase mortality by 0.8 mt, compared to the No Action Alternative. The total California recreational projected greenling mortality is 15.5 mt, which is within the greenling contribution to the Other Fish complex. Increasing the bag limit will provide conformance with state and federal regulations. Increasing the bag limit not anticipated to result in increased catch of overfished species.

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[2] The total California recreational projected mortality of bocaccio, including the increased bag limit (D.9) and removing the length limit (D.15) is 56.7 mt, which is within the 169.7 mt HG.

[3] The total California recreational projected mortality of bocaccio, including the increased bag limit (D.9) and removing the length limit (D.15) is 56.7 mt, which is within the 169.7 mt HG.

Agenda Item I.3.a
Attachment 5 (Briefing Book Website and CD Only)
April 2012

CHAPTER 2 ALTERNATIVES

This section describes the development of alternative actions that could be taken to set harvest specifications and management measures for the 2013 and 2014 Pacific Coast groundfish fishery. As in past cycles, the Council and NMFS will decide harvest specifications first for non-overfished species and then overfished species. Subsequent to that, management measures are decided that are predicted to keep total catch mortality within the annual catch limits (ACLs) decided for the 2013-2014 management cycle and provide opportunity to harvest healthy target species while rebuilding overfished species.

A holistic or integrated approach was taken in the development of alternatives in this EIS. Each alternative includes harvest specifications for all stocks managed under the Pacific Coast Groundfish FMP plus a suite of management measures that are intended to keep the total catch mortality of all groundfish stocks within the those specifications. The interrelated nature of the Pacific Coast groundfish stocks makes the consideration of integrated alternatives necessary. The degree of interaction between overfished species and other stocks is such that "rebuilding as quickly as possible while taking into account the needs of fishing communities" is not possible based solely on a species by species approach.

Sections 2.1 through 2.3 of this chapter provide background information and explanation for the development of the alternatives for this proposed action. Section 2.4 presents the seven alternatives under consideration during the decision-making process, which are analyzed in Chapter 4. The first step in constructing the integrated alternatives was to develop overfishing limits (OFLs) for all groundfish stocks and stock complexes using the best available scientific information. Section 2.1.1 of this chapter further describes the development of OFLs. The second step was the development of acceptable biological catches (ABCs) that incorporate scientific uncertainty buffers for all groundfish stocks and stock complexes and are based on Scientific and Statistical Committee (SSC) recommendations. Section 2.1.2 of this chapter describes the development of ABCs consistent with the FMP and SSC recommendations. ACLs for all overfished and non-overfished groundfish stocks and stock complexes were then developed based on the proposed ABCs. A single ACL consistent with the FMP was considered for each overfished and non-overfished species, with some exceptions. The ACLs proposed for overfished species are further described in section 2.1.3.1. The ACLs proposed for non-overfished species with species-specific specifications are further described in section 2.1.3.2 and non-overfished species with ACLs that are included within a complex of stocks are further described in section 2.1.3.3 of this Chapter. The OFLs and ABCs for all species and species complexes; and, the ACLs for non-overfished species and species complexes are the same in each integrated alternative.

The ACLs for two of the overfished species (i.e., canary rockfish and Pacific ocean perch) vary between the integrated alternatives, as do the management measures or accountability measures (AMs) necessary to constrain the catch of all species, including overfished species to the specified ACLs. Section 2.2 describes how the proposed ACLs would be allocated among the participants of the fishery. The allocations include those defined by the FMP as well as those recommended by the Council for the 2013-2014 biennial management period.

Section 2.3 describes the management measures considered in the development of the integrated alternatives. Section 2.4 describes the integrated alternatives including No Action, the Council's PPA, and other alternatives for canary rockfish and Pacific ocean perch, the two overfished species where a rebuilding plan amendment is considered. Each integrated alternative considers a suite of management measures that are designed to provide opportunities to harvest healthy target species within the constraints of ACLs for overfished species. Section 2.5 describes those alternative harvest specifications and management measures that were initially considered for analysis, but ultimately rejected from detailed analysis in this EIS.

2.1 Alternative Harvest Specifications

2.1.1 Overfishing Limits (OFLs)

The OFL is the maximum sustainable yield (MSY) harvest level associated with the current stock abundance and is the estimated or proxy MSY harvest level, which is the harvest threshold above which overfishing occurs. The methods for determining OFL are based on the best available science and the recommendation of the SSC; therefore, alternatives are not developed for this reference point.

Amendment 23, which was adopted in December 2010, revised the descriptions of species categories used in the development of harvest specifications. The first category (category 1) includes those species with relatively data-rich quantitative stock assessments that are developed on the basis of catch-at-age, catch-at-length, or other data. Recruitments are estimated for category 1 stocks. OFLs and overfished/rebuilding thresholds can generally be calculated for these species. The second category (category 2) includes species for which some biological indicators are available, including a relatively data-poor quantitative assessment or non-quantitative assessments. The third category (category 3) includes minor species which are caught and where the only available information is catch-based data. When setting the 2011 and 2012 OFLs for category 1 species, the F_{MSY} harvest rate or a proxy was applied to the estimated exploitable biomass. A policy of using a default harvest rate as a proxy for the fishing mortality rate that is expected to achieve MSY is also referred to as the F_{MSY} control rule or maximum fishing mortality threshold (MFMT) harvest rate. For category 2 species, OFLs are typically set at a constant level and monitoring is necessary to determine if this level of catch is causing a slow decline in stock abundance. It is difficult to estimate overfished and overfishing thresholds for the category 2 species a priori (unless the stock has a relatively data-poor assessment informing status), but indicators of long-term, potential overfishing can be identified. Catch-based methods are generally used to determine the OFL for category 3 species.

New stock assessments, stock assessment updates and rebuilding analyses recommended by the SSC as the "best available science" and suitable for use in setting biennial harvest specifications were approved by the Council for setting the 2013 and 2014 biennial harvest specifications. Eight stock assessments and four stock assessment updates were prepared to inform the 2013 and 2014 harvest specifications. Full stock assessments, those that consider the appropriateness of the assessment model and that revise the model as necessary, were prepared for the following stocks: Pacific ocean perch (POP), petrale sole, widow rockfish, spiny dogfish, sablefish, Dover sole, greenspotted rockfish, and blackgill rockfish. Stock assessment updates, those that run new data through existing models without changing the model, were prepared for bocaccio, canary rockfish, darkblotched rockfish, and yelloweye rockfish. Of these four stock assessment updates, two assessments (bocaccio and darkblotched rockfish) were further reviewed at the September "mop-up" panel. Based on that review, final versions of these two assessments were recommended and adopted that departed from the Terms of Reference for stock assessment updates. Although these two final assessments fell somewhere in between stock assessment updates and new full assessments, the SSC recommended them as the "best available science" and suitable for use in setting biennial harvest specifications. For species that did not have new stock assessments or updates prepared, the Council considered an OFL derived from the most recent stock assessment or update, the results of rudimentary stock assessments, or historical landings data.

One 2011 stock assessment review (STAR) panel meeting was devoted to a more rigorous review of data-poor methods for determining OFLs for unassessed stocks. The data-poor methods workshop was conducted in April 2011 and the report with recommendations for using data-poor methods for determining harvest specifications for unassessed stocks can be found at http://www.pcouncil.org/resources/archives/briefing-books/june-2011-briefing-book/#groundfish/Agenda Item E.2.a, Attachment 6. Two data-poor methods, depletion-corrected average catch (DCAC) and depletion-based stock reduction analysis (DBSRA), used to determine 2011 and 2012 OFLs were recommended for use in determining 2013 and 2014 OFLs for unassessed stocks, where there was enough harvest data to use these methods. Average historical catch was used to determine OFLs for stocks where the historical catches were too sparse to use DCAC or DBSRA methods. The DCAC and DBSRA estimates were developed by stock assessment scientists from the Northwest Fisheries Science Center (NWFSC) and the Southwest Fisheries Science Center. The DCAC provides an estimate of sustainable yield (the OFL) for data-poor stocks of uncertain status. DCAC adjusts historical average catch to account for one-time “windfall” catches that are the result of stock depletion, producing an estimate of yield that was likely to be sustainable over the same time period. Advantages of the DCAC approach to determining sustainable yield for data-poor stocks include: 1) minimal data requirements, 2) biologically-based adjustment to catch-based yield proxies with transparent assumptions about relative changes in abundance, and 3) simplicity in computing. The DBSRA extends the DCAC by 1) restoring the temporal link between production and biomass and 2) evaluating and integrating alternative hypotheses regarding changes in abundance during the historical catch period. This method combines DCAC’s distributional assumptions regarding life history characteristics and stock status with the dynamic models and simulation approach of stochastic stock reduction analysis. The participants in the April 2011 data-poor methods workshop and the SSC endorsed application of DCAC and DBSRA to derive the OFL for unassessed groundfish stocks.

For 2013 and 2014, the default harvest rates were used as a proxy for the fishing mortality rate that is expected to achieve the maximum sustainable yield (F_{MSY}). A proxy is used because there is insufficient information for most Pacific Coast groundfish stocks to establish a species-specific F_{MSY}. In 2013 and 2014, the following default harvest rate proxies, based on SSC recommendations, were used: $F_{30\%}$ for assessed flatfish, $F_{40\%}$ for Pacific whiting, $F_{50\%}$ for rockfish (including thornyheads), and $F_{45\%}$ for other groundfish such as sablefish and lingcod. The FMP allows default harvest rate proxies to be modified as scientific knowledge improves for a particular species.

Table 2-1 compares the 2013 and 2014 OFLs with the 2012 OFLs (No Action Alternative) for stocks managed with stock-specific harvest specifications. The OFLs are specified for all the stocks and stock complexes actively managed in the fishery, as required by the FMP. The 2012 OFLs in Table 2-1 were projected from stock assessments done in 2009 or earlier. The 2013 and 2014 OFLs in Table 2-1 include the results of stock assessments done in 2011. The OFL contributions for the cowcod stock south of 40°10' N. latitude are shown as area-specific OFL contributions because they were derived using different methodologies. The Conception area OFLs were projected from the 2009 assessment (Dick, *et al.* 2009) and the Monterey area OFLs were derived using DBSRA. Although the area-specific OFL contributions for cowcod are displayed in Table 2-1, the OFL is specified for the entire stock south of 40°10' N. latitude and not for each area. The Council is recommending changing the management line for lingcod from 42º N. latitude at the Oregon-California border to the 40º10' N. latitude management line. Therefore, the 2012 lingcod OFLs depict a different management line than those preferred for 2013 and 2014. The 2012 OFL and 2013 and 2014 OFL contributions of individual stocks within the Minor Rockfish, Other Flatfish and Other Fish complexes are shown in italics in Table 2-2. The OFLs for the individual stocks were summed to derive the complex OFLs.

The preferred 2013 and 2014 OFLs for west coast groundfish stocks and stock complexes used the same policies (e.g., F_{MSY} harvest rates and methodologies) used to determine the 2012 No Action OFLs with the following exceptions:

- The 2013 and 2014 lingcod OFLs are based on a stratification of the relative biomass north and south of 40º10' N. latitude rather than north and south of the Oregon-California border at 42º N. latitude as was done to determine 2012 lingcod OFLs. The proposed change to the lingcod management line is to avoid disruption of the trawl IFQ fishery, where there is a requirement to fish within a single management area on each trip. Northern California and southern Oregon trawl fishermen frequently transit the border within a trip or tow; a practice that would not be allowed with a management line specified at 42º N. latitude;

- DCAC and DBSRA estimates of OFL for component stocks managed in complexes were slightly modified to address a bias determined at the April 2011 data-poor methods workshop (see section 4.1.x for more details);

- Greenspotted rockfish off California was assessed for the first time in 2011 {Dick 2011}. Based on that assessment, the portion of the stock off California was upgraded from stock category 3 where the OFL was informed using DBSRA to a category 2 stock where the OFL is informed directly by the assessment. This change affected the greenspotted rockfish contribution to the Minor Shelf Rockfish South complex OFL and, for that portion of the stock between 40º10' N. latitude and 42º N. latitude, the greenspotted rockfish contribution to the Minor Shelf Rockfish North complex OFL;

- OFL estimates for California skate, big skate, Pacific grenadier, and ratfish were derived using survey biomass and MSY harvest rate estimates in a new methodology developed by scientists from the Southwest and Northwest Fisheries Science Centers. This methodology was reviewed and endorsed by the SSC at their March 2012 meeting (see section 4.1.1.1 for more details on the methodology).

- Spiny dogfish was assessed for the first time in 2011 {Gertseva and Taylor 2011}. Based on that assessment, the stock category was upgraded from stock category 3 where the OFL was informed using DBSRA to a category 2 stock where the OFL is informed directly by the assessment;

- The preferred 2013 and 2014 OFLs for the Other Fish complex are based on the sum of the known contribution of component stocks. The 2012 OFL for the Other Fish complex was based on a reduction of the 2010 ABC (MSY harvest level prior to the adoption of FMP Amendment 23) to account for removal of the newly assessed cabezon stock off Oregon.

Table 2-1. Specified 2012 OFLs (mt) and preferred 2013 and 2014 OFLs (mt) for stocks managed with stock-specific harvest specifications (overfished stocks in CAPS, stocks with new assessments in bold, components to a stock's OFL in italics (i.e., cowcod)).

Stock	2012 OFL	2013 OFL	2014 OFL
OVERFISHED STOCKS			
BOCACCIO S. of 40°10' N. latitude	732	**884**	**881**
CANARY	622	**752**	**741**
COWCOD S. of 40°10' N. latitude	13	11	12
COWCOD (Conception)	*6*	7	7
COWCOD (Monterey)	*7*	5	5
DARKBLOTCHED	497	**541**	**553**
PACIFIC OCEAN PERCH	1,007	**844**	**838**
PETRALE SOLE	1,279	**2,711**	**2,774**
YELLOWEYE	48	**51**	**51**
NON-OVERFISHED STOCKS			
Arrowtooth Flounder	14,460	7,391	6,912
Black Rockfish (OR-CA)	1,169	1,159	1,166
Black Rockfish (WA)	435	430	428
Cabezon (CA)	176	170	165
Cabezon (OR)	50	49	49
California scorpionfish	132	126	122
Chilipepper S. of 40°10' N. latitude	1,872	1,768	1,722
Dover Sole	44,826	**92,955**	**77,774**
English Sole	10,620	7,129	5,906
Lingcod N. of 42º N. latitude (OR & WA)	2,251	NA	NA
Lingcod S. of 42º N. latitude (CA)	2,597	NA	NA
Lingcod N. of 40º10' N. latitude	NA	3,334	3,162
Lingcod S. of 40º10' N. latitude	NA	1,334	1,276
Longnose skate	3,006	2,902	2,816
Longspine Thornyhead (coastwide)	3,483	3,391	3,304
Pacific Cod	3,200	3,200	3,200
Sablefish (coastwide)	8,623	**6,621**	**7,158**
Shortbelly	6,950	6,950	6,950
Shortspine Thornyhead (coastwide)	2,358	2,333	2,310
Splitnose S. of 40°10' N. latitude	1,610	1,684	1,747
Starry Flounder	1,813	1,825	1,834
WIDOW	4,923	**4,841**	**4,435**
Yellowtail N. of 40°10' N. latitude	4,573	4,579	4,584

Table 2-2. Specified 2012 OFLs (mt) and preferred 2013 and 2014 OFLs (mt) for stock complexes (species contributions to a stock complex specification in italics, stocks with new assessments in bold).

Stock	2012 OFL	2013 OFL	2014 OFL
STOCK COMPLEXES			
Minor Nearshore Rockfish North	116	110	110
Black and yellow	*0.0*	*0.0*	*0.0*
Blue (CA)	*27.5*	*27.4*	*27.4*
Blue (OR & WA)	*33.1*	*32.3*	*32.3*
Brown	*5.3*	*5.5*	*5.5*
Calico	*0.0*	*0.0*	*0.0*
China	*11.7*	*9.8*	*9.8*
Copper	*28.6*	*26.0*	*26.0*
Gopher	*0.0*	*0.0*	*0.0*
Grass	*0.6*	*0.7*	*0.7*
Kelp	*0.0*	*0.0*	*0.0*
Olive	*0.3*	*0.3*	*0.3*
Quillback	*8.7*	*7.4*	*7.4*
Treefish	*0.2*	*0.2*	*0.2*
Minor Shelf Rockfish North	2,197	2,183	2,195
Bronzespotted	*0.0*	*0.0*	*0.0*
Bocaccio	*268.2*	*284.0*	*284.0*
Chameleon	*0.0*	*0.0*	*0.0*
Chilipepper	*140.9*	*133.1*	*129.6*
Cowcod	*0.0*	*0.0*	*0.0*
Flag	*0.1*	*0.1*	*0.1*
Freckled	*0.0*	*0.0*	*0.0*
Greenblotched	*1.4*	*1.3*	*1.3*
Greenspotted 40°10' to 42° N. latitude	*20.9*	***9.4***	***9.4***
Greenspotted N. of 42° N. latitude (OR & WA)		*6.1*	*6.1*
Greenstriped	*1,232.0*	*1,252.3*	*1,268.3*
Halfbanded	*0.0*	*0.0*	*0.0*
Harlequin	*0.0*	*0.0*	*0.0*
Honeycomb	*0.0*	*0.0*	*0.0*
Mexican	*0.0*	*0.0*	*0.0*
Pink	*0.0*	*0.0*	*0.0*
Pinkrose	*0.0*	*0.0*	*0.0*
Puget Sound	*0.0*	*0.0*	*0.0*
Pygmy	*0.0*	*0.0*	*0.0*
Redstripe	*288.3*	*269.9*	*269.9*
Rosethorn	*15.2*	*12.9*	*12.9*
Rosy	*2.5*	*3.0*	*3.0*
Silvergray	*180.0*	*159.4*	*159.4*
Speckled	*0.2*	*0.2*	*0.2*
Squarespot	*0.1*	*0.2*	*0.2*
Starry	*0.0*	*0.0*	*0.0*
Stripetail	*35.3*	*40.4*	*40.4*
Swordspine	*0.0*	*0.0*	*0.0*
Tiger	*1.1*	*1.0*	*1.0*
Vermilion	*11.1*	*9.7*	*9.7*

Stock	2012 OFL	2013 OFL	2014 OFL
Minor Slope Rockfish North	1,507	1,518	1,553
Aurora	*17*	*15.4*	*15.4*
Bank	*20*	*17.2*	*17.2*
Blackgill	*5*	*4.7*	*4.7*
Redbanded	*52*	*45.3*	*45.3*
Rougheye	*78*	*71.1*	*71.1*
Sharpchin	*232*	*214.5*	*214.5*
Shortraker	*22*	*18.7*	*18.7*
Splitnose	*897*	*939.0*	*974.1*
Yellowmouth	*185*	*192.4*	*192.4*
Minor Nearshore Rockfish South	1,145	1,164	1,160
Shallow Nearshore Species	NA	NA	NA
Black and yellow	*26.8*	*27.5*	*27.5*
China	*19.8*	*16.6*	*16.6*
Gopher (N. of Point Conception)	*165.0*	*157.0*	*153.0*
Gopher (S. of Point Conception)	*26.0*	*25.6*	*25.6*
Grass	*55.6*	*59.6*	*59.6*
Kelp	*25.9*	*27.7*	*27.7*
Deeper Nearshore Species	NA	NA	NA
Blue (assessed area)	*190*	*187.8*	*187.8*
Blue (S. of 34°27' N. latitude)	*74.0*	*72.9*	*72.9*
Brown	*197.4*	*204.6*	*204.6*
Calico	*0.0*	*0.0*	*0.0*
Copper	*156.0*	*141.5*	*141.5*
Olive	*189.5*	*224.6*	*224.6*
Quillback	*6.3*	*5.4*	*5.4*
Treefish	*12.9*	*13.2*	*13.2*
Minor Shelf Rockfish South	2,243	1,910	1,913
Bronzespotted	*6.7*	*3.6*	*3.6*
Chameleon	*0.0*	*0.0*	*0.0*
Flag	*26.6*	*23.4*	*23.4*
Freckled	*0.0*	*0.0*	*0.0*
Greenblotched	*24.6*	*23.1*	*23.1*
Greenspotted	*195.3*	***80.3***	***80.3***
Greenstriped	*226.0*	*229.7*	*232.7*
Halfbanded	*0.0*	*0.0*	*0.0*
Harlequin	*0.0*	*0.0*	*0.0*
Honeycomb	*7.8*	*9.9*	*9.9*
Mexican	*2.8*	*5.1*	*5.1*
Pink	*2.8*	*2.5*	*2.5*
Pinkrose	*0.0*	*0.0*	*0.0*
Pygmy	*0.0*	*0.0*	*0.0*
Redstripe	*0.5*	*0.5*	*0.5*
Rosethorn	*2.5*	*2.1*	*2.1*
Rosy	*36.9*	*44.5*	*44.5*
Silvergray	*0.6*	*0.5*	*0.5*
Speckled	*42.9*	*39.4*	*39.4*
Squarespot	*5.8*	*11.1*	*11.1*
Starry	*70.5*	*62.6*	*62.6*
Stripetail	*20.6*	*23.6*	*23.6*

Stock	2012 OFL	2013 OFL	2014 OFL
Swordspine	*12.9*	*14.2*	*14.2*
Tiger	*0.0*	*0.0*	*0.0*
Vermilion	*308.4*	*269.3*	*269.3*
Yellowtail	*1,249*	*1,064*	*1,064*
Minor Slope Rockfish South	903	681	685
Aurora	*29.4*	*26.1*	*26.1*
Bank	*574.8*	*503.2*	*503.2*
Blackgill	*275.0*	***130.0***	***134.0***
Pacific ocean perch	*0.0*	*0.0*	*0.0*
Redbanded	*11.9*	*10.4*	*10.4*
Rougheye	*0.5*	*0.4*	*0.4*
Sharpchin	*10.6*	*9.8*	*9.8*
Shortraker	*0.1*	*0.1*	*0.1*
Yellowmouth	*0.8*	*0.8*	*0.8*
Other Flatfish	10,146	10,060	10,060
Butter sole	*4.6*	*4.6*	*4.6*
Curlfin sole	*8.2*	*8.2*	*8.2*
Flathead sole	*35.0*	*35.0*	*35.0*
Pacific sanddab	*4,942.5*	*4,801.0*	*4,801.0*
Rex sole	*4,308.6*	*4,371.5*	*4,371.5*
Rock sole	*66.0*	*66.7*	*66.7*
Sand sole	*780.8*	*773.2*	*773.2*
Other Fish a/	11,150	6,832	6,802
Big skate		*458.0*	*458.0*
Cabezon (WA)		*b/*	*b/*
California skate		*86.0*	*86.0*
Finescale codling		*b/*	*b/*
Kelp greenling (CA)	*110.6*	*118.9*	*118.9*
Kelp greenling (OR & WA)		*b/*	*b/*
Leopard shark	*164.0*	*167.1*	*167.1*
Pacific grenadier		*1,519.0*	*1,519.0*
Ratfish		*1,441.0*	*1,441.0*
Soupfin shark	*62.4*	*61.6*	*61.6*
Spiny dogfish	*2,200.2*	***2,980.0***	***2,950.0***

a/ Values for these specifications in 2013 and 2014 are the sum of known contributions of component stocks.
b/ No OFL contribution for these stocks given the lack of an approved method for estimating the OFL.

2.1.2 Acceptable Biological Catches

The 2012, 2013, and 2014 ABCs are annual catch specifications that are the stock or stock complex's OFL reduced by an amount associated with the scientific uncertainty in estimating the OFL. Under the FMP harvest specification framework, scientific advice that is relatively uncertain will result in ABCs that are relatively lower, all other things being equal (i.e., a precautionary reduction in catch will occur due purely to scientific uncertainty in estimating the OFL). The ABC is the catch level that ACLs may not exceed. As explained in more detail below, the SSC recommended a two-step approach referred to as the P* approach for determining ABCs. In the P* approach, the SSC determines the amount of scientific uncertainty associated with estimating the OFL in stock assessments, referred to as the sigma (σ) value. Since the OFL is estimated by applying the harvest rate estimated or assumed to produce MSY (i.e., F_{MSY}) to the exploitable biomass and since assumed proxy F_{MSY} harvest rates by taxa are currently used to estimate the OFL, the variance in estimating biomass is the metric used for determining sigma. The Council chooses its preferred level of risk of overfishing, which is designated as the overfishing probability[1] (P*). The scientists then apply the P* value to the sigma value to determine the amount by which the OFL is reduced to establish the ABC. The SSC's recommendations for sigma and the reductions from OFL associated with different P* values are science-based recommendations; therefore, alternatives to these values are not analyzed. The Council's choice of P* is a policy decision, thus alternative P* values and associated ABCs are described in this section.

The SSC assigned each species in the groundfish fishery to one of three categories based on the level of information available about the species. Table 2-3 shows the criteria used by the SSC to categorize stocks. The SSC's recommended sigma value for category 1 stocks is based on a statistical analysis of the variance within and among stock assessments. The meta-analysis used stock assessments from 17 data-rich stocks to determine the proxy sigma value for category 1 stocks. The general methodology used by the SSC subcommittees to assess among-assessment uncertainty was to compare previous stock assessments and stock assessment updates[2], and consider the logarithms of the ratios of the biomass estimates for each pair of assessments and their reciprocals using the last 20 years from an assessment. This provides a distribution of stock size differences in log-space and, if this variation is averaged over species, provides a general view of total biomass variation (represented as sigma - σ) that emerges among repeat assessments of stocks, while embracing a wide range of factors that affect variability in results. The SSC indicated that biomass is most likely the dominant source of uncertainty; however, it is anticipated that other factors will need to be considered in the future.

[1] The overfishing probability (P*) is the probability of overfishing a stock (i.e., exceeding the specified OFL) based solely on the scientific uncertainty in estimating the OFL.

[2] Stock assessment updates were excluded from the meta-analysis unless they were the most recent assessment conducted (in which case the original full assessment upon which the update was based was excluded from the meta-analysis) because of constraints imposed by the Terms of Reference for groundfish stock assessments on how much update assessments could change from the last full assessment.

Table 2-3. Criteria used by the SSC to categorize stocks based on the quantity and quality of data informing the estimate of OFL. Stock categories are used in deciding 2013 and 2014 ABCs that accommodate the uncertainty in estimating OFLs.

Category	Sub-category	Criteria
Category 1 - Data rich stocks. OFL based on F_{MSY} or F_{MSY} proxy from model output. ABC based on P* buffer.		
1	a	Reliable compositional (age and/or size) data sufficient to resolve year-class strength and growth characteristics. Only fishery-dependent trend information available. Age/size structured assessment model.
1	b	As in 3a, but trend information also available from surveys. Age/size structured assessment model.
1	c	Age/size structured assessment model with reliable estimation of the stock-recruit relationship.
Category 2 - Data moderate. OFL derived from model output (or natural mortality).		
2	a	M*survey biomass assessment (as in Rogers 1996).
2	b	Historical catches, fishery-dependent trend information only. An aggregate population model is fit to the available information.
2	c	Historical catches, survey trend information, or at least one absolute abundance estimate. An aggregate population model is fit to the available information.
2	d	Full age-structured assessment, but results are substantially more uncertain than assessments used in the calculation of the P* buffer. The SSC will provide a rationale for each stock placed in this category. Reasons could include that assessment results are very sensitive to model and data assumptions, or that the assessment has not been updated for many years.
Category 3 - Data poor. OFL derived from data-poor methods using historical catch.		
3	a	No reliable catch history. No basis for establishing OFL.
3	b	Reliable catch estimates only for recent years. OFL is average catch during a period when stock is considered to be stable and close to B_{MSY} equilibrium on the basis of expert judgment.
3	c	Reliable aggregate catches during period of fishery development and approximate values for natural mortality. Default analytical approach DCAC.
3	d	Reliable annual historical catches and approximate values for natural mortality and age at 50% maturity. Default analytical approach DBSRA.

Based on this analysis, the SSC recommended using the biomass variance statistic of $\sigma = 0.36$ for category 1 stocks. In cases where the stock biomass estimated in the most recent assessment has a variance greater than the variance estimated for that stock's category, the assessment's estimated biomass variance is used instead. The stock biomass estimated in the 2011 widow rockfish assessment was judged to have a greater variance than the sigma of 0.36 used for other category 1 stocks. In this case, the SSC recommended using a sigma value of 0.41 for deciding the widow rockfish ABC. Each P* is mapped to its corresponding buffer fraction. The Council then recommends an appropriate P* value. When the P* approach is used, the upper limit of P* allowed by the FMP is 0.45.

The Council selected a P* value of 0.45 for most category 1 stocks. With a P* value of 0.45, a sigma value of 0.36 corresponds with a reduction of 4.4 percent from the OFL when deriving the ABC. For sablefish, the Council selected a P* value of 0.4, which corresponds with a reduction of 8.7 percent from the OFL when deriving the ABC. The preferred 2013 and 2014 ABCs for stocks managed with stock-specific harvest specifications used the same policies (i.e., stock categories, sigma and P* values) used to determine the 2012 No Action ABCs with the following exceptions:

- Yelloweye rockfish was changed from a category 1 to a category 2 stock upon the realization that recruitment deviations (i.e., the relative strength of individual year classes) were not estimated in the most recent (2009) full assessment {Stewart 2009} and the most recent (2011) update assessment {Taylor 2011}. Therefore, the sigma of 0.36 for category 1 stocks was used to determine the 2012 ABC and the sigma of 0.72 for category 2 stocks was used to determine the 2013 and 2014 ABCs. The same P* of 0.45 was used to determine 2012 and 2013-2014 ABCs;
- The 2013 and 2014 lingcod ABCs are based on a stratification of the relative biomass north and south of 40º10' N. latitude rather than north and south of the Oregon-California border at 42º N. latitude as was done to determine 2012 lingcod ABC. The same sigma and P* values were used to determine the 2012 and 2013-2014 lingcod ABCs;
- The sablefish ABC was based on a P* of 0.45 in 2012 and on a P* of 0.4 in 2013 and 2014; and
- The sigma for widow rockfish, a category 1 stock, used the default category 1 sigma value of 0.36 for determining the 2012 ABC and a sigma of 0.41 for determining the 2013 and 2014 ABCs due to a greater variance in the estimate of biomass in the 2011 assessment {He et al 2011}. The same P* value of 0.45 was used to determine the 2012 and 2013-2014 ABCs.

Since there is greater scientific uncertainty for category 2 and 3 stocks relative to category 1 stocks, the scientific uncertainty buffer is generally greater than that recommended for category 1 stocks. The SSC recommended sigma values for category 2 and 3 stocks of 0.72 and 1.44, respectively (i.e., two and four times the sigma for category 1 stocks). The specific values of 0.72 and 1.44 were recommended by the SSC and considered to be the best available scientific information; however, the values are not based on a formal analysis of assessment outcomes and could change substantially when the SSC reviews additional analyses in future management cycles.

Table 2-4 shows the relationship between the proposed values for sigma and the buffer for a range of values for P*. The ABCs for actively managed stock complexes were determined by summing ABC values of the component stocks. Table 2-5 and Table 2-6 depict the potential alternative 2013 and 2014 ABCs, respectively for stocks and stock complexes across a range of P* values from 0.10 to 0.45. Table 2-7 shows the No Action 2012 ABCs and preferred 2013 and 2014 ABCs for stocks managed with stock specific harvest specifications. The proposed management line shift for lingcod is reflected in Table 2-5 with the 42º N. latitude line shown for the 2012 lingcod ABCs and the 40º10' N. latitude line shown for 2013 and 2014 lingcod ABCs. Table 2-8 shows the SSC stock categorizations and preferred ABCs for those stocks managed in stock complexes. The ABC contributions of the stocks comprising the complexes are shown in Table 2-6 in italics and are not specified in regulations.

The six minor rockfish complexes (i.e., Minor Nearshore, Shelf, and Slope Rockfish north and south of 40º10' N. latitude) are comprised of assessed and unassessed stocks assigned to all three categories. The SSC identified the appropriate species category for each component species (Table 2-8) and the appropriate sigma value was assigned. The ABCs for the component rockfish stocks managed in these complexes are calculated using a P* value of 0.45.

In 2012, the Other Fish and Other Flatfish complexes consisted entirely of category 3 stocks. A P* of 0.4 and a sigma value of 1.44 was applied to derive the ABC values for each component stock. For 2013-2014, the Council maintained the general policy of using a P* of 0.4 for the component stocks in these two complexes. However, for spiny dogfish, a newly assessed category 2 stock managed within the Other Fish complex, for 2013-2014, the Council selected a P* of 0.3 due to the greater uncertainty in estimating the total catch (mostly discarded bycatch) of this species.

The preferred 2013 and 2014 ABCs for stocks managed in stock complexes used the same basis (i.e., stock categories, sigma values, and P* values) used to determine the 2012 No Action ABCs with the following exceptions:

- Greenspotted rockfish was upgraded from a category 3 stock to a category 2 stock based on the new 2011 assessment {Dick 2011}. Therefore, a sigma of 0.72 was used to determine 2013-2014 ABCs for greenspotted rockfish in waters off California, while a sigma of 1.44 was used to determine the No Action 2012 ABC for this stock. The same P* value of 0.45 was used to determine 2012 and 2013-2014 ABCs;

- Blackgill rockfish south of 40º10’ N. latitude was downgraded from a category 1 stock to a category 2 stock based on the 2011 assessment {Field 2011} because recruitment deviations were not estimated. Therefore, a sigma of 0.72 was used to determine 2013-2014 ABCs for blackgill rockfish south of 40º10’ N. latitude, while a sigma of 0.36 was used to determine the No Action 2012 ABC for this stock. The same P* value of 0.45 was used to determine 2012 and 2013-2014 ABCs;

- Spiny dogfish was upgraded from a category 3 stock to a category 2 stock based on the new 2011 assessment {Gertseva and Taylor 2011}. Therefore, a sigma of 0.72 was used to determine 2013-2014 ABCs for spiny dogfish, while a sigma of 1.44 was used to determine the No Action 2012 ABC for this stock. The P* for spiny dogfish was changed from 0.4, which informed the 2012 ABC, to 0.3 to inform the 2013 and 2014 ABCs; and

- The preferred 2013 and 2014 ABCs for the Other Fish complex are based on the sum of the known contribution of component stocks. The 2012 ABC for the Other Fish complex was based on a reduction of the 2010 ABC (MSY harvest level prior to the adoption of FMP Amendment 23, which is now defined as the OFL), which had no scientific basis.

Table 2-4. Relationship between P* and the percent reduction of the OFL for deciding the 2013 and 2014 ABCs for category 1, widow rockfish, category 2, and category 3 stocks based on σ values of 0.36, 0.41, 0.72, and 1.44, respectively.

P*	Assessment Uncertainty (σ)			
	Cat. 1 0.36	Widow 0.41	Cat. 2 0.72	Cat. 3 1.44
0.5	0	0	0	0
0.45	4.4%	5.0%	8.7%	16.6%
0.44	5.3%	6.0%	10.3%	19.5%
0.43	6.2%	7.0%	11.9%	22.4%
0.42	7.0%	7.9%	13.5%	25.2%
0.41	7.9%	8.9%	15.1%	27.9%
0.4	8.7%	9.9%	16.7%	30.6%
0.39	9.6%	10.8%	18.2%	33.1%
0.38	10.4%	11.8%	19.7%	35.6%
0.37	11.3%	12.7%	21.3%	38.0%
0.36	12.1%	13.7%	22.7%	40.3%
0.35	13.0%	14.6%	24.2%	42.6%
0.34	13.8%	15.6%	25.7%	44.8%
0.33	14.6%	16.5%	27.1%	46.9%
0.32	15.5%	17.4%	28.6%	49.0%
0.31	16.3%	18.4%	30.0%	51.0%
0.3	17.2%	19.3%	31.4%	53.0%
0.29	18.1%	20.3%	32.9%	54.9%
0.28	18.9%	21.3%	34.3%	56.8%
0.27	19.8%	22.2%	35.7%	58.6%
0.26	20.7%	23.2%	37.1%	60.4%
0.25	21.6%	24.2%	38.5%	62.1%
0.24	22.5%	25.1%	39.9%	63.8%
0.23	23.4%	26.1%	41.3%	65.5%
0.22	24.3%	27.1%	42.6%	67.1%
0.21	25.2%	28.2%	44.0%	68.7%
0.2	26.1%	29.2%	45.4%	70.2%
0.19	27.1%	30.2%	46.9%	71.8%
0.18	28.1%	31.3%	48.3%	73.2%
0.17	29.1%	32.4%	49.7%	74.7%
0.16	30.1%	33.5%	51.1%	76.1%
0.15	31.1%	34.6%	52.6%	77.5%
0.14	32.2%	35.8%	54.1%	78.9%
0.13	33.3%	37.0%	55.6%	80.2%
0.12	34.5%	38.2%	57.1%	81.6%
0.11	35.7%	39.5%	58.7%	82.9%
0.1	37.0%	40.9%	60.3%	84.2%
0.09	38.3%	42.3%	61.9%	85.5%
0.08	39.7%	43.8%	63.6%	86.8%
0.07	41.2%	45.4%	65.4%	88.1%
0.06	42.9%	47.1%	67.4%	89.3%
0.05	44.7%	49.1%	69.4%	90.6%

Table 2-5. 2013 OFLs (mt) and a range of alternative 2013 ABCs (mt) varied by the probability of overfishing (P*) for west coast groundfish stocks (overfished stocks in CAPS; stocks with new assessments in bold; component stocks in stock complexes in italics).

Stock	2013 OFL	Category	Range of Alternative 2013 ABCs Overfishing Probability (P*)							
			0.45	0.40	0.35	0.30	0.25	0.20	0.15	0.10
OVERFISHED STOCKS										
BOCACCIO S. of 40°10' N. latitude	**884**	1	**845**	**807**	**769**	**732**	**693**	**653**	**609**	**557**
CANARY	**752**	1	**719**	**686**	**654**	**622**	**589**	**556**	**518**	**474**
COWCOD S. of 40°10' N. latitude	11		10	9	8	7	6	5	4	3
COWCOD (Conception)	7	2	6	5	5	5	4	4	3	3
COWCOD (Monterey)	5	3	4	3	3	2	2	1	1	1
DARKBLOTCHED	**541**	1	**517**	**494**	**471**	**448**	**424**	**400**	**373**	**341**
PACIFIC OCEAN PERCH	**844**	1	**807**	**771**	**734**	**699**	**662**	**624**	**582**	**532**
PETRALE SOLE	**2,711**	1	**2,592**	**2,475**	**2,359**	**2,245**	**2,125**	**2,003**	**1,868**	**1,708**
YELLOWEYE	**51**	2	**47**	**43**	**39**	**35**	**31**	**28**	**24**	**20**
NON-OVERFISHED STOCKS										
Arrowtooth Flounder	7,391	2	6,748	6,157	5,602	5,070	4,545	4,035	3,503	2,934
Black Rockfish (OR-CA)	1,159	1	1,108	1,058	1,009	960	909	857	799	730
Black Rockfish (WA)	430	1	411	392	374	356	337	318	296	271
Cabezon (CA)	170	1	163	155	148	141	133	126	117	107
Cabezon (OR)	49	1	47	45	43	41	38	36	34	31
California scorpionfish	126	1	120	115	110	104	99	93	87	79
Chilipepper S. of 40°10' N. latitude	1,768	1	1,690	1,614	1,538	1,464	1,386	1,307	1,218	1,114
Dover Sole	**92,955**	1	**88,865**	**84,868**	**80,871**	**76,967**	**72,877**	**68,694**	**64,046**	**58,562**
English Sole	7,129	1	6,815	6,509	6,202	5,903	5,589	5,268	4,912	4,491
Lingcod N. of 40º10' N. latitude	3,334	1	3,187	3,044	2,900	2,760	2,614	2,464	2,297	2,100
Lingcod S. of 40º10' N. latitude	1,334	2	1,218	1,111	1,011	915	821	729	632	530
Longnose skate	2,902	1	2,774	2,650	2,525	2,403	2,275	2,145	1,999	1,828
Longspine Thornyhead (coastwide)	3,391	2	3,096	2,825	2,570	2,326	2,085	1,851	1,607	1,346
Pacific Cod	3,200	3	2,669	2,221	1,837	1,504	1,213	954	720	506
Sablefish (coastwide)	**6,621**	1	**6,330**	**6,045**	**5,760**	**5,482**	**5,191**	**4,893**	**4,562**	**4,171**
Shortbelly	6,950	2	6,345	5,789	5,268	4,768	4,274	3,795	3,294	2,759
Shortspine Thornyhead (coastwide)	2,333	1	2,230	2,130	2,030	1,932	1,829	1,724	1,607	1,470
Splitnose S. of 40°10' N. latitude	1,684	1	1,610	1,537	1,465	1,394	1,320	1,244	1,160	1,061
Starry Flounder	1,825	2	1,666	1,520	1,383	1,252	1,122	996	865	725
Widow	**4,841**	1	**4,598**	**4,363**	**4,134**	**3,904**	**3,671**	**3,428**	**3,165**	**2,862**
Yellowtail N. of 40°10' N. latitude	4,579	1	4,378	4,181	3,984	3,791	3,590	3,384	3,155	2,885

Stock	**2013 OFL**	**Category**	**Range of Alternative 2013 ABCs Overfishing Probability (P*)**							
			0.45	**0.40**	**0.35**	**0.30**	**0.25**	**0.20**	**0.15**	**0.10**
STOCK COMPLEXES										
Minor Nearshore Rockfish North	110		94	80	68	57	48	39	31	24
Black and yellow	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Blue (CA)	*27.4*	2	*25.0*	*22.9*	20.8	18.8	16.9	15.0	13.0	10.9
Blue (OR & WA)	*32.3*	3	*26.9*	*22.4*	18.5	15.2	12.2	9.6	7.3	5.1
Brown	*5.5*	3	*4.6*	*3.8*	3.2	2.6	2.1	1.6	1.2	0.9
Calico	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
China	*9.8*	3	*8.2*	*6.8*	5.6	4.6	3.7	2.9	2.2	1.6
Copper	*26.0*	3	*21.6*	*18.0*	14.9	12.2	9.8	7.7	5.8	4.1
Gopher	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Grass	*0.7*	3	*0.5*	*0.5*	0.4	0.3	0.2	0.2	0.1	0.1
Kelp	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Olive	*0.3*	3	*0.3*	*0.2*	0.2	0.1	0.1	0.1	0.1	0.0
Quillback	*7.4*	3	*6.2*	*5.1*	4.2	3.5	2.8	2.2	1.7	1.2
Treefish	*0.2*	3	*0.2*	*0.2*	0.1	0.1	0.1	0.1	0.0	0.0
Minor Shelf Rockfish North	2,183		1,920	1,690	1,485	1,298	1,125	963	805	646
Bronzespotted	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Bocaccio	*284.0*	3	*236.9*	*197.1*	163.0	133.5	107.6	84.6	63.9	44.9
Chameleon	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Chilipepper	*133.1*	3	*111.0*	*92.4*	76.4	62.5	50.4	39.7	29.9	21.0
Cowcod	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Flag	*0.1*	3	*0.1*	*0.1*	0.0	0.0	0.0	0.0	0.0	0.0
Freckled	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Greenblotched	*1.3*	3	*1.1*	*0.9*	0.7	0.6	0.5	0.4	0.3	0.2
Greenspotted 40°10' to 42° N. latitude	**9.4**	2	**8.6**	**7.8**	**7.1**	**6.4**	**5.8**	**5.1**	**4.4**	**3.7**
Greenspotted N. of 42 N. latitude (OR & WA)	*6.1*	3	*5.1*	*4.2*	3.5	2.9	2.3	1.8	1.4	1.0
Greenstriped	*1,252.3*	2	*1,143.3*	*1,043.2*	949.2	859.1	770.2	683.8	593.6	497.2
Halfbanded	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Harlequin	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Honeycomb	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Mexican	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Pink	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Pinkrose	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Puget Sound	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Pygmy	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0

Stock	2013 OFL	Category	Range of Alternative 2013 ABCs Overfishing Probability (P*) 0.45	0.40	0.35	0.30	0.25	0.20	0.15	0.10
Redstripe	*269.9*	3	*225.1*	*187.3*	154.9	126.9	102.3	80.4	60.7	42.6
Rosethorn	*12.9*	3	*10.8*	*9.0*	7.4	6.1	4.9	3.8	2.9	2.0
Rosy	*3.0*	3	*2.5*	*2.1*	1.7	1.4	1.1	0.9	0.7	0.5
Silvergray	*159.4*	3	*133.0*	*110.6*	91.5	74.9	60.4	47.5	35.9	25.2
Speckled	*0.2*	3	*0.1*	*0.1*	0.1	0.1	0.1	0.1	0.0	0.0
Squarespot	*0.2*	3	*0.1*	*0.1*	0.1	0.1	0.1	0.1	0.0	0.0
Starry	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Stripetail	*40.4*	3	*33.7*	*28.0*	23.2	19.0	15.3	12.0	9.1	6.4
Swordspine	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Tiger	*1.0*	3	*0.8*	*0.7*	0.6	0.5	0.4	0.3	0.2	0.2
Vermilion	*9.7*	3	*8.1*	*6.7*	5.6	4.6	3.7	2.9	2.2	1.5
Minor Slope Rockfish North	1,518		1,381	1,259	1,149	1,050	956	867	777	683
Aurora	*15.4*	3	*12.8*	*10.7*	8.8	7.2	5.8	4.6	3.5	2.4
Bank	*17.2*	3	*14.4*	*12.0*	9.9	8.1	6.5	5.1	3.9	2.7
Blackgill	*4.7*	3	*3.9*	*3.3*	2.7	2.2	1.8	1.4	1.1	0.7
Redbanded	*45.3*	3	*37.7*	*31.4*	26.0	21.3	17.2	13.5	10.2	7.2
Rougheye	*71.1*	3	*59.3*	*49.3*	40.8	33.4	26.9	21.2	16.0	11.2
Sharpchin	*214.5*	3	*178.9*	*148.9*	123.1	100.8	81.3	63.9	48.3	33.9
Shortraker	*18.7*	3	*15.6*	*13.0*	10.7	8.8	7.1	5.6	4.2	3.0
Splitnose	*939.0*	1	*897.7*	*857.3*	817.0	777.5	736.2	693.9	647.0	591.6
Yellowmouth	*192.4*	3	*160.5*	*133.6*	110.5	90.4	72.9	57.3	43.3	30.4
Minor Nearshore Rockfish South	1,164		1,005	868	749	644	549	463	382	303
Shallow Nearshore Species	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Black and yellow	*27.5*	3	*23.0*	*19.1*	*15.8*	*12.9*	*10.4*	*8.2*	*6.2*	*4.4*
China	*16.6*	3	*13.8*	*11.5*	*9.5*	*7.8*	*6.3*	*4.9*	*3.7*	*2.6*
Gopher (N of Pt. Conception)	*157.0*	1	*150.1*	*143.3*	*136.6*	*130.0*	*123.1*	*116.0*	*108.2*	*98.9*
Gopher (S of Pt. Conception)	*25.6*	3	*21.4*	*17.8*	*14.7*	*12.0*	*9.7*	*7.6*	*5.8*	*4.0*
Grass	*59.6*	3	*49.7*	*41.4*	*34.2*	*28.0*	*22.6*	*17.8*	*13.4*	*9.4*
Kelp	*27.7*	3	*23.1*	*19.2*	*15.9*	*13.0*	*10.5*	*8.2*	*6.2*	*4.4*
Deeper Nearshore Species	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Blue (assessed area)	*187.8*	2	*171.4*	*156.4*	142.3	128.8	115.5	102.5	89.0	74.5
Blue (S of 34° 27' N. latitude)	*72.9*	3	*60.8*	*50.6*	41.8	34.3	27.6	21.7	16.4	11.5
Brown	*204.6*	3	*170.6*	*142.0*	117.4	96.2	77.5	61.0	46.0	32.3
Calico	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Copper	*141.5*	3	*118.0*	*98.2*	81.2	66.5	53.6	42.2	31.8	22.4

Stock	2013 OFL	Category	Range of Alternative 2013 ABCs Overfishing Probability (P*)							
			0.45	0.40	0.35	0.30	0.25	0.20	0.15	0.10
Olive	224.6	3	187.4	155.9	128.9	105.6	85.1	66.9	50.5	35.5
Quillback	5.4	3	4.5	3.7	3.1	2.5	2.0	1.6	1.2	0.9
Treefish	13.2	3	11.0	9.2	7.6	6.2	5.0	3.9	3.0	2.1
Minor Shelf Rockfish South	1,910		1,617	1,369	1,153	965	797	646	507	376
Bronzespotted	3.6	3	3.0	2.5	2.1	1.7	1.4	1.1	0.8	0.6
Chameleon	0.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flag	23.4	3	19.5	16.3	13.4	11.0	8.9	7.0	5.3	3.7
Freckled	0.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Greenblotched	23.1	3	19.3	16.1	13.3	10.9	8.8	6.9	5.2	3.7
Greenspotted	**80.3**	2	**73.3**	**66.9**	**60.9**	**55.1**	**49.4**	**43.9**	**38.1**	**31.9**
Greenstriped	229.7	2	209.7	191.3	174.1	157.6	141.3	125.4	108.9	91.2
Halfbanded	0.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Harlequin	0.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Honeycomb	9.9	3	8.2	6.8	5.7	4.6	3.7	2.9	2.2	1.6
Mexican	5.1	3	4.2	3.5	2.9	2.4	1.9	1.5	1.1	0.8
Pink	2.5	3	2.1	1.8	1.5	1.2	1.0	0.8	0.6	0.4
Pinkrose	0.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pygmy	0.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Redstripe	0.5	3	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1
Rosethorn	2.1	3	1.8	1.5	1.2	1.0	0.8	0.6	0.5	0.3
Rosy	44.5	3	37.1	30.9	25.5	20.9	16.9	13.3	10.0	7.0
Silvergray	0.5	3	0.4	0.4	0.3	0.3	0.2	0.2	0.1	0.1
Speckled	39.4	3	32.8	27.3	22.6	18.5	14.9	11.7	8.9	6.2
Squarespot	11.1	3	9.2	7.7	6.4	5.2	4.2	3.3	2.5	1.8
Starry	62.6	3	52.2	43.4	35.9	29.4	23.7	18.6	14.1	9.9
Stripetail	23.6	3	19.7	16.4	13.6	11.1	9.0	7.0	5.3	3.7
Swordspine	14.2	3	11.9	9.9	8.2	6.7	5.4	4.2	3.2	2.2
Tiger	0.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vermilion	269.3	3	224.6	186.9	154.6	126.6	102.1	80.2	60.6	42.5
Yellowtail	1,064.4	3	887.7	738.7	611.0	500.3	403.4	317.2	239.5	168.2
Minor Slope Rockfish South	681		618	561	507	457	408	360	311	259
Aurora	26.1	3	21.7	18.1	15.0	12.3	9.9	7.8	5.9	4.1
Bank	503.2	2	459.4	419.2	381.4	345.2	309.5	274.8	238.5	199.8
Blackgill	**130.0**	2	**118.7**	**108.3**	**98.5**	**89.2**	**80.0**	**71.0**	**61.6**	**51.6**
Pacific ocean perch	0.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Stock	2013 OFL	Category	Range of Alternative 2013 ABCs Overfishing Probability (P*)							
			0.45	0.40	0.35	0.30	0.25	0.20	0.15	0.10
Redbanded	*10.4*	3	*8.7*	*7.2*	*6.0*	*4.9*	*3.9*	*3.1*	*2.3*	*1.6*
Rougheye	*0.4*	3	*0.3*	*0.3*	*0.2*	*0.2*	*0.2*	*0.1*	*0.1*	*0.1*
Sharpchin	*9.8*	3	*8.2*	*6.8*	*5.7*	*4.6*	*3.7*	*2.9*	*2.2*	*1.6*
Shortraker	*0.1*	3	*0.1*	*0.1*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Yellowmouth	*0.8*	3	*0.7*	*0.6*	*0.5*	*0.4*	*0.3*	*0.3*	*0.2*	*0.1*
Other Flatfish	10,060		8,390	6,982	5,775	4,728	3,813	2,998	2,264	1,590
Butter sole	*4.6*	3	*3.9*	*3.2*	*2.7*	*2.2*	*1.8*	*1.4*	*1.0*	*0.7*
Curlfin sole	*8.2*	3	*6.9*	*5.7*	*4.7*	*3.9*	*3.1*	*2.5*	*1.9*	*1.3*
Flathead sole	*35.0*	3	*29.2*	*24.3*	*20.1*	*16.5*	*13.3*	*10.4*	*7.9*	*5.5*
Pacific sanddab	*4,801.0*	3	*4,004.0*	*3,331.9*	*2,755.8*	*2,256.5*	*1,819.6*	*1,430.7*	*1,080.2*	*758.6*
Rex sole	*4,371.5*	3	*3,645.8*	*3,033.8*	*2,509.2*	*2,054.6*	*1,656.8*	*1,302.7*	*983.6*	*690.7*
Rock sole	*66.7*	3	*55.6*	*46.3*	*38.3*	*31.3*	*25.3*	*19.9*	*15.0*	*10.5*
Sand sole	*773.2*	3	*644.8*	*536.6*	*443.8*	*363.4*	*293.0*	*230.4*	*174.0*	*122.2*
Other Fish	6,832	3	5,933	5,155	4,470	3,855	3,292	2,775	2,279	1,792
Big skate	*458.0*	3	*382.0*	*317.9*	*262.9*	*215.3*	*173.6*	*136.5*	*103.1*	*72.4*
Cabezon (WA)	*a/*	3	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*
California skate	*86.0*	3	*71.7*	*59.7*	*49.4*	*40.4*	*32.6*	*25.6*	*19.4*	*13.6*
Finescale codling	*a/*	3	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*
Kelp greenling (CA)	*118.9*	3	*99.2*	*82.5*	*68.2*	*55.9*	*45.1*	*35.4*	*26.8*	*18.8*
Kelp greenling (OR & WA)	*a/*	3	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*
Leopard shark	*167.1*	3	*139.4*	*116.0*	*95.9*	*78.5*	*63.3*	*49.8*	*37.6*	*26.4*
Pacific grenadier	*1,519.0*	3	*1,266.8*	*1,054.2*	*871.9*	*713.9*	*575.7*	*452.7*	*341.8*	*240.0*
Ratfish	*1,441.0*	3	*1,201.8*	*1,000.1*	*827.1*	*677.3*	*546.1*	*429.4*	*324.2*	*227.7*
Soupfin shark	*61.6*	3	*51.4*	*42.8*	*35.4*	*29.0*	*23.3*	*18.4*	*13.9*	*9.7*
Spiny dogfish	***2,980.0***	2	***2,720.7***	***2,482.3***	***2,258.8***	***2,044.3***	***1,832.7***	***1,627.1***	***1,412.5***	***1,183.1***

a/ No ABC contribution for these stocks given the lack of an approved method for estimating the OFL.

Table 2-6. 2014 OFLs (mt) and a range of alternative 2014 ABCs (mt) varied by the probability of overfishing (P*) for west coast groundfish stocks (overfished stocks in CAPS; stocks with new assessments in bold; component stocks in stock complexes in italics).

Stock	2014 OFL	Category	Range of Alternative 2014 ABCs Overfishing Probability (P*)							
			0.45	0.40	0.35	0.30	0.25	0.20	0.15	0.10
OVERFISHED STOCKS										
BOCACCIO S. of 40⁰10' N. latitude	**881**	1	**842**	**804**	**766**	**729**	**691**	**651**	**607**	**555**
CANARY	**741**	1	**709**	**677**	**645**	**614**	**581**	**548**	**511**	**467**
COWCOD S. of 40⁰10' N. latitude	12		10	9	8	7	6	5	4	3
COWCOD (Conception)	7	2	6	6	5	5	4	4	3	3
COWCOD (Monterey)	5	3	4	3	3	2	2	1	1	1
DARKBLOTCHED	**553**	1	**529**	**505**	**481**	**458**	**434**	**409**	**381**	**348**
PACIFIC OCEAN PERCH	**838**	1	**801**	**765**	**729**	**694**	**657**	**619**	**577**	**528**
PETRALE SOLE	**2,774**	1	**2,652**	**2,533**	**2,413**	**2,297**	**2,175**	**2,050**	**1,911**	**1,748**
YELLOWEYE	**51**	2	**47**	**43**	**39**	**35**	**31**	**28**	**24**	**20**
NON-OVERFISHED STOCKS										
Arrowtooth Flounder	6,912	2	6,311	5,758	5,239	4,742	4,251	3,774	3,276	2,744
Black Rockfish (OR-CA)	1,166	1	1,115	1,065	1,015	966	914	862	804	735
Black Rockfish (WA)	428	1	409	391	372	354	335	316	295	269
Cabezon (CA)	165	1	158	151	144	137	129	122	114	104
Cabezon (OR)	49	1	47	45	43	41	38	36	34	31
California scorpionfish	122	1	117	111	106	101	96	90	84	77
Chilipepper S. of 40⁰10' N. latitude	1,722	1	1,647	1,573	1,498	1,426	1,350	1,273	1,187	1,085
Dover Sole	**77,774**	1	**74,352**	**71,008**	**67,663**	**64,397**	**60,975**	**57,475**	**53,586**	**48,998**
English Sole	5,906	1	5,646	5,392	5,138	4,890	4,630	4,365	4,069	3,721
Lingcod N. of 40º10' N. latitude	3,162	1	3,023	2,887	2,751	2,618	2,479	2,337	2,179	1,992
Lingcod S. of 40º10' N. latitude	1,276	2	1,165	1,063	967	875	785	697	605	507
Longnose skate	2,816	1	2,692	2,571	2,450	2,332	2,208	2,081	1,940	1,774
Longspine Thornyhead (coastwide)	3,304	2	3,017	2,752	2,504	2,267	2,032	1,804	1,566	1,312
Pacific Cod	3,200	3	2,669	2,221	1,837	1,504	1,213	954	720	506
Sablefish (coastwide)	**7,158**	1	**6,843**	**6,535**	**6,227**	**5,927**	**5,612**	**5,290**	**4,932**	**4,510**
Shortbelly	6,950	2	6,345	5,789	5,268	4,768	4,274	3,795	3,294	2,759
Shortspine Thornyhead (coastwide)	2,310	1	2,208	2,109	2,010	1,913	1,811	1,707	1,592	1,455
Splitnose S. of 40⁰10' N. latitude	1,747	1	1,670	1,595	1,520	1,446	1,370	1,291	1,204	1,101
Starry Flounder	1,834	2	1,674	1,528	1,390	1,258	1,128	1,001	869	728
WIDOW	**4,435**	1	**4,212**	**3,997**	**3,787**	**3,577**	**3,364**	**3,141**	**2,900**	**2,622**
Yellowtail N. of 40⁰10' N. latitude	4,584	1	4,382	4,185	3,988	3,796	3,594	3,388	3,158	2,888

Stock	2014 OFL	Category	Range of Alternative 2014 ABCs Overfishing Probability (P*)							
			0.45	0.40	0.35	0.30	0.25	0.20	0.15	0.10
STOCK COMPLEXES										
Minor Nearshore Rockfish North	110		94	80	68	57	48	39	31	24
Black and yellow	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Blue (CA)	*27.4*	2	*25.0*	*22.9*	20.8	18.8	16.9	15.0	13.0	10.9
Blue (OR & WA)	*32.3*	3	*26.9*	*22.4*	18.5	15.2	12.2	9.6	7.3	5.1
Brown	*5.5*	3	*4.6*	*3.8*	3.2	2.6	2.1	1.6	1.2	0.9
Calico	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
China	*9.8*	3	*8.2*	*6.8*	5.6	4.6	3.7	2.9	2.2	1.6
Copper	*26.0*	3	*21.6*	*18.0*	14.9	12.2	9.8	7.7	5.8	4.1
Gopher	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Grass	*0.7*	3	*0.5*	*0.5*	0.4	0.3	0.2	0.2	0.1	0.1
Kelp	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Olive	*0.3*	3	*0.3*	*0.2*	0.2	0.1	0.1	0.1	0.1	0.0
Quillback	*7.4*	3	*6.2*	*5.1*	4.2	3.5	2.8	2.2	1.7	1.2
Treefish	*0.2*	3	*0.2*	*0.2*	0.1	0.1	0.1	0.1	0.0	0.0
Minor Shelf Rockfish North	2,195		1,932	1,701	1,495	1,308	1,134	971	812	652
Bronzespotted	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Bocaccio	*284.0*	3	*236.9*	*197.1*	163.0	133.5	107.6	84.6	63.9	44.9
Chameleon	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Chilipepper	*129.6*	3	*108.1*	*90.0*	74.4	60.9	49.1	38.6	29.2	20.5
Cowcod	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Flag	*0.1*	3	*0.1*	*0.1*	0.0	0.0	0.0	0.0	0.0	0.0
Freckled	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Greenblotched	*1.3*	3	*1.1*	*0.9*	0.7	0.6	0.5	0.4	0.3	0.2
Greenspotted 40°10’ to 42° N. latitude	**9.4**	2	**8.6**	**7.8**	**7.1**	**6.4**	**5.8**	**5.1**	**4.4**	**3.7**
Greenspotted N. of 42 N. latitude (OR & WA)	6.1	3	5.1	4.2	3.5	2.9	2.3	1.8	1.4	1.0
Greenstriped	*1,268.3*	2	*1,158.0*	*1,056.5*	961.4	870.1	780.0	692.5	601.2	503.5
Halfbanded	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Harlequin	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Honeycomb	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Mexican	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Pink	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Pinkrose	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Puget Sound	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Pygmy	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0

Stock	2014 OFL	Category	Range of Alternative 2014 ABCs Overfishing Probability (P*)							
			0.45	0.40	0.35	0.30	0.25	0.20	0.15	0.10
Redstripe	*269.9*	3	*225.1*	*187.3*	154.9	126.9	102.3	80.4	60.7	42.6
Rosethorn	*12.9*	3	*10.8*	*9.0*	7.4	6.1	4.9	3.8	2.9	2.0
Rosy	*3.0*	3	*2.5*	*2.1*	1.7	1.4	1.1	0.9	0.7	0.5
Silvergray	*159.4*	3	*133.0*	*110.6*	91.5	74.9	60.4	47.5	35.9	25.2
Speckled	*0.2*	3	*0.1*	*0.1*	0.1	0.1	0.1	0.1	0.0	0.0
Squarespot	*0.2*	3	*0.1*	*0.1*	0.1	0.1	0.1	0.1	0.0	0.0
Starry	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Stripetail	*40.4*	3	*33.7*	*28.0*	23.2	19.0	15.3	12.0	9.1	6.4
Swordspine	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Tiger	*1.0*	3	*0.8*	*0.7*	0.6	0.5	0.4	0.3	0.2	0.2
Vermilion	*9.7*	3	*8.1*	*6.7*	5.6	4.6	3.7	2.9	2.2	1.5
Minor Slope Rockfish North	1,553		1,414	1,291	1,180	1,079	983	893	802	705
Aurora	*15.4*	3	*12.8*	*10.7*	8.8	7.2	5.8	4.6	3.5	2.4
Bank	*17.2*	3	*14.4*	*12.0*	9.9	8.1	6.5	5.1	3.9	2.7
Blackgill	*4.7*	3	*3.9*	*3.3*	2.7	2.2	1.8	1.4	1.1	0.7
Redbanded	*45.3*	3	*37.7*	*31.4*	26.0	21.3	17.2	13.5	10.2	7.2
Rougheye	*71.1*	3	*59.3*	*49.3*	40.8	33.4	26.9	21.2	16.0	11.2
Sharpchin	*214.5*	3	*178.9*	*148.9*	123.1	100.8	81.3	63.9	48.3	33.9
Shortraker	*18.7*	3	*15.6*	*13.0*	10.7	8.8	7.1	5.6	4.2	3.0
Splitnose	*974.1*	1	*931.3*	*889.4*	847.5	806.6	763.7	719.9	671.2	613.7
Yellowmouth	*192.4*	3	*160.5*	*133.6*	110.5	90.4	72.9	57.3	43.3	30.4
Minor Nearshore Rockfish South	1,160		1,001	865	746	641	546	460	379	300
Shallow Nearshore Species	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Black and yellow	*27.5*	3	*23.0*	*19.1*	*15.8*	*12.9*	*10.4*	*8.2*	*6.2*	*4.4*
China	*16.6*	3	*13.8*	*11.5*	*9.5*	*7.8*	*6.3*	*4.9*	*3.7*	*2.6*
Gopher (N of Pt. Conception)	*153.0*	1	*146.3*	*139.7*	*133.1*	*126.7*	*120.0*	*113.1*	*105.4*	*96.4*
Gopher (S of Pt. Conception)	*25.6*	3	*21.4*	*17.8*	*14.7*	*12.0*	*9.7*	*7.6*	*5.8*	*4.0*
Grass	*59.6*	3	*49.7*	*41.4*	*34.2*	*28.0*	*22.6*	*17.8*	*13.4*	*9.4*
Kelp	*27.7*	3	*23.1*	*19.2*	*15.9*	*13.0*	*10.5*	*8.2*	*6.2*	*4.4*
Deeper Nearshore Species	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Blue (assessed area)	*187.8*	2	*171.4*	*156.4*	142.3	128.8	115.5	102.5	89.0	74.5
Blue (S of 34°27' N. latitude)	*72.9*	3	*60.8*	*50.6*	41.8	34.3	27.6	21.7	16.4	11.5
Brown	*204.6*	3	*170.6*	*142.0*	117.4	96.2	77.5	61.0	46.0	32.3
Calico	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Copper	*141.5*	3	*118.0*	*98.2*	81.2	66.5	53.6	42.2	31.8	22.4

Stock	2014 OFL	Category	Range of Alternative 2014 ABCs Overfishing Probability (P*) 0.45	0.40	0.35	0.30	0.25	0.20	0.15	0.10
Olive	*224.6*	3	*187.4*	*155.9*	128.9	105.6	85.1	66.9	50.5	35.5
Quillback	*5.4*	3	*4.5*	*3.7*	3.1	2.5	2.0	1.6	1.2	0.9
Treefish	*13.2*	3	*11.0*	*9.2*	7.6	6.2	5.0	3.9	3.0	2.1
Minor Shelf Rockfish South	1,913		1,620	1,371	1,156	967	799	648	508	377
Bronzespotted	*3.6*	3	*3.0*	*2.5*	2.1	1.7	1.4	1.1	0.8	0.6
Chameleon	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Flag	*23.4*	3	*19.5*	*16.3*	13.4	11.0	8.9	7.0	5.3	3.7
Freckled	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Greenblotched	*23.1*	3	*19.3*	*16.1*	13.3	10.9	8.8	6.9	5.2	3.7
Greenspotted	***80.3***	2	***73.3***	***66.9***	***60.9***	***55.1***	***49.4***	***43.9***	***38.1***	***31.9***
Greenstriped	*232.7*	2	*212.4*	*193.8*	176.4	159.6	143.1	127.0	110.3	92.4
Halfbanded	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Harlequin	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Honeycomb	*9.9*	3	*8.2*	*6.8*	5.7	4.6	3.7	2.9	2.2	1.6
Mexican	*5.1*	3	*4.2*	*3.5*	2.9	2.4	1.9	1.5	1.1	0.8
Pink	*2.5*	3	*2.1*	*1.8*	1.5	1.2	1.0	0.8	0.6	0.4
Pinkrose	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Pygmy	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Redstripe	*0.5*	3	*0.4*	*0.3*	0.3	0.2	0.2	0.1	0.1	0.1
Rosethorn	*2.1*	3	*1.8*	*1.5*	1.2	1.0	0.8	0.6	0.5	0.3
Rosy	*44.5*	3	*37.1*	*30.9*	25.5	20.9	16.9	13.3	10.0	7.0
Silvergray	*0.5*	3	*0.4*	*0.4*	0.3	0.3	0.2	0.2	0.1	0.1
Speckled	*39.4*	3	*32.8*	*27.3*	22.6	18.5	14.9	11.7	8.9	6.2
Squarespot	*11.1*	3	*9.2*	*7.7*	6.4	5.2	4.2	3.3	2.5	1.8
Starry	*62.6*	3	*52.2*	*43.4*	35.9	29.4	23.7	18.6	14.1	9.9
Stripetail	*23.6*	3	*19.7*	*16.4*	13.6	11.1	9.0	7.0	5.3	3.7
Swordspine	*14.2*	3	*11.9*	*9.9*	8.2	6.7	5.4	4.2	3.2	2.2
Tiger	*0.0*	3	*0.0*	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0
Vermilion	*269.3*	3	*224.6*	*186.9*	154.6	126.6	102.1	80.2	60.6	42.5
Yellowtail	*1,064.4*	3	*887.7*	*738.7*	611.0	500.3	403.4	317.2	239.5	168.2
Minor Slope Rockfish South	685		622	564	510	460	410	362	313	261
Aurora	*26.1*	3	*21.7*	*18.1*	*15.0*	*12.3*	*9.9*	*7.8*	*5.9*	*4.1*
Bank	*503.2*	2	*459.4*	*419.2*	*381.4*	*345.2*	*309.5*	*274.8*	*238.5*	*199.8*
Blackgill	***134.0***	2	***122.3***	***111.6***	***101.6***	***91.9***	***82.4***	***73.2***	***63.5***	***53.2***
Pacific ocean perch	*0.0*	3	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*

Stock	2014 OFL	Category	Range of Alternative 2014 ABCs Overfishing Probability (P*)							
			0.45	0.40	0.35	0.30	0.25	0.20	0.15	0.10
Redbanded	*10.4*	3	*8.7*	*7.2*	*6.0*	*4.9*	*3.9*	*3.1*	*2.3*	*1.6*
Rougheye	*0.4*	3	*0.3*	*0.3*	*0.2*	*0.2*	*0.2*	*0.1*	*0.1*	*0.1*
Sharpchin	*9.8*	3	*8.2*	*6.8*	*5.7*	*4.6*	*3.7*	*2.9*	*2.2*	*1.6*
Shortraker	*0.1*	3	*0.1*	*0.1*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Yellowmouth	*0.8*	3	*0.7*	*0.6*	*0.5*	*0.4*	*0.3*	*0.3*	*0.2*	*0.1*
Other Flatfish	10,060		8,390	6,982	5,775	4,728	3,813	2,998	2,264	1,590
Butter sole	*4.6*	3	*3.9*	*3.2*	*2.7*	*2.2*	*1.8*	*1.4*	*1.0*	*0.7*
Curlfin sole	*8.2*	3	*6.9*	*5.7*	*4.7*	*3.9*	*3.1*	*2.5*	*1.9*	*1.3*
Flathead sole	*35.0*	3	*29.2*	*24.3*	*20.1*	*16.5*	*13.3*	*10.4*	*7.9*	*5.5*
Pacific sanddab	*4,801.0*	3	*4,004.0*	*3,331.9*	*2,755.8*	*2,256.5*	*1,819.6*	*1,430.7*	*1,080.2*	*758.6*
Rex sole	*4,371.5*	3	*3,645.8*	*3,033.8*	*2,509.2*	*2,054.6*	*1,656.8*	*1,302.7*	*983.6*	*690.7*
Rock sole	*66.7*	3	*55.6*	*46.3*	*38.3*	*31.3*	*25.3*	*19.9*	*15.0*	*10.5*
Sand sole	*773.2*	3	*644.8*	*536.6*	*443.8*	*363.4*	*293.0*	*230.4*	*174.0*	*122.2*
Other Fish	6,802	3	5,906	5,130	4,447	3,834	3,274	2,758	2,265	1,780
Big skate	*458.0*	3	*382.0*	*317.9*	*262.9*	*215.3*	*173.6*	*136.5*	*103.1*	*72.4*
Cabezon (WA)	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*
California skate	*86.0*	3	*71.7*	*59.7*	*49.4*	*40.4*	*32.6*	*25.6*	*19.4*	*13.6*
Finescale codling	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*
Kelp greenling (CA)	*118.9*	3	*99.2*	*82.5*	*68.2*	*55.9*	*45.1*	*35.4*	*26.8*	*18.8*
Kelp greenling (OR & WA)	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*	*a/*
Leopard shark	*167.1*	3	*139.4*	*116.0*	*95.9*	*78.5*	*63.3*	*49.8*	*37.6*	*26.4*
Pacific grenadier	*1,519.0*	3	*1,266.8*	*1,054.2*	*871.9*	*713.9*	*575.7*	*452.7*	*341.8*	*240.0*
Ratfish	*1,441.0*	3	*1,201.8*	*1,000.1*	*827.1*	*677.3*	*546.1*	*429.4*	*324.2*	*227.7*
Soupfin shark	*61.6*	3	*51.4*	*42.8*	*35.4*	*29.0*	*23.3*	*18.4*	*13.9*	*9.7*
Spiny dogfish	***2,950.0***	2	***2,693.4***	***2,457.4***	***2,236.1***	***2,023.7***	***1,814.3***	***1,610.7***	***1,398.3***	***1,171.2***

a/ No ABC contribution for these stocks given the lack of an approved method for estimating the OFL.

Table 2-7. 2012 ABCs (mt) and preferred 2013 and 2014 ABCs (mt) and stock category values for west coast groundfish stocks (overfished stocks in CAPS; stocks with new assessments in bold).

Stock	2012 ABC	Category for 2013-2014	Sub-category	2013 ABC	2014 ABC
OVERFISHED STOCKS					
BOCACCIO S. of 40^{0}10' N. latitude	700	1		**845**	**842**
CANARY	594	1		**719**	**709**
COWCOD S. of 40^{0}10' N. latitude	10			9	9
COWCOD (Conception)	*5*	2	c	5	6
COWCOD (Monterey)	*5*	3	d	3	3
DARKBLOTCHED	475	1		**517**	**529**
PACIFIC OCEAN PERCH	962	1		**807**	**801**
PETRALE SOLE	1,222	1		**2,592**	**2,652**
YELLOWEYE	46	2		**43**	**43**
NON-OVERFISHED STOCKS					
Arrowtooth Flounder	12,049	2	d	6,157	5,758
Black Rockfish (OR-CA)	1,117	1		1,108	1,115
Black Rockfish (WA)	415	1		411	409
Cabezon (CA)	168	1		163	158
Cabezon (OR)	48	1		47	47
California scorpionfish	126	1		120	117
Chilipepper S. of 40^{0}10' N. latitude	1,789	1		1,690	1,647
Dover Sole	42,843	1		**88,865**	**74,352**
English Sole	10,151	1		6,815	5,646
Lingcod N. of 42º N. latitude (OR & WA)	2,151	1		NA	NA
Lingcod S. of 42º N. latitude (CA)	2,164	2	d	NA	NA
Lingcod N. of 40º10' N. latitude	NA	1		3,187	3,023
Lingcod S. of 40º10' N. latitude	NA	2	d	1,111	1,063
Longnose skate	2,873	1		2,774	2,692
Longspine Thornyhead (coastwide)	2,902	2	d	2,825	2,752
Pacific Cod	2,222	3	b	2,221	2,221
Sablefish (coastwide)	8,242	1		**6,045**	**6,535**
Shortbelly	5,789	2	d	5,789	5,789
Shortspine Thornyhead (coastwide)	2,254	1		2,230	2,208
Splitnose S. of 40^{0}10' N. latitude	1,538	1		1,610	1,670
Starry Flounder	1,511	2	d	1,520	1,528
Widow a/	4,705	1		**4,598**	**4,212**
Yellowtail N. of 40^{0}10' N. latitude	4,371	1		4,378	4,382

a/ Widow rockfish has been overfished and managed under a rebuilding plan since the stock was declared overfished in 2001. However, based on the new 2011 assessment, the stock has reached the biomass target and is now considered successfully rebuilt.

Table 2-8. 2012 ABCs (mt) and preferred 2013 and 2014 ABCs (mt) and stock category values for west coast groundfish stocks managed in stock complexes (stocks with new assessments in bold; component stocks in stock complexes in italics).

Stock	2012 ABC	Category for 2013-2014	Sub-category	2013 ABC	2014 ABC
STOCK COMPLEXES					
Minor Nearshore Rockfish North	99			94	94
Black and yellow	*0.0*	3	d	*0.0*	*0.0*
Blue (CA)	*25.1*	2	d	*25.0*	*25.0*
Blue (OR & WA)	*27.6*	3	d	*26.9*	*26.9*
Brown	*4.5*	3	d	*4.6*	*4.6*
Calico	*0.0*	3	a	*0.0*	*0.0*
China	*9.8*	3	d	*8.2*	*8.2*
Copper	*23.9*	3	d	*21.6*	*21.6*
Gopher	*0.0*	3	a	*0.0*	*0.0*
Grass	*0.5*	3	d	*0.5*	*0.5*
Kelp	*0.0*	3	d	*0.0*	*0.0*
Olive	*0.2*	3	d	*0.3*	*0.3*
Quillback	*7.3*	3	d	*6.2*	*6.2*
Treefish	*0.2*	3	d	*0.2*	*0.2*
Minor Shelf Rockfish North	1,948			1,920	1,932
Bronzespotted	*0.0*	3	d	*0.0*	*0.0*
Bocaccio	*223.8*	3	d	*236.9*	*236.9*
Chameleon	*0.0*	3	a	*0.0*	*0.0*
Chilipepper	*134.7*	3	d	*111.0*	*108.1*
Cowcod	*0.0*	3	a	*0.0*	*0.0*
Flag	*0.1*	3	d	*0.1*	*0.1*
Freckled	*0.0*	3	a	*0.0*	*0.0*
Greenblotched	*1.1*	3	c	*1.1*	*1.1*
Greenspotted 40°10' to 42° N latitude	*17.4*	2	d	9	9
Greenspotted N. of 42 N latitude (OR & WA)		3		*5.1*	*5.1*
Greenstriped	*1,125.4*	2	d	*1,143*	*1,158*
Halfbanded	*0.0*	3	b	*0.0*	*0.0*
Harlequin	*0.0*	3	a	*0.0*	*0.0*
Honeycomb	*0.0*	3	c	*0.0*	*0.0*
Mexican	*0.0*	3	c	*0.0*	*0.0*
Pink	*0.0*	3	d	*0.0*	*0.0*
Pinkrose	*0.0*	3	b	*0.0*	*0.0*
Puget Sound	*0.0*	3	a	*0.0*	*0.0*
Pygmy	*0.0*	3	a	*0.0*	*0.0*
Redstripe	*240.6*	3	d	*225.1*	*225.1*
Rosethorn	*12.7*	3	d	*10.8*	*10.8*
Rosy	*2.1*	3	d	*2.5*	*2.5*
Silvergray	*150.2*	3	d	*133.0*	*133.0*
Speckled	*0.2*	3	d	*0.1*	*0.1*
Squarespot	*0.1*	3	c	*0.1*	*0.1*
Starry	*0.0*	3	d	*0.0*	*0.0*
Stripetail	*29.4*	3	d	*33.7*	*33.7*
Swordspine	*0.0*	3	d	*0.0*	*0.0*
Tiger	*0.9*	3	d	*0.8*	*0.8*
Vermilion	*9.3*	3	c	*8.1*	*8.1*

Stock	2012 ABC	Category for 2013-2014	Sub-category	2013 ABC	2014 ABC
Minor Slope Rockfish North	1,367			1,381	1,414
Aurora	*14.5*	3	d	*12.8*	*12.8*
Bank	*16.4*	3	d	*14.4*	*14.4*
Blackgill	*3.9*	3	c	*3.9*	*3.9*
Redbanded	*43.1*	3	d	*37.7*	*37.7*
Rougheye	*65.3*	3	d	*59.3*	*59.3*
Sharpchin	*193.5*	3	d	*178.9*	*178.9*
Shortraker	*18.2*	3	d	*15.6*	*15.6*
Splitnose	*857.6*	1		*897.7*	*931.3*
Yellowmouth	*154.1*	3	d	*160.5*	*160.5*
Minor Nearshore Rockfish South	990			1,005	1,001
Shallow Nearshore Species	NA	NA	NA	*NA*	*NA*
Black and yellow	*22.3*	3	c	*23.0*	*23.0*
China	*16.5*	3	c	*13.8*	*13.8*
Gopher (N of Point Conception)	*157.7*	1		*150.1*	*146.3*
Gopher (S of Point Conception)	*21.7*	3	c	*21.4*	*21.4*
Grass	*46.4*	3	d	*49.7*	*49.7*
Kelp	*21.6*	3	d	*23.1*	*23.1*
Deeper Nearshore Species	NA	NA	NA	*NA*	*NA*
Blue (assessed area)	*173.1*	2	d	*171.4*	*171.4*
Blue (S of 34°27' N latitude)	*61.8*	3	c	*60.8*	*60.8*
Brown	*164.7*	3	d	*170.6*	*170.6*
Calico	*0.0*	3	b	*0.0*	*0.0*
Copper	*130.1*	3	d	*118.0*	*118.0*
Olive	*158.1*	3	d	*187.4*	*187.4*
Quillback	*5.3*	3	d	*4.5*	*4.5*
Treefish	*10.8*	3	d	*11.0*	*11.0*
Minor Shelf Rockfish South	1,890			1,617	1,620
Bronzespotted	*5.6*	3	c	*3.0*	*3.0*
Chameleon	*0.0*	3	a	*0.0*	*0.0*
Flag	*22.2*	3	c	*19.5*	*19.5*
Freckled	*0.0*	3	a	*0.0*	*0.0*
Greenblotched	*20.5*	3	d	*19.3*	*19.3*
Greenspotted	*163.0*	2	d	*73.3*	*73.3*
Greenstriped	*206.5*	2	d	*209.7*	*212.4*
Halfbanded	*0.0*	3	b	*0.0*	*0.0*
Harlequin	*0.0*	3	a	*0.0*	*0.0*
Honeycomb	*6.5*	3	c	*8.2*	*8.2*
Mexican	*2.4*	3	c	*4.2*	*4.2*
Pink	*2.3*	3	d	*2.1*	*2.1*
Pinkrose	*0.0*	3	a	*0.0*	*0.0*
Pygmy	*0.0*	3	a	*0.0*	*0.0*
Redstripe	*0.4*	3	d	*0.4*	*0.4*
Rosethorn	*2.1*	3	d	*1.8*	*1.8*
Rosy	*30.8*	3	d	*37.1*	*37.1*
Silvergray	*0.5*	3	d	*0.4*	*0.4*
Speckled	*35.8*	3	d	*32.8*	*32.8*
Squarespot	*4.8*	3	c	*9.2*	*9.2*
Starry	*58.9*	3	d	*52.2*	*52.2*

Stock	2012 ABC	Category for 2013-2014	Sub-category	2013 ABC	2014 ABC
Stripetail	*17.2*	3	d	*19.7*	*19.7*
Swordspine	*10.8*	3	d	*11.9*	*11.9*
Tiger	*0.0*	3	d	*0.0*	*0.0*
Vermilion	*257.3*	3	d	*224.6*	*224.6*
Yellowtail	*1,042.2*	3	d	*887.7*	*887.7*
Minor Slope Rockfish South	832			618	622
Aurora	*24.5*	3	c	*21.7*	*21.7*
Bank	*525.1*	2	a	*459.4*	*459.4*
Blackgill	*262.8*	2	d	***118.7***	***122.3***
Pacific ocean perch	*0.0*	3	a	*0.0*	*0.0*
Redbanded	*9.9*	3	d	*8.7*	*8.7*
Rougheye	*0.4*	3	d	*0.3*	*0.3*
Sharpchin	*8.9*	3	d	*8.2*	*8.2*
Shortraker	*0.1*	3	d	*0.1*	*0.1*
Yellowmouth	*0.7*	3	d	*0.7*	*0.7*
Other Flatfish	7,044			6,982	6,982
Butter sole	*3.2*	3	b	*3.2*	*3.2*
Curlfin sole	*5.7*	3	b	*5.7*	*5.7*
Flathead sole	*24.3*	3	b	*24.3*	*24.3*
Pacific sanddab	*3,431.7*	3	d	*3,331.9*	*3,331.9*
Rex sole	*2,991.6*	3	d	*3,033.8*	*3,033.8*
Rock sole	*45.8*	3	c	*46.3*	*46.3*
Sand sole	*542.1*	3	c	*536.6*	*536.6*
Other Fish a/	7,742	3		4,717	4,697
Big skate		3		*317.9*	*317.9*
Cabezon (WA)		3		*b/*	*b/*
California skate		3		*59.7*	*59.7*
Finescale codling		3		*b/*	*b/*
Kelp greenling (CA)		3	d	*82.5*	*82.5*
Kelp greenling (OR & WA)		3		*b/*	*b/*
Leopard shark		3	d	*116.0*	*116.0*
Pacific grenadier		3	c	*1,054.2*	*1,054.2*
Ratfish		3		*1,000.1*	*1,000.1*
Soupfin shark		3	c	*42.8*	*42.8*
Spiny dogfish		2	d	***2,044***	***2,024***

a/ 2013 and 2014 ABC values for the Other Fish complex are the sum of known contributions of component stocks. The 2012 ABC for the Other Fish complex was based on a reduction of the 2010 MSY harvest level.
b/ No ABC contribution for these stocks given the lack of an approved method for estimating the OFL.

2.1.3 Annual Catch Limits

Annual catch limits (ACLs) are specified for each stock and stock complex that is "in the fishery" as specified under the FMP framework. An ACL is a harvest specification set equal to the ABC or below the ABC in consideration of conservation objectives, management uncertainty, socioeconomic considerations, ecological considerations, and other factors (e.g. rebuilding considerations) needed to meet management objectives. Sector-specific ACLs may be specified in cases where a sector has a formal, long-term allocation of the harvestable surplus of a stock or stock complex. The ACL counts all sources of fishing-related mortality including landed catch, discard mortalities, research catches, and set-asides for exempted fishing permits (EFPs).

Under the FMP, the biomass level that produces MSY (B_{MSY}) is defined as the precautionary threshold. When the biomass for an assessed category 1 or 2 stock falls below the precautionary threshold, the harvest rate will be reduced to help the stock return to the B_{MSY} level, which is the management target for groundfish stocks. If a stock biomass is larger than B_{MSY}, the ACL may be set equal to or less than ABC. Because B_{MSY} is a long term average, the true biomass could be below B_{MSY} in some years and above B_{MSY} in other years. Even in the absence of overfishing, biomass may decline to levels below B_{MSY} due to natural fluctuations in recruitment. The minimum stock size threshold (MSST) is the biomass threshold for declaring a stock overfished. When spawning stock biomass falls below the MSST, a rebuilding plan must be developed that determines the strategy for rebuilding the stock in the shortest time possible while considering impacts to fishing-dependent communities and other factors. When spawning stock biomass is below B_{MSY} yet above the MSST, the stock is considered to be in the precautionary zone. The current proxy B_{MSY} and MSST reference points for west coast groundfish stocks are as follows:

- Assessed flatfish stocks: B_{MSY} = 25% of initial biomass or $B_{25\%}$; MSST = 12.5% of initial biomass or $B_{12.5\%}$; and
- All other assessed groundfish stocks: B_{MSY} = 40% of initial biomass or $B_{40\%}$; MSST = 25% of initial biomass or $B_{25\%}$.

These reference points are only used to manage assessed stocks since they require estimates of spawning stock biomass.

West coast groundfish stocks are managed with harvest control rules that calculate ACLs below the ABCs when spawning biomass is estimated to be in the precautionary zone. These harvest control rules are designed to prevent a stock from becoming overfished. The FMP defines the 40-10 harvest control rule for stocks with a B_{MSY} proxy of $B_{40\%}$ that are in the precautionary zone. The analogous harvest control rule for assessed flatfish stocks is the 25-5 harvest control rule. Both ACL harvest control rules are applied after the ABC deduction is made. The further the stock biomass is below the precautionary threshold, the greater the reduction in ACL relative to the ABC, until at $B_{10\%}$ for a stock with a B_{MSY} proxy of $B_{40\%}$ or $B_{5\%}$ for a stock with a B_{MSY} proxy of $B_{25\%,}$ the ACL would be set at zero (Figure 2-1). These harvest policies foster a quicker return to the B_{MSY} level and serve as an interim rebuilding policy for stocks that are below the MSST. The Council may recommend setting the ACL higher than what the default ACL harvest control rule specifies as long as the ACL does not exceed the ABC, complies with the requirements of the MSA, and is consistent with the FMP and National Standard Guidelines. Additional precautionary adjustments may be made to an ACL if necessary to address management uncertainty, conservation concerns, socioeconomic concerns, ecological considerations, and the other factors that are considered when setting ACLs.

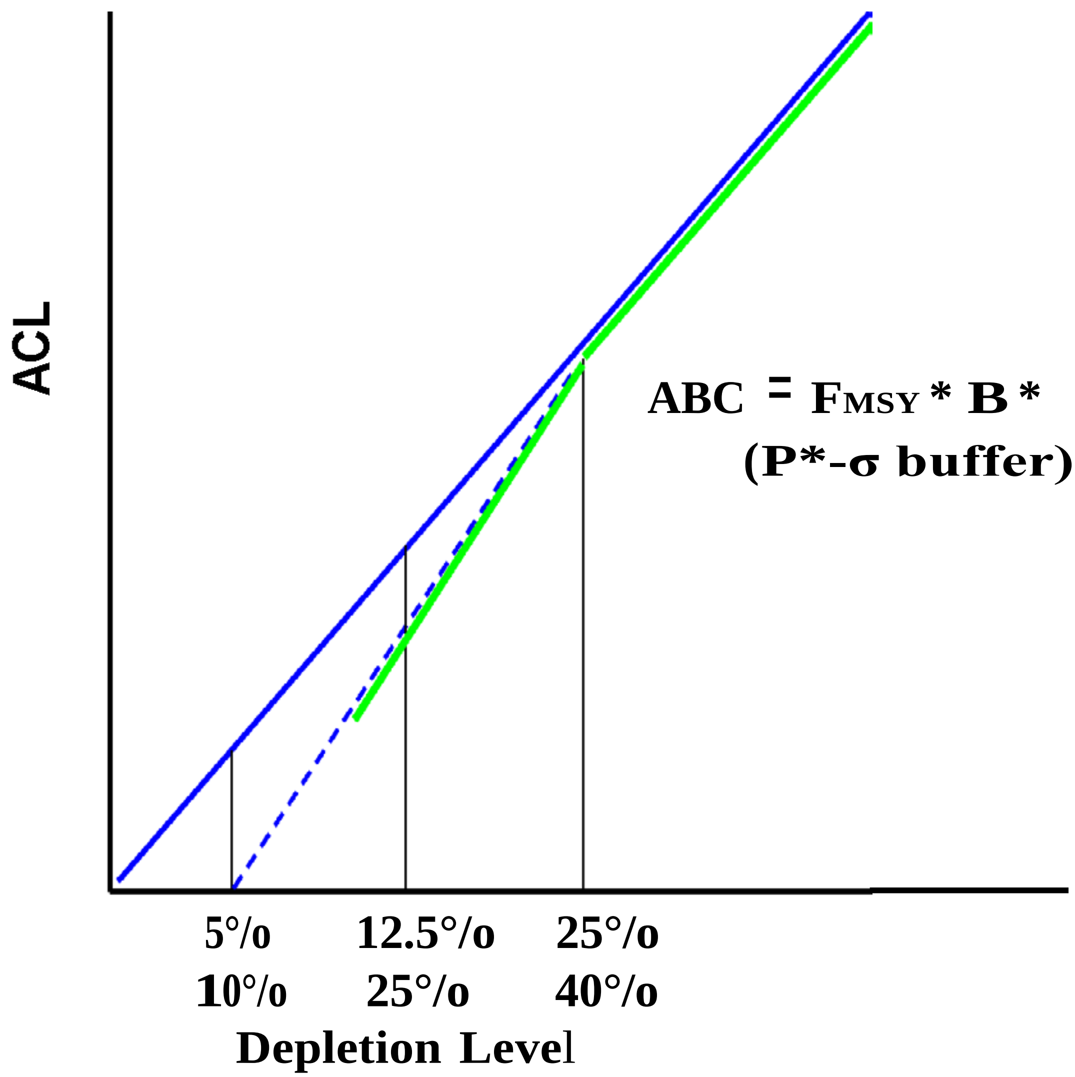

Figure 2-1. Conceptual diagram of the 25-5 and 40-10 ACL harvest control rules used to manage assessed west coast flatfish and other groundfish species, respectively that are in the precautionary zone.

The ACL serves as the basis for invoking AMs, which are mechanisms used to address any management uncertainty that may result in exceeding an ACL. If ACLs are exceeded more often than 1 in 4 years, then AMs, such as catch monitoring and inseason adjustments to fisheries, need to improve or additional AMs may need to be implemented. Additional AMs may include setting an annual catch target (ACT), which is a specified level of harvest below the ACL. The use of ACTs may be especially important for a stock subject to highly uncertain inseason catch monitoring. A sector-specific ACT may serve as a harvest guideline for a sector or may be used strategically in a rebuilding plan to attempt to reduce mortality of an overfished stock more than the rebuilding plan limits prescribe.

The Council has the discretion to adjust the ACLs for uncertainty on a case-by-case basis. In cases where there is a high degree of uncertainty about the condition of the stock or stocks, the ACL may be reduced accordingly. Most category 3 species are managed in a stock complex (such as the minor rockfish complexes, Other Flatfish, and Other Fish) where harvest specifications are set for the complex in its entirety. For stock complexes, the ACL will be less than or equal to the sum of the individual component ABCs. The ACL may be adjusted below the sum of component ABCs as appropriate.

For most stocks and stock complexes, the Council elected to use the same general policies for deciding 2013 and 2014 ACLs as were used for deciding the 2012 ACLs (No Action). The No Action ACLs are the 2012 ACLs specified in Federal regulations.

The ACLs for some of the overfished species vary between the integrated alternatives, which link the harvest specifications decisions to the management measures necessary to keep catch within the ACLs for both non-overfished and overfished species, as well as achieve other management objectives specified in the FMP. The overfished species ACLs are strategically arrayed in the integrated alternatives to illuminate how each species might differentially constrain fishing opportunities by sector (or gear type) and region along the west coast, depending on the amount of allowable harvest of each species. The analysis of the integrated alternatives is designed to show how changes in rebuilding plan parameters (e.g., the harvest control rule) for those overfished species where rebuilding plan modifications are proposed affect the time to rebuild stocks while considering the needs of fishing communities and the other MSA conservation and socioeconomic objectives.

The ACL alternatives for stocks and stock complexes that were analyzed in addition to the No Action preferred alternatives are denoted with an alpha label (e.g., alt. a and b). This differs from the nomenclature used to designate the integrated alternatives, which are denoted with a numerical label (e.g., alt. 1, 2, 3, etc.). This labeling nomenclature is designed to reduce confusion between harvest specification alternatives and the integrated alternatives.

2.1.3.1 Annual Catch Limits for Overfished Species and Rebuilding Concerns

Section 4.5.3 of the FMP states the Council's general policies on rebuilding overfished stocks. Section 4.5.3.1 of the FMP specifies the overall goals of rebuilding programs are to (1) achieve the population size and structure that will support the maximum sustainable yield within a specified time period that is as short as possible, taking into account the status and biology of the stock, the needs of fishing communities, and the interaction of the stock of fish within the marine ecosystem; (2) minimize, to the extent practicable, the adverse social and economic impacts associated with rebuilding, including adverse impacts on fishing communities; (3) fairly and equitably distribute both the conservation burdens (overfishing restrictions) and recovery benefits among commercial, recreational, and charter fishing sectors; (4) protect the quantity and quality of habitat necessary to support the stock at healthy levels in the future; and (5) promote widespread public awareness, understanding and support for the rebuilding program. These overall goals are derived from and consistent with the requirements of the Magnuson-Stevens Act (MSA). The first goal embodies MSA national standard 1 (NS1) and the requirements for rebuilding overfished stocks found at MSA section 304(e)(4)(A). The third goal is required by MSA section 304(e)(4)(B). The fourth and fifth goals represent additional policy preferences of the Council that recognize the importance of habitat protection to the rebuilding of some fish stocks and the desire for public outreach and education on the complexities—biological, economic, and social issues—involved with rebuilding overfished stocks. Overfished groundfish species are those with spawning biomasses that have dropped below the Council's MSST (i.e., 25 percent of initial spawning biomass or $B_{25\%}$ for all groundfish species other than flatfish where the MSST is $B_{12.5\%}$). The FMP requires these stocks to be rebuilt to a target biomass that supports maximum sustainable yield (i.e., B_{MSY} or $B_{40\%}$ for all groundfish species other than flatfish where the target is $B_{25\%}$).

Rebuilding plans are in place for seven overfished rockfish species where assessments have indicated spawning biomass has declined to below the MSST. Extant rebuilding plans were modified in the 2011-2012 biennial specifications process and a new rebuilding plan was adopted for petrale sole under FMP

Amendment 16-5.[3] New full and updated assessments and rebuilding analyses done in 2011 inform the 2013 and 2014 harvest specifications for overfished species, except for cowcod where the 2009 update assessment and rebuilding analysis inform preferred harvest specifications. Six rockfish species (bocaccio south of 40°10' N. latitude, canary rockfish, cowcod south of 40°10' N. latitude, darkblotched rockfish, Pacific ocean perch (POP), and yelloweye rockfish) and one flatfish species (petrale sole) are considered overfished in the 2013-2014 management cycle. Widow rockfish, which has been managed under a rebuilding plan since the stock was declared overfished in 2002, is now successfully rebuilt based on the results of the new 2011 full assessment (see section 2.1.3.1).

Progress towards rebuilding for the seven overfished species was reviewed in relation to the current target year to rebuild (T_{TARGET}) and the spawning potential ratio (SPR) harvest rate specified in the respective rebuilding plans (Table 2-7). Rebuilding is occurring for all overfished species based on relative depletion trends (Figure 2-2 and Figure 2-3).

The No Action alternative for overfished stocks are the 2012 ACLs specified in regulation. This differs from the policies in adopted rebuilding plans that specify a T_{TARGET} based on forward probabilistic projections of stock biomass and depletion that assume continued application of an adopted harvest control rule such as a constant SPR harvest rate in the case of the overfished rockfish species or the default 25-5 harvest control rule in the case of petrale sole. The preferred alternative for five of the seven overfished stocks is to continue management under their respective rebuilding plans with no modification of the SPR harvest rate or the T_{TARGET}. Two stocks (i.e., canary rockfish and POP) are very unlikely to rebuild by the current T_{TARGET} as specified in their respective rebuilding plans. Canary rockfish is now estimated to have a median time to rebuild under the existing SPR rate that is three years later than the current T_{TARGET}. Although this deviation is relatively minor due to the sensitivity in the estimated median time to rebuild at different SPR rates, results indicate that even if all harvest is eliminated from 2013 onwards, there is slightly less than 50 percent probability that the stock will rebuild by the current T_{TARGET} (2027). For POP, if the current SPR rate in the rebuilding plan (86.4%) is maintained, the stock would not rebuild with a 50 percent probability until 2051, which is 31 years later than the current T_{TARGET}. The change is primarily due to a revised estimate of initial unfished biomass (B_0) and depletion, rather than the current biomass level. This represents a fundamental revision to our understanding of the status of this species, which in turn warrants revisions to T_{TARGET}. Because POP and canary rockfish cannot be rebuilt by T_{TARGET} with at least a 50 percent probability even in the absence of fishing (F=0) the integrated alternatives include modifications to the canary rockfish and POP rebuilding plans that change SPR rates and the associated T_{TARGET} years.

The discussion that follows details the basis for the overfished species ACL alternatives recommended for development of integrated alternatives. Alternatives for the seven overfished stocks managed under rebuilding plans are contrasted with the No Action alternative, and against $T_{F=0}$ (absence of fishing beginning in 2013), which is the shortest time to rebuild the stock at this point (i.e., SPR harvest rate is specified as 100 percent). Estimated probabilities for each ACL alternative to rebuild by the current T_{TARGET} specified in rebuilding plans as well as the probability to rebuild in the maximum time allowable under the National Standard 1 guidelines (T_{MAX}) are also shown in Table 2-7 to compare and contrast ACL alternatives for overfished species.

[3] Amendment 16-5 concerned modifications to seven overfished rockfish rebuilding plans, a new rebuilding plan for petrale sole, and a modification of proxy management reference points (i.e., F_{MSY}, B_{MSY}, MSST) for assessed flatfish species. Amendment 16-5 evolved into Secretarial Amendment 1 when the Council in June 2011 declined to take final action with respect to a partial disapproval of Amendment 16-5 by the Secretary of Commerce. This lack of Council action was done specifically to avoid a delay in implementing the 2012 regulations and modified rebuilding plans and led directly to a more expedited Secretarial amendment process as specified in section 304(c) of the Magnuson-Stevens Act.

Table 2-9. Estimated time to rebuild and spawning potential ratio (SPR) harvest rate relative to alternative 2013-2014 ACLs for overfished west coast groundfish stocks (lettered alternatives are those that were decided for detailed analysis in the DEIS; PPA = preliminary preferred alternative).

Stock	Current T_{TARGET}	Current SPR or Harvest Control Rule	PPA T_{TARGET}	ACL Alt.	ACLs (mt) 2013	ACLs (mt) 2014	SPR or Harvest Control Rule	Median Time to Rebuild	Rebuilding Duration Beyond $T_{F=0}$ (yrs.)	Prob. of Rebuilding by T_{TARGET}	Prob. of Rebuilding by T_{MAX}	Current T_{MAX}	Re-est. T_{MAX}
Bocaccio S of 40°10' N lat. a/	2022	77.7%	2022		0	0	100%	2019	0	88.0%	99.0%	2031	2031
					133	143	90.0%	2019	0	77.0%	97.0%		
					248	263	82.3%	2020	1	NA	NA		
				a, PPA	320	337	77.7%	2021	2	60.0%	90.0%		
					453	471	70.0%	2023	4	49.0%	70.0%		
					691	705	60.0%	2027	8	33.0%	63.0%		
					837	843	53.9%	2031	12	23.0%	51.0%		
Canary	2027	88.7%	2030	a	0	0	100%	2028	0	48.2%	75.0%	2046	2050
				b	48	49	95.1%	2028	0	41.2%	75.0%		
				c	101	104	90.0%	2029	1	36.4%	75.0%		
				d, PPA	116	119	88.7%	2030	2	34.4%	75.0%		
				e	147	151	85.9%	2030	2	31.7%	75.0%		
					184	187	82.9%	2031	3	29.9%	75.0%		
				f	216	220	80.3%	2032	4	27.9%	74.9%		
					302	306	74.0%	2035	7	26.1%	73.6%		
					394	397	67.9%	2040	12	25.1%	66.3%		
					449	451	64.7%	2045	17	25.0%	59.4%		
					752	753	62.2%	2050	22	25.0%	50.0%		
Cowcod[b/]	2068	82.7%	2068		0	0	100%	2060	0	NA	78.4%	2098	2097
					2	2	90.0%	2064	4	NA	72.4%		
				a, PPA	3	3	82.7%	2068	8	50.0%	66.2%		
					4	4	79.0%	2071	11	NA	66.2%		
					5	5	74.2%	2074	14	NA	66.2%		
					9	9	59.7%	2097	37	NA	53.3%		

Stock	Current T_{TARGET}	Current SPR or Harvest Control Rule	PPA T_{TARGET}	ACL Alt.	ACLs (mt)		SPR or Harvest Control Rule	Median Time to Rebuild	Rebuilding Duration Beyond $T_{F=0}$ (yrs.)	Prob. of Rebuilding by T_{TARGET}	Prob. of Rebuilding by T_{MAX}	Current T_{MAX}	Re-est. T_{MAX}
					2013	2014							
Darkblotched	2025	64.9%	2025		0	0	100%	2016	0	100.0%	100.0%	2037	2037
				a, PPA	317	330	64.9%	2017	1	100.0%	100.0%		
					347	360	62.6%	2017	1	100.0%	100.0%		
					353	366	62.1%	2018	2	100.0%	100.0%		
					372	385	60.7%	2018	2	100.0%	100.0%		
					423	437	57.1%	2018	2	100.0%	100.0%		
					488	501	53.0%	2020	4	72.8%	91.0%		
					553	565	49.0%	2025	9	NA	NA		
					676	685	43.0%	2037	21	NA	50.0%		
POP	2020	86.4%	2051	a	0	0	100%	2043	0	25.0%	85.5%	2045	2071
					16	17	98.4%	2043	0	25.0%	84.0%		
					35	36	96.5%	2044	1	25.0%	83.0%		
					58	60	94.3%	2045	2	25.0%	81.0%		
				b	74	76	92.9%	2046	3	25.0%	79.0%		
					89	91	91.6%	2047	4	25.0%	78.0%		
					106	108	90.1%	2048	5	25.0%	77.0%		
					122	124	88.8%	2049	6	25.0%	76.0%		
					131	134	88.0%	2050	7	25.0%	75.0%		
					136	139	87.6%	2050	7	25.0%	75.0%		
				c, PPA	150	153	86.4%	2051	8	25.0%	73.0%		
					158	161	85.8%	2052	9	25.0%	72.6%		
					163	167	85.4%	2052	9	25.0%	72.0%		
					175	178	84.5%	2053	10	25.0%	71.0%		
					182	186	83.9%	2054	11	25.0%	70.1%		
					199	203	82.6%	2055	12	25.0%	68.0%		
					209	213	81.9%	2056	13	25.0%	NA		
				d	222	226	80.9%	2057	14	25.0%	NA		
				e	247	251	79.2%	2060	17	25.0%	62.0%		
					291	295	76.2%	2065	22	25.0%	55.8%		
					328	333	73.8%	2071	28	25.0%	50.0%		

Stock	Current T_{TARGET}	Current SPR or Harvest Control Rule	PPA T_{TARGET}	ACL Alt.	ACLs (mt) 2013	ACLs (mt) 2014	SPR or Harvest Control Rule	Median Time to Rebuild	Rebuilding Duration Beyond $T_{F=0}$ (yrs.)	Prob. of Rebuilding by T_{TARGET}	Prob. of Rebuilding by T_{MAX}	Current T_{MAX}	Re-est. T_{MAX}
Petrale	2016	25-5 Rule	2016		0	0	100%	2013	0	100.0%	100.0%	2021	2021
					867	1,008	60%	2013	0	100.0%	100.0%		
					1,265	1,432	50%	2013	0	100.0%	100.0%		
					1,831	1,994	40%	2013	0	100.0%	100.0%		
				a, PPA	2,592	2,652	25-5 Rule (=ABC @ 28% depletion in 2013)	2013	0	100.0%	100.0%		
Yelloweye	2074	76.0%	2074		0	0	100%	2045	0	99.2%	99.9%	2089	2083
					9	9	86.4%	2053	8	85.3%	93.7%		
					14	14	80.5%	2060	15	75.1%	82.8%		
					15	15	79.5%	2061	16	73.2%	81.0%		
					17	18	76.5%	2066	21	64.1%	73.9%		
				a, PPA	18	18	76.0%	2067	22	62.1%	72.9%		
					21	21	72.7%	2074	29	50.0%	61.3%		
					24	25	69.7%	2083	38	37.2%	50.0%		

a/ All bocaccio alternatives have been reduced from the rebuilding analysis results by 6% to represent the portion of the stock south of 40°10' N lat.
b/ All cowcod alternatives have been doubled from the rebuilding analysis to account for the Monterey contribution.

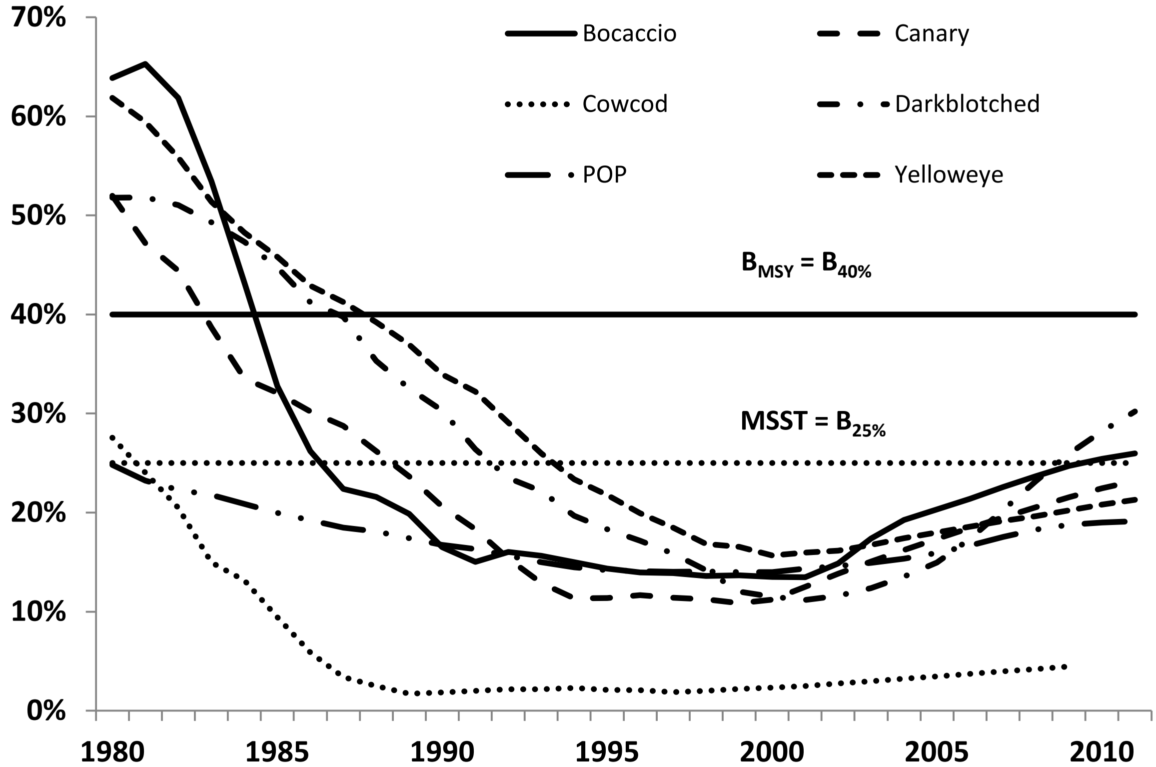

Figure 2-2. Relative depletion trends from 1980 to present for the six overfished west coast rockfish species in relation to the MSST of $B_{25\%}$ and the B_{MSY} target of $B_{40\%}$.

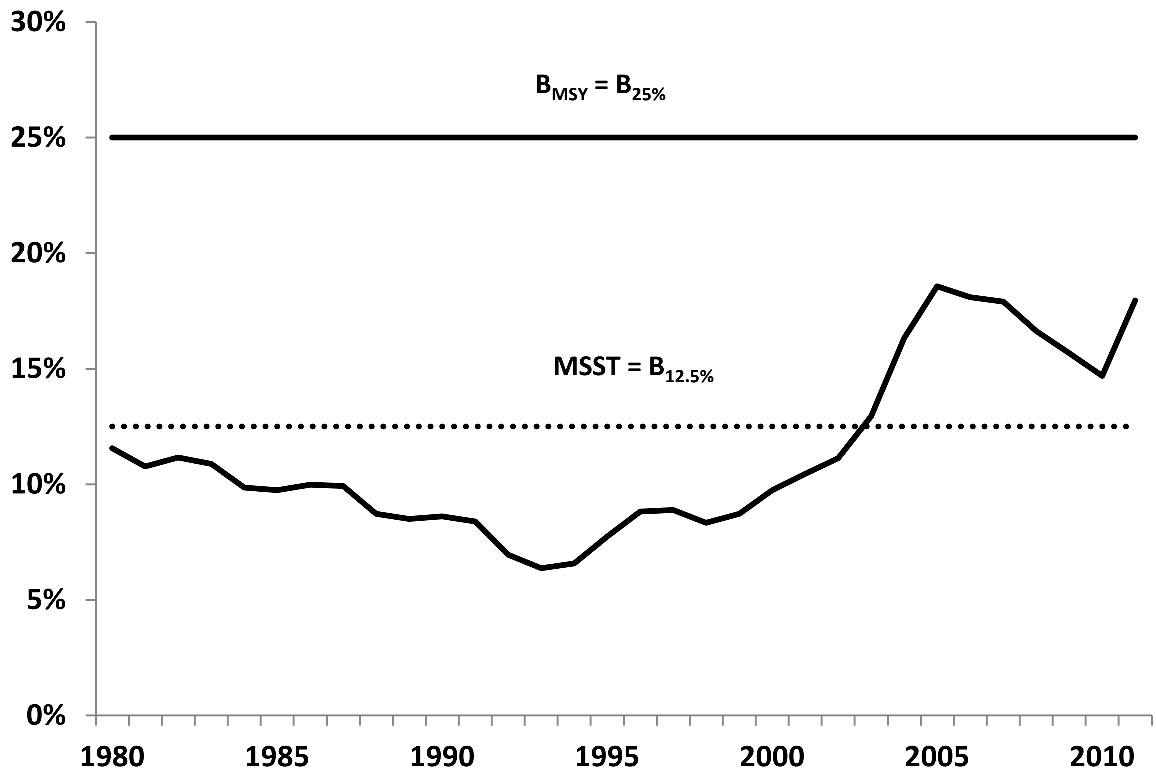

Figure 2-3. Relative depletion trend from 1980 to present for petrale sole in relation to the MSST of $B_{12.5\%}$ and the B_{MSY} target of $B_{25\%}$.

Bocaccio South of 40°10' N. Latitude

The 2013 and 2014 harvest specification alternatives for bocaccio south of 40º10' N. latitude are based on a new assessment {Field 2011a} and rebuilding analysis {Field 2011b} conducted in 2011. The 2011 bocaccio assessment was originally scheduled to be an update of the 2009 full assessment {Field et al. 2009} where the data are updated but the basic model structure is not. Assessment updates allow for expedited review by the SSC since the original full assessment had already undergone the more rigorous peer review of a STAR panel required in the groundfish stock assessment process. The update assessment presented to the SSC in June 2011 did not meet the terms of reference for an update because of changes in model structure and data. The STAT made these changes because a strict update estimated that the 2010 year-class was extraordinarily and unrealistically strong, based on length frequency data collected in the 2010 NMFS trawl survey. The Council decided that the update should receive additional exploration and review based on a limited set of analyses developed by the SSC. The SSC further reviewed the revised update assessment at the September 2011 "mop-up" panel and recommended this assessment for management decision-making.

The revised update assessment differs from a strict update in the following aspects: (1) it includes a new data source, an index of age-0 abundance based on power plant impingement data, and removes very small fish from the NWFSC data series, and (2) the major axis of uncertainty in the decision table is based on recruitment strength rather than the relative emphasis given to the different biomass indices. The revised update assessment estimates that depletion in spawning output was 26 percent at the start of 2011.

The 2013 and 2014 OFLs were projected from the 2011 bocaccio rebuilding analysis by applying the proxy harvest rate of $F_{50\%}$ recommended by the SSC to the estimated exploitable biomass projected in the 2011 assessment. The 2009 bocaccio assessment extended the stock assessment north of 40°10' N. latitude to Cape Blanco, Oregon at approximately 43° N. latitude. It was decided in the 2011-2012 biennial harvest specifications process to continue to manage bocaccio rebuilding south of 40°10' N. latitude based on SSC and GMT advice that extending the rebuilding plan further north would not aid stock recovery and would only complicate current management. The bocaccio STAT determined that six percent of the assessed biomass occurs north of 40°10' N. latitude based on the proportion of historical catches in each area and the projected OFLs from the assessment were adjusted accordingly. The 2013 and 2014 OFLs for bocaccio are 884 and 881 mt, respectively (Table 2-8). The 2013 and 2014 ABCs are based on applying a P* of 0.45 to the sigma of 0.36 derived for category 1 stocks, resulting in a 4.4 percent reduction of the OFL to account for the scientific uncertainty in estimating these OFLs. The preferred 2013 and 2014 ACLs of 320 mt and 337 mt, respectively are based on applying the SPR harvest rate of 77.7 percent specified in the current rebuilding plan, which was the basis for setting the 2012 ACL. There was no recommended change to the T_{TARGET} of 2022 specified in the current rebuilding plan. There is a 60 percent probability of rebuilding by the current T_{TARGET} under the preferred rebuilding plan (Table 2-7). No other ACL alternatives were decided for detailed analysis since progress towards rebuilding the stock under the current rebuilding plan is considered adequate.

Table 2-10. Alternative harvest specifications (mt) for bocaccio occurring south of 40°10' N. latitude.

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
PPA	884	881	845	842	320	337	ACL based on applying the SPR harvest rate of 77.7% specified in the adopted rebuilding plan. No change to the T_{TARGET} of 2022.

Canary Rockfish

The 2013 and 2014 harvest specification alternatives for canary rockfish are based on an update assessment {Wallace 2011a} and rebuilding analysis {Wallace 2011b} conducted in 2011. These analyses indicated that canary rockfish rebuilding is three years behind schedule. Although this deviation is relatively minor due to the sensitivity in the estimated median time to rebuild at different SPR rates, results indicate that even if all harvest is eliminated from 2013 onwards (i.e., the shortest time to rebuild or $T_{F=0}$), there is slightly less than a 50 percent probability that the stock will rebuild by the current T_{TARGET} of 2027 (Table 2-7). This result compelled a modification of the current rebuilding plan. Therefore, the Council decided six canary rockfish ACL/rebuilding alternatives for detailed analysis (Table 2-9).

The 2013 and 2014 canary rockfish OFLs of 752 mt and 741 mt, respectively were projected from the 2011 rebuilding analysis by applying the proxy harvest rate of $F_{50\%}$ recommended by the SSC to the estimated exploitable biomass projected in the 2011 assessment. The 2013 and 2014 ABCs of 719 mt and 709 mt, respectively are based on applying a P* of 0.45 to the sigma of 0.36 derived for category 1 stocks, resulting in a 4.4 percent reduction of the OFL to account for the scientific uncertainty in estimating these OFLs. The preferred 2013 and 2014 ACLs of 116 mt and 119 mt, respectively (ACL alt. d in Table 2-9) are based on applying the SPR harvest rate of 88.7 percent specified in the current rebuilding plan, which was the basis for setting the 2012 ACL. The new preferred T_{TARGET} of 2030 is the median time to rebuild the stock under the No Action SPR harvest rate. This is two years longer than the shortest time to rebuild the stock if all fishing-related mortalities were eliminated beginning in 2013 (i.e., $T_{F=0}$; ACL alternative a in Table 2-9).

Four additional canary ACL alternatives were adopted for detailed analysis and development of the integrated alternatives (Table 2-9). All ACL alternatives contemplate a change in the median time to rebuild the stock greater than the current T_{TARGET} of 2027. ACL alternative b, 48 mt and 49 mt for 2013 and 2014, respectively applies an SPR harvest rate of 95.1 percent and has a predicted median time to rebuild of 2028, which is equal to $T_{F=0}$. ACL alternative c, 101 mt and 49 mt for 2013 and 2014, respectively applies an SPR harvest rate of 90 percent and has a predicted median time to rebuild of 2029, which is one year longer than $T_{F=0}$. ACL alternative e, 147 mt and 151 mt for 2013 and 2014, respectively applies an SPR harvest rate of 85.9 percent and has a predicted median time to rebuild of 2030, which is two years longer than $T_{F=0}$ and equal to the preferred T_{TARGET} under ACL alternative d. ACL alternative f, 216 mt and 220 mt for 2013 and 2014, respectively applies an SPR harvest rate of 80.3 percent and has a predicted median time to rebuild of 2032, which is four years longer than $T_{F=0}$. The six ACL alternatives are predicted to rebuild the stock 1, 1, 2, 3, 3, and 4 years longer, respectively than the T_{TARGET} of 2027 specified in the current rebuilding plan (Table 2-7). The SSC recommended modifying the rebuilding plan out of the necessity to extend the current T_{TARGET} based on our changed understanding of stock status and productivity.

Table 2-11. Alternative canary rockfish harvest specifications (mt).

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
a					0	0	Shortest time to rebuild ($T_{F=0}$). SPR harvest rate of 100%. Median time to rebuild is 2028.
b					48	49	SPR harvest rate of 95.1%. Median time to rebuild is 2028 (same as $T_{F=0}$).
c					101	104	SPR harvest rate of 90%. Median time to rebuild is 2029 (1 year longer than $T_{F=0}$).
d, PPA	752	741	719	709	116	119	SPR harvest rate of 88.7% specified in the current rebuilding plan. Median time to rebuild is 2030 (2 years longer than $T_{F=0}$).
e					147	151	SPR harvest rate of 85.9%. Median time to rebuild is 2030 (2 years longer than $T_{F=0}$).
f					216	220	SPR harvest rate of 80.3%. Median time to rebuild is 2032 (4 years longer than $T_{F=0}$).

Cowcod South of 40°10' N. Latitude

The 2013 and 2014 harvest specification alternatives for cowcod south of 40º10' N. latitude are based on the 2009 assessment {Dick et al. 2009}and 2009 rebuilding analysis (Dick and Ralston 2009). A new

2011 cowcod assessment was not recommended by the SSC since there was no new information available to inform the stock assessment or rebuilding analysis.

The 2013 and 2014 cowcod OFLs were determined from the 2009 assessment by applying the F_{MSY} proxy harvest rate of $F_{50\%}$ recommended by the SSC to the estimated exploitable biomass for the assessed portion of the stock in the Conception area. The OFLs for the Monterey area portion of the stock were determined using a depletion-based stock reduction analysis (DBSRA) approach. The OFLs for the Conception and the Monterey areas were summed to determine 2013 and 2014 OFLs of 11 mt and 12 mt, respectively for the entire stock south of 40°10’ N. latitude (Table 2-2 and Table 2-10).

The SSC categorized the assessed portion of the stock (Conception area) as category 2 and recommended the sigma value of 0.72 be used to determine the ABC following a P* approach. The Council decided a P* of 0.4 for determining the Conception area contribution to the ABC (5 mt and 6 mt, respectively in 2013 and 2014), which is a 16.7 percent reduction from the projected 2013-2014 Conception area OFL. The Monterey portion of the stock was categorized as a category 3 stock since a catch-based approach was used to determine the OFL contribution. The Monterey area contribution to the ABC (3 mt) was determined by applying a P* of 0.4 to the category 3 sigma of 1.44, resulting in a 30.6 percent reduction in the OFL. These ABC contributions were summed to determine an ABC of 9 mt for cowcod south of 40°10’ N. latitude (Table 2-5 and Table 2-10). The preferred 2013 and 2014 cowcod ABC of 9 mt (annual ABCs were rounded to the nearest metric ton) was determined using the same basis used to determine the No Action 2012 ABC.

The preferred 2013 and 2014 ACL of 3 mt is based on applying the SPR harvest rate of 82.7 percent specified in the current rebuilding plan, which was the basis for setting the 2012 ACL. There was no recommended change to the T_{TARGET} of 2068 specified in the current rebuilding plan. There is a 50 percent probability of rebuilding by the current T_{TARGET} under the rebuilding plan (Table 2-7). No other ACL alternatives were decided for detailed analysis since there was no new information available to consider alternative ACLs or rebuilding plans.

Table 2-12. Alternative harvest specifications (mt) for cowcod occurring south of 40º10’ N. latitude.

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
PPA	11	12	9	9	3	3	ACL is set equal to the No Action 2012 ACL and is based on applying the SPR harvest rate of 82.7% specified in the adopted rebuilding plan. No change to the T_{TARGET} of 2068.

Darkblotched Rockfish

The 2013 and 2014 harvest specification alternatives for darkblotched rockfish are based on a new assessment {Stephens 2011a}and rebuilding analysis {Stephens 2011b} conducted in 2011.

The 2013 and 2014 darkblotched rockfish OFLs of 541 mt and 553 mt, respectively were projected from the 2011 rebuilding analysis by applying the proxy harvest rate of $F_{50\%}$ recommended by the SSC to the estimated exploitable biomass projected in the 2011 assessment. The 2013 and 2014 ABCs are based on applying a P* of 0.45 to the sigma of 0.36 derived for category 1 stocks, resulting in a 4.4 percent reduction of the OFL to account for the scientific uncertainty in estimating these OFLs. The preferred

2013 and 2014 ACLs of 317 mt and 330 mt, respectively are based on applying the SPR harvest rate of 64.9 percent specified in the current rebuilding plan, which was the basis for setting the 2012 ACL. There was no recommended change to the T_{TARGET} of 2025 specified in the current rebuilding plan. There is a 100 percent probability of rebuilding by the current T_{TARGET} under the preferred rebuilding plan (Table 2-7). No other ACL alternatives were decided for detailed analysis since progress towards rebuilding the stock under the current rebuilding plan is considered adequate.

Table 2-13. Alternative darkblotched rockfish harvest specifications (mt).

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
PPA	541	553	517	529	317	330	ACL based on applying the SPR harvest rate of 64.9% specified in the adopted rebuilding plan. No change to the T_{TARGET} of 2025.

Pacific Ocean Perch North of 40º10' N. Latitude

The 2013 and 2014 harvest specification alternatives for POP are based on a new full assessment {Hamel 2011a} and rebuilding analysis {Hamel 2011b} conducted in 2011. These analyses indicated that POP rebuilding is significantly behind schedule. If the current SPR harvest rate of 86.4 percent in the POP rebuilding plan is maintained, the stock would not rebuild with a 50 percent probability until 2051, which is 31 years later than the current T_{TARGET} of 2020 (Table 2-7). The change is primarily due to a revised estimate of initial unfished spawning biomass (B_0) and depletion, rather than the current biomass level. This represents a fundamental revision to our understanding of the status of this species. This result compelled a modification of the current rebuilding plan; therefore, the Council decided five POP ACL/rebuilding alternatives for detailed analysis (Table 2-12).

The 2013 and 2014 POP OFLs of 844 mt and 838 mt, respectively were projected from the 2011 rebuilding analysis by applying the proxy harvest rate of $F_{50\%}$ recommended by the SSC to the estimated exploitable biomass projected in the 2011 assessment. The 2013 and 2014 ABCs of 807 mt and 801 mt, respectively are based on applying a P* of 0.45 to the sigma of 0.36 derived for category 1 stocks, resulting in a 4.4 percent reduction of the OFL to account for the scientific uncertainty in estimating these OFLs. The preferred 2013 and 2014 ACLs of 150 mt and 153 mt, respectively (ACL alt. c in Table 2-12) are based on applying the SPR harvest rate of 86.4 percent specified in the current rebuilding plan, which was the basis for setting the 2012 ACL. These preferred ACLs also approximate the No Action 2012 157 mt ACT specified for POP. The new preferred T_{TARGET} of 2051 is the median time to rebuild the stock under the No Action SPR harvest rate. This is eight years longer than the shortest time to rebuild the stock if all fishing-related mortalities were eliminated beginning in 2013 (i.e., $T_{F=0}$; ACL alternative a in Table 2-12).

Three additional POP ACL alternatives were adopted for detailed analysis and development of the integrated alternatives (Table 2-12). All ACL alternatives contemplate a change in the median time to rebuild the stock greater than the current T_{TARGET} of 2020. ACL alternative b, 74 mt and 76 mt for 2013 and 2014, respectively applies an SPR harvest rate of 92.9 percent and has a predicted median time to rebuild of 2046, which is three years longer than $T_{F=0}$. ACL alternative d, 222 mt and 226 mt for 2013 and 2014, respectively applies an SPR harvest rate of 80.9 percent and has a predicted median time to rebuild of 2057, which is 14 years longer than $T_{F=0}$. ACL alternative e, 247 mt and 251 mt for 2013 and 2014, respectively applies an SPR harvest rate of 79.2 percent and has a predicted median time to rebuild of 2060, which is 17 years longer than $T_{F=0}$. The five ACL alternatives are predicted to rebuild the stock 23, 26, 31, 37, and 40 years longer, respectively than the T_{TARGET} of 2020 specified in the current rebuilding plan (Table 2-7). The SSC recommended modifying the rebuilding plan out of the necessity to extend the current T_{TARGET} based on our changed understanding of stock status and productivity.

Table 2-14. Alternative Pacific ocean perch harvest specifications (mt).

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
a	844	838	807	801	0	0	Shortest time to rebuild ($T_{F=0}$). SPR harvest rate of 100%. Median time to rebuild is 2043.
b					74	76	SPR harvest rate of 92.9%. Median time to rebuild is 2046 (3 years longer than $T_{F=0}$).
c, PPA					150	153	SPR harvest rate of 86.4% specified in the current rebuilding plan. Median time to rebuild is 2051 (8 years longer than $T_{F=0}$).
d					222	226	SPR harvest rate of 80.9%. Median time to rebuild is 2057 (14 years longer than $T_{F=0}$).
e					247	251	SPR harvest rate of 79.2%. Median time to rebuild is 2060 (17 years longer than $T_{F=0}$).

Petrale Sole

The 2013 and 2014 harvest specification alternatives for petrale sole are based on a new assessment {Haltuch and Hicks 2011}and rebuilding analysis {Haltuch 2011} conducted in 2011. The estimate of spawning biomass depletion is 18 percent at the start of 2011, above the 12.5 percent MSST for flatfish but below the 25 percent B_{MSY} management target.

The 2013 and 2014 petrale sole OFLs of 2,711 mt and 2,774 mt, respectively were projected from the 2011 rebuilding analysis by applying the proxy harvest rate of $F_{30\%}$ recommended by the SSC to the estimated exploitable biomass projected in the 2011 assessment. The 2013 and 2014 ABCs of 2,592 mt and 2,652 mt, respectively are based on applying a P* of 0.45 to the sigma of 0.36 derived for category 1 stocks, resulting in a 4.4 percent reduction of the OFL to account for the scientific uncertainty in estimating these OFLs. The preferred 2013 and 2014 ACLs are based on applying the 25-5 ACL harvest control rule (Figure 2-1) specified in the current rebuilding plan, which was the basis for setting the 2012 ACL. The 2013 and 2014 ACLs equal the preferred ABCs since the petrale sole stock is projected to be above the B_{MSY} target of $B_{25\%}$ by 2013 (the 2011 assessment projects stock depletion rates of 28% and 29.6% in 2013 and 2014, respectively under the current rebuilding plan). There was no recommended change to the T_{TARGET} of 2016 specified in the current rebuilding plan. There is a 100 percent probability of rebuilding by the current T_{TARGET} under the preferred rebuilding plan (Table 2-7). No other ACL alternatives were decided for detailed analysis since progress towards rebuilding the petrale sole stock under the current rebuilding plan is considered adequate.

Table 2-15. Alternative petrale sole harvest specifications (mt).

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
PPA	2,711	2,774	2,592	2,652	2,592	2,652	ACL based on applying the 25-5 ACL harvest control rule specified in the adopted rebuilding plan. The ACLs equal the ABCs since the stock is projected to be above the B_{MSY} target by 2013. No change to the T_{TARGET} of 2016.

Yelloweye Rockfish

The 2013 and 2014 harvest specification alternatives for yelloweye rockfish are based on an update assessment {Taylor 2011a}and rebuilding analysis {Taylor 2011b} conducted in 2011.

The 2013 and 2014 yelloweye rockfish OFL of 51 mt was projected from the 2011 rebuilding analysis by applying the proxy harvest rate of $F_{50\%}$ recommended by the SSC to the estimated exploitable biomass projected in the 2011 assessment. The 2013 and 2014 ABC of 43 mt is based on applying a P* of 0.4 to the sigma of 0.72 derived for category 2 stocks, resulting in a 16.7 percent reduction of the OFL to account for the scientific uncertainty in estimating these OFLs. This is a different basis than used for determining the No Action 2012 ABC for yelloweye rockfish since it was determined the stock was mistakenly categorized as a category 1 stock during the 2011-2012 biennial specifications process. The SSC recommended yelloweye rockfish be categorized as a category 2 stock after it was realized the assessment did not estimate annual recruitments. This changed the sigma value used to determine the ABC. The Council also changed the P* from 0.45 to 0.4 to determine the preferred 2013 and 2014 yelloweye rockfish ABC. The preferred 2013 and 2014 ACL of 18 mt is based on applying the SPR harvest rate of 76 percent specified in the current rebuilding plan (Table 2-14), which was the basis for setting the 2012 ACL. There was no recommended change to the T_{TARGET} of 2074 specified in the current rebuilding plan. There is a 62.1 percent probability of rebuilding by the current T_{TARGET} under the preferred rebuilding plan (Table 2-7). No other ACL alternatives were decided for detailed analysis since progress towards rebuilding the stock under the current rebuilding plan is considered adequate.

Table 2-16. Alternative yelloweye rockfish harvest specifications (mt).

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
PPA	51	51	43	43	18	18	ACL based on applying the SPR harvest rate of 76% specified in the adopted rebuilding plan. No change to the T_{TARGET} of 2074.

2.1.3.2 Annual Catch Limits for Non-Overfished Species Managed With Stock-Specific Harvest Specifications

The following section presents the alternative ACLs that were considered for non-overfished species managed with stock-specific harvest specifications. The 2013 and 2014 ACL alternatives adopted for more detailed analysis, including the No Action and preliminary preferred alternatives are shown in Table 2-15. For most of these species where there was no new scientific information including stock assessments or a management guidance change in the harvest strategy, the Council considered only one ACL alternative for 2013 and 2014 using the same basis as was used to decide the 2012 ACL. These species include arrowtooth flounder, black rockfish off Oregon and California, black rockfish off Washington, cabezon off California, cabezon off Oregon, California scorpionfish, chilipepper rockfish south of 40º10' N. latitude, English sole, longspine thornyheads north of 34º27' N. latitude, longspine thornyheads south of 34º27' N. latitude, Pacific cod, shortbelly rockfish, shortspine thornyheads north of 34º27' N. latitude, shortspine thornyheads south of 34º27' N. latitude, splitnose rockfish south of 40º10' N. latitude, starry flounder, and yellowtail rockfish north of 40º10' N. latitude. New stock assessments were used to decide a single ACL alternative for Dover sole, sablefish north of 36º N. latitude, and sablefish south of 36º N. latitude. A new policy for managing lingcod north and south of 40º10' N. latitude rather than north and south of 42º N. latitude at the California-Oregon border is the basis for the preferred 2013 and 2014 lingcod ACLs. There are two 2013 and 2014 ACL alternatives, including the No Action alternative, analyzed for longnose skate. There are two 2013 and 2014 ACL alternatives, in addition to the No Action alternative, analyzed for widow rockfish.

The basis for the preferred ACLs for non-overfished stocks managed with stock-specific harvest specifications follows. Because Pacific whiting is assessed annually and is managed under the tenets of the U.S.-Canada Pacific Whiting treaty, this EIS explores a range of Pacific whiting ACLs to better understand resulting impacts and to consider management measures for 2013 and 2014 Pacific whiting fisheries.

Table 2-17. 2012 ACLs and preliminary preferred alternative (PPA) 2013 and 2014 ACLs for non-overfished west coast groundfish stocks.

Stock	2012 ACL	PPA ACLs		2013-14 ACL Range for Analysis a/	
		2013	2014	Alt. a	Alt. b
NON-OVERFISHED STOCKS					
Arrowtooth Flounder	12,049	6,157	5,758		
Black Rockfish (OR-CA)	1,000	1,000	1,000		
Black Rockfish (WA)	415	411	409		
Cabezon (CA)	168	163	158		
Cabezon (OR)	48	47	47		
California scorpionfish	126	120	117		
Chilipepper S. of 40°10’	1,789	1,690	1,647		
Dover Sole	25,000	**25,000**	**25,000**		
English Sole	10,151	6,815	5,646		
Lingcod N. of 42º (OR & WA) b/	2,151	2,010	1,897		
Lingcod S. of 42º (CA) b/	2,164	2,137	2,044		
Lingcod N. of 40º10' b/	NA	3,036	2,878		
Lingcod S. of 40º10' b/	NA	1,111	1,063		
Longnose skate	1,349	2,000	2,000	2,000	
Longspine Thornyhead (coastwide)	NA	NA	NA		
Longspine Thornyhead N. of 34°27'	2,064	2,009	1,958		
Longspine Thornyhead S. of 34°27'	366	356	347		
Pacific Cod	1,600	1,600	1,600		
Sablefish (coastwide)	NA	**NA**	**NA**		
Sablefish N. of 36°	5,347	**4,012**	**4,349**		
Sablefish S. of 36°	1,298	**1,439**	**1,560**		
Shortbelly	50	50	50		
Shortspine Thornyhead (coastwide)	NA	NA	NA		
Shortspine Thornyhead N. of 34°27'	1,556	1,540	1,525		
Shortspine Thornyhead S. of 34°27'	401	397	393		
Splitnose S. of 40°10’	1,538	1,610	1,670		
Starry Flounder	1,360	1,520	1,528		
Widow	600	**1,500**	**1,500**	**1,500**	**2,500**
Yellowtail N. of 40°10’	4,371	4,378	4,382		

a/ The 2012 ACLs will also be analyzed in the DEIS.

b/ The Council requested analysis of shifting the lingcod management line from the OR-CA border at 42° N. latitude to 40°10’ N. latitude. An analysis using swept area biomass estimates of lingcod derived from the NWFSC trawl survey indicates 48% of the biomass south of 42° N. latitude occurs north of 40°10' N. latitude. The 40°10' N. latitude management line for lingcod is the Council preferred alternative for lingcod specifications to be analyzed in the DEIS.

Arrowtooth Flounder

The most recent stock assessment of arrowtooth flounder was done in 2007 (Kaplan and Helser 2008). The spawning biomass at the beginning of 2007 was estimated to be at 79 percent of the estimated unfished spawning biomass.

One 2013 and 2014 arrowtooth flounder ACL alternative is analyzed in this EIS (Table 2-16). The OFLs are projected from the assessment using the $F_{30\%}$ F_{MSY} proxy harvest rate used for assessed flatfish species. The ABCs are based on applying a P* of 0.4 to a sigma of 0.72 for a category 2 stock, resulting in a 16.7 percent reduction of the projected OFLs to account for scientific uncertainty in estimating the OFLs. The preferred 2013 and 2014 ACLs of 6,157 mt and 5,758 mt, respectively are based on setting ACLs equal to the ABCs, which was the basis for setting the 2012 ACL. The stock is projected to remain healthy while accommodating the current level of catch.

Table 2-18. Alternative arrowtooth flounder harvest specifications (mt).

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
PPA	7,391	6,912	6,157	5,758	6,157	5,758	ACL is set equal to the ABC.

Black Rockfish off California and Oregon

The most recent southern black rockfish assessment was done in 2007 for the area south of Cape Falcon, Oregon to the southern limit of the stock's distribution off central California (Sampson 2008). The assessment indicated that black rockfish off California and Oregon are in a healthy status estimated to be at 70 percent of its initial, unfished biomass at the start of 2007.

Black rockfish in the southern area have been managed with separate harvest specifications than those used to manage the northern portion of the stock in waters off Washington (see section 0). The 2013 and 2014 southern black rockfish OFLs are projected from the 2007 assessment using the proxy $F_{50\%}$ harvest rate used to estimate the MSY harvest level for rockfish. Projected OFLs were increased by 3 percent of the northern OFL, based on the estimated relative proportion of catch by area, to account for the portion of the assessed northern stock occurring in waters off Oregon north of Cape Falcon. The 2013 and 2014 ABCs of 1,108 mt and 1,115 mt, respectively are based on applying a P* of 0.45 to the sigma of 0.36 derived for category 1 stocks, resulting in a 4.4 percent reduction of the OFL to account for the scientific uncertainty in estimating these OFLs. The preferred 2013 and 2014 ACL of 1,000 mt continues the constant catch strategy in place for this stock since 2009 (Table 2-17). The stock is projected to remain healthy while accommodating the current level of catch.

Table 2-19. Alternative harvest specifications (mt) for black rockfish off California and Oregon.

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
PPA	1,159	1,166	1,108	1,115	1,000	1,000	ACL continues the constant catch strategy in place since 2009.

Black Rockfish off Washington

The most recent northern black rockfish assessment was done in 2007 for the area north of Cape Falcon, Oregon, to the U.S.-Canada border (Wallace, *et al.* 2008). The assessment indicated northern black rockfish are in a healthy status estimated to be at 53.4 percent of its initial, unfished biomass at the start of 2007.

Black rockfish in waters off Washington have been managed with separate harvest specifications than those used to manage the southern portion of the stock in waters off Oregon and California (see section 0). The 2013 and 2014 northern black rockfish OFLs are projected from the 2007 assessment using the proxy $F_{50\%}$ harvest rate used to estimate the MSY harvest level for rockfish. Projected OFLs were decreased by 3 percent (and applied to the southern black rockfish OFL), based on the estimated relative proportion of catch by area, to account for the portion of the assessed northern stock occurring in waters off Oregon north of Cape Falcon. The 2013 and 2014 ABCs are based on applying a P* of 0.45 to the sigma of 0.36 derived for category 1 stocks, resulting in a 4.4 percent reduction of the OFL to account for the scientific uncertainty in estimating these OFLs. The preferred 2013 and 2014 ACLs of 411 mt and 409 mt, respectively are based on setting ACLs equal to the ABCs (Table 2-18), which was the basis for setting the 2012 ACL. The stock is projected to remain healthy while accommodating the current level of catch.

Table 2-20. Alternative harvest specifications (mt) for black rockfish off Washington.

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
PPA	430	428	411	409	411	409	ACL is set equal to the ABC.

Cabezon off California

The most recent cabezon assessment was done in 2009 for stocks occurring in waters off California and Oregon (Cope and Key 2009). The 2009 assessment separately modeled two California sub-stocks north and south of Point Conception and also evaluated the population as a coastwide California stock. The assessment also modeled a third cabezon sub-stock in the waters off of Oregon. The SSC recommended combining the results of the area models for the two California sub-stocks of cabezon for use in deciding statewide harvest specifications. The assessment results for the Oregon cabezon sub-stock were recommended to be used to decide statewide Oregon harvest specifications. The assessment estimates a healthy spawning biomass of cabezon off California at the start of 2009 of 48.3 percent of unfished biomass.

The 2013 and 2014 OFLs for cabezon occurring in waters off California are projected from the 2009 assessment by applying the proxy $F_{45\%}$ MSY harvest rate to the projected exploitable biomass for each California substock in each year and then summing the OFL contribution of each substock. The 2013 and 2014 ABCs are based on applying a P* of 0.45 to the sigma of 0.36 derived for category 1 stocks, resulting in a 4.4 percent reduction of the OFL to account for the scientific uncertainty in estimating these OFLs. The preferred 2013 and 2014 ACLs of 163 mt and 158 mt, respectively are based on setting ACLs equal to the ABCs (Table 2-19), which was the basis for setting the 2012 ACL. The stock is projected to remain healthy while accommodating the current level of catch.

Table 2-21. Alternative harvest specifications (mt) for cabezon occurring in waters off California.

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
PPA	170	165	163	158	163	158	ACL is set equal to the ABC.

Cabezon off Oregon

The 2009 assessment of cabezon in waters off Oregon was used to set harvest specifications for this stock (Cope and Key 2009). The 2009 assessment estimates a healthy spawning biomass of cabezon off Oregon at the start of 2009 of 52.4 percent of unfished biomass.

The 2013 and 2014 OFLs for cabezon occurring in waters off Oregon are projected from the 2009 assessment by applying the proxy $F_{45\%}$ MSY harvest rate to the projected exploitable biomass for the stock. The 2013 and 2014 ABCs are based on applying a P* of 0.45 to the sigma of 0.36 derived for category 1 stocks, resulting in a 4.4 percent reduction of the OFL to account for the scientific uncertainty in estimating these OFLs. The preferred 2013 and 2014 ACL of 47 mt is based on setting ACLs equal to the ABCs (Table 2-20), which was the basis for setting the 2012 ACL. The stock is projected to remain healthy while accommodating the current level of catch.

Table 2-22. Alternative harvest specifications (mt) for cabezon occurring in waters off Oregon.

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
PPA	49	49	47	47	47	47	ACL is set equal to the ABC.

California Scorpionfish

California scorpionfish were assessed in 2005 (Maunder, *et al.* 2006). In most years, 99 percent or more of the landings occur in the southern California ports. Therefore, only the stock off of southern California south of Point Conception at 34°27' N. latitude to the U.S.-Mexico border was assessed. This assessment indicated the California scorpionfish stock was healthy with an estimated spawning stock biomass of 79.8 percent of its initial, unfished biomass in 2005.

The 2013 and 2014 OFLs for California scorpionfish are projected from the 2005 assessment by applying the proxy $F_{50\%}$ MSY harvest rate to the projected exploitable biomass for the stock. The 2013 and 2014 ABCs are based on applying a P* of 0.45 to the sigma of 0.36 derived for category 1 stocks, resulting in a 4.4 percent reduction of the OFL to account for the scientific uncertainty in estimating these OFLs. The preferred 2013 and 2014 ACLs of 120 mt and 117 mt, respectively are based on setting ACLs equal to the ABCs (Table 2-21), which was the basis for setting the 2012 ACL. The stock is projected to remain healthy while accommodating the current level of catch.

Table 2-23. Alternative California scorpionfish harvest specifications (mt).

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
PPA	126	122	120	117	120	117	ACL is set equal to the ABC.

Chilipepper Rockfish South of 40º10’ N. Latitude

The last full assessment of chilipepper rockfish was conducted in 2007 (Field 2008). The 2007 assessment indicated the stock was healthy with a spawning stock biomass estimated at 70 percent of its initial, unfished biomass in 2006.

The 2007 assessment was first used in 2008 to decide 2009 and 2010 chilipepper harvest specifications. The Council consideration for 2011 and 2012 was whether or not to remove chilipepper rockfish from the Minor Shelf Rockfish North complex and manage it coastwide. Chilipepper rockfish are predominantly found south of 40°10’ N. latitude. Prior to 2007 they were only assessed in the area south of 40°10’ N. latitude (Ralston, *et al.* 1998). To date, chilipepper rockfish has been managed with stock-specific harvest specifications south of 40°10’ N. latitude and within the Minor Shelf Rockfish North complex north of 40°10’ N. latitude. When the stock assessment area was extended for the 2007 chilipepper stock assessment, it was extended to the stock’s entire west coast range through waters off Oregon (chilipepper rockfish are not believed to occur in waters off Washington). However, the Council and NMFS elected to continue to manage chilipepper rockfish south of 40º10’ N. latitude with stock-specific harvest specifications and as part of the Minor Shelf Rockfish North complex north of 40°10’ N. latitude.

For 2013-2014, the Council recommended continuing the chilipepper rockfish management strategy of using stock-specific specifications in the south and as part of the Minor Shelf Rockfish North complex in the north. The 2013 and 2014 OFLs for chilipepper rockfish are projected from the 2007 assessment by applying the proxy $F_{50\%}$ MSY harvest rate to the projected exploitable biomass for the stock. These projected OFLs are stratified north and south of 40º10’ N. latitude based on the average 1998-2008 assessed area catch, which is 93 percent for the area south of 40°10’ N. latitude and 7 percent for the area north of 40°10’ N. latitude. The 2013 and 2014 ABCs are based on applying a P* of 0.45 to the sigma of 0.36 derived for category 1 stocks, resulting in a 4.4 percent reduction of the OFL to account for the scientific uncertainty in estimating these OFLs. The preferred 2013 and 2014 ACLs of 1,690 mt and 1,647 mt, respectively are based on setting ACLs equal to the ABCs (Table 2-22), which was the basis for setting the 2012 ACL. The stock is projected to remain healthy while accommodating the current level of catch.

Table 2-24. Alternative harvest specifications (mt) for chilipepper rockfish occurring south of 40º10’ N. latitude.

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
PPA	1,768	1,722	1,690	1,647	1,690	1,647	ACL is set equal to the ABC.

Dover Sole

A new Dover sole assessment was done in 2011 {Hicks 2011}, which indicated the stock was healthy with a 2011 spawning stock biomass depletion of 83.7 percent of unfished biomass.

The 2013 and 2014 OFLs for Dover sole are projected from the 2011 assessment by applying the proxy $F_{30\%}$ MSY harvest rate to the projected exploitable biomass for the stock. The 2013 and 2014 ABCs are based on applying a P* of 0.45 to the sigma of 0.36 derived for category 1 stocks, resulting in a 4.4 percent reduction of the OFL to account for the scientific uncertainty in estimating these OFLs. The preferred 2013 and 2014 ACL of 25,000 mt is a re-specification of the No Action 2012 ACL (Table 2-23). The stock is projected to remain healthy while accommodating the current level of catch.

Table 2-25. Alternative Dover sole harvest specifications (mt).

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
PPA	92,955	77,774	88,865	74,352	25,000	25,000	ACL is set equal to the No Action 2012 ACL.

English Sole

The last assessment of English sole was done in 2007 (Stewart 2008a). The 2007 assessment was an update of the full assessment done in 2005 (Stewart 2006), which modeled a single coastwide stock. The spawning biomass at the beginning of 2007 was estimated to be at 116 percent of the exploited equilibrium level.

The 2013 and 2014 OFLs for English sole are projected from the 2007 assessment by applying the proxy $F_{30\%}$ MSY harvest rate to the projected exploitable biomass for the stock. The 2013 and 2014 ABCs are based on applying a P* of 0.45 to the sigma of 0.36 derived for category 1 stocks, resulting in a 4.4 percent reduction of the OFL to account for the scientific uncertainty in estimating these OFLs. The preferred 2013 and 2014 ACLs of 6,815 mt and 5,646 mt, respectively are based on setting ACLs equal to the ABCs (Table 2-24), which was the basis for setting the 2012 ACL. The stock is projected to remain healthy while accommodating the current level of catch.

Table 2-26. Alternative English sole harvest specifications (mt).

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
PPA	7,129	5,906	6,815	5,646	6,815	5,646	ACL is set equal to the ABC.

Lingcod North and South of 40º10' N. Latitude

Lingcod is distributed coastwide with harvest specifications based on two area stock assessments that were conducted in 2009 for the areas north and south of the California-Oregon border at 42° N. latitude (Hamel, *et al.* 2009). The stock assessments indicate west coast lingcod stocks are healthy with the stock depletion estimated for lingcod off of Washington and Oregon to be at 62 percent of its unfished biomass, and lingcod off of California estimated to be at 74 percent of its unfished biomass at the start of 2009.

In contrast to the No Action Alternative, the Council recommended establishing ACLs north and south of the current 40º10' N. latitude management line rather than north and south of the California-Oregon border at 42º N. latitude. The lingcod stock assessment team (STAT) was asked to calculate the relative biomass of lingcod north and south of 40º10' N. latitude to enable the management line shift for the stock (see section 4.1.X for the rationale and predicted impacts associated with this proposed management line shift). Swept area biomass estimates calculated annually (2003-2010) from the NMFS Northwest Fisheries Science Center trawl survey indicated that 48 percent of the lingcod biomass for the stock south of 42º N. latitude occurred between 40º10' N. latitude and 42º N. latitude. Therefore, 48 percent of the 2013 and 2014 OFLs projected in the 2009 lingcod assessment for the southern lingcod stock were added to OFLs proposed for the stock north of 40º10' N. latitude. Likewise, 48 percent of the projected OFLs for the southern stock were subtracted from the OFLs proposed for the stock south of 40º10' N. latitude.

The 2013 and 2014 OFLs for lingcod are projected from the 2009 assessment by applying the proxy $F_{45\%}$ MSY harvest rate to the projected exploitable biomass for the stocks north and south of 42º N. latitude. The 48 percent adjustment of the northern and southern OFLs described above were made to specify lingcod OFLs north and south of 40º10' N. latitude. The 2013 and 2014 ABCs for the lingcod stock north of 40º10' N. latitude are based on applying a P* of 0.45 to the sigma of 0.36 derived for category 1 stocks, resulting in a 4.4 percent reduction of the OFL to account for the scientific uncertainty in estimating these OFLs. The 2013 and 2014 ABCs for the lingcod stock south of 40º10' N. latitude are based on applying a P* of 0.4 to the sigma of 0.72 derived for category 2 stocks, resulting in a 16.7 percent reduction of the OFL to account for the scientific uncertainty in estimating these OFLs. The preferred 2013 and 2014 lingcod ACLs of 3,187 mt and 3,023 mt, respectively for the stock north of 40º10' N. latitude and 1,111 mt and 1,063 mt, respectively for the stock south of 40º10' N. latitude are based on setting ACLs equal to the ABCs (Table 2-25), which was the basis for setting the 2012 ACLs. Both lingcod stocks are projected to remain healthy while accommodating the current level of catch.

Table 2-27. Alternative harvest specifications (mt) for lingcod occurring north and south of 40º10' N. latitude.

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
North of 40º10' N. latitude PPA	3,334	3,162	3,187	3,023	3,187	3,023	ACL is set equal to the ABC.
South of 40º10' N. latitude PPA	1,334	1,276	1,111	1,063	1,111	1,063	ACL is set equal to the ABC.

Longnose Skate

The west coast longnose skate stock was assessed in 2007 (Gertseva and Schirripa 2008). The spawning stock biomass was estimated to be at 66 percent of its unfished biomass at the start of 2007.

The 2013 and 2014 OFLs for longnose skate are projected from the 2007 assessment by applying the proxy $F_{45\%}$ MSY harvest rate to the projected exploitable biomass for the stock. The 2013 and 2014 ABCs are based on applying a P* of 0.45 to the sigma of 0.36 derived for category 1 stocks, resulting in a 4.4 percent reduction of the OFL to account for the scientific uncertainty in estimating these OFLs. Two 2013 and 2014 longnose skate ACL alternatives are analyzed in this EIS (Table 2-26). The No Action (2012) ACL of 1,349 mt is based on a 50 percent increase in the average 2004-2006 landings and discard mortality. The ACL Alternative a of 2,000 mt is the preliminary preferred ACL alternative and sets the

ACLs higher than the No Action ACL to provide greater access to the stock and to limit disruption of current fisheries. Both ACL alternatives for longnose skate are within a level of harvest projected to maintain the population at a healthy level as projected in the 10-year forecast for longnose skate in the 2007 assessment by Gertseva and Schirripa (2007).

Table 2-28. Alternative longnose skate harvest specifications (mt).

<table>
<tr><th rowspan="2">Alternative Harvest Specifications</th><th colspan="2">OFL</th><th colspan="2">ABC</th><th colspan="2">ACL</th><th rowspan="2">Basis for ACL</th></tr>
<tr><th>2013</th><th>2014</th><th>2013</th><th>2014</th><th>2013</th><th>2014</th></tr>
<tr><td>No Action</td><td rowspan="2">2,902</td><td rowspan="2">2,816</td><td rowspan="2">2,774</td><td rowspan="2">2,692</td><td>1,349</td><td>1,349</td><td>ACL is set equal to the 2012 ACL.</td></tr>
<tr><td>Alt. a; PPA</td><td>2,000</td><td>2,000</td><td>ACL is set higher than the No Action ACL to provide greater access to the stock.</td></tr>
</table>

Longspine Thornyhead

The most recent assessment of longspine thornyhead was done in 2005 {Fay 2006}. The results of the 2005 coastwide assessment indicated the longspine thornyhead stock was healthy with an estimated spawning stock biomass at 71 percent of its initial, unfished biomass in 2005.

The 2013 and 2014 OFLs for longspine thornyhead are projected from the 2005 assessment by applying the proxy $F_{50\%}$ MSY harvest rate to the projected exploitable biomass for the stock. The 2013 and 2014 ABCs are based on applying a P* of 0.4 to the sigma of 0.72 derived for category 2 stocks, resulting in a 16.7 percent reduction of the OFL to account for the scientific uncertainty in estimating these OFLs. Longspine thornyhead has been managed with separate OYs/ACLs north and south of Point Conception at 34°27' N. latitude since 2007. The preferred 2013 and 2014 ACLs for longspine thornyhead are based on the same area stratification strategy used to manage the stock since 2007 and use the same basis for calculating the ACLs as was used to determine the No Action 2012 ACLs (Table 2-27). The apportionment methodology assumes constant density throughout the Conception area and estimated 79 percent of the assessed coastwide biomass occurs north of Point Conception. The SSC has recommended coastwide OFLs and ABCs for longspine thornyhead since the 2005 assessment presents a coastwide model. However, the Council and NMFS have decided to apply differential scientific uncertainty buffers in the ACLs specified north and south of Point Conception. The preferred 2013 and 2014 ACLs of 2,009 mt and 1,958 mt, respectively for the stock north of 34º27' N. latitude are calculated as 79 percent of the projected OFLs with a further 25 percent reduction to account for scientific uncertainty. The preferred 2013 and 2014 ACLs of 356 mt and 347 mt, respectively for the stock south of 34º27' N. latitude are calculated as 21 percent of the projected OFLs with a further 50 percent reduction to account for scientific uncertainty. The greater assessment uncertainty for the portion of the stock south of Point Conception is largely due to the fact that a small proportion of the Conception area is surveyed in the NMFS trawl survey given the high proportion of untrawlable habitat and the prohibition of bottom trawling in the CCAs. While higher scientific uncertainty would conceptually be accommodated in specifying the ABC, the higher scientific uncertainty south of Point Conception is accommodated in consideration of the ACL for the longspine thornyhead stock south of 34°27' N. latitude since the SSC recommended a coastwide OFL and ABC. This is the same basis as was used to determine the No Action 2012 ACLs for longspine thornyhead north and south of 34º27' N. latitude. The 2013 and 2014 longspine thornyhead ACLs are within a level of harvest projected to maintain the population at a healthy level.

Table 2-29. Alternative harvest specifications (mt) for longspine thornyhead occurring north and south of 34º27' N. latitude.

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
Coastwide	3,391	3,304	2,825	2,752	NA	NA	NA: No coastwide ACL.
North of 34º27' N. latitude PPA	NA	NA	NA	NA	2,009	1,958	79% of the coastwide OFL with a 25% scientific uncertainty reduction.
South of 34º27' N. latitude PPA	NA	NA	NA	NA	356	347	21% of the coastwide OFL with a 50% scientific uncertainty reduction.

Pacific Cod

The west coast population of Pacific cod has never been formally assessed. Targetable amounts of Pacific cod occur off northern Washington infrequently since the west coast EEZ is at the southern limit of their distribution. The 2013 and 2014 Pacific cod OFL is set at the highest annual historical catch observed for the stock. The 2013 and 2014 ABC is based on applying a P* of 0.4 to the sigma of 1.44 derived for category 3 stocks, resulting in a 30.6 percent reduction of the OFL to account for the greater scientific uncertainty estimating the OFL for this unassessed stock. The 2013 and 2014 ACL for Pacific cod is 1,600 mt, which is 50 percent of the OFL (28 percent less than the ABC) and equal to the 2012 ACL (Table 2-28). Total catch estimates of Pacific cod in recent years were well below the Council preferred ACL. An ACL of 1,600 mt provides for variation in catch between years and could provide northern fishermen with an opportunity for targeting, while being sufficiently precautionary.

Table 2-30. Alternative Pacific cod harvest specifications (mt).

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
PPA	3,200	3,200	2,221	2,221	1,600	1,600	ACL is set equal to the 2012 ACL.

Pacific Whiting

Pacific whiting is managed consistent with the U.S.-Canada Pacific whiting treaty. OYs for Pacific whiting are adopted on an annual basis after a stock assessment is completed just prior to the Council's March meeting[4]. The most recent assessment was conducted in 2011{Stewart et al. 2011} and was used to determine stock status and 2011 harvest specifications. The assessment, conducted in a collaborative effort by Canadian and U.S. scientists, was based on two models, SS (Stock Synthesis) and TINSS (This Is Not Stock Synthesis). The SSC recommended both model results were equally plausible and recommended key management quantities such as the MSY harvest level and stock depletion in 2011 (126% of virgin biomass) be derived using model-averaging with equal weight.

[4] Given that Pacific whiting are managed under the tenets of the U.S.-Canada Pacific whiting treaty, the stock was exempted from the harvest specification framework adopted under FMP Amendment 23, which incorporated the OFL, ABC, and ACL specifications. Currently, the ABC defines the Pacific whiting MSY harvest level and the OY defines the annual total allowable harvest. The Pacific Whiting Commission may define a different harvest management framework or nomenclature in the future.

The Council adopted a coastwide (U.S. plus Canada) ABC of 973,700 mt for 2011 fisheries using the model-averaged results as recommended by the SSC. A coastwide OY of 393,751 mt was adopted for 2011 fisheries. The U.S. allocation of Pacific whiting is 73.88 percent of the coastwide OY resulting in a 2011 U.S. OY of 290,903 mt. Of this amount 66,908 mt was allocated to treaty Indian fisheries and 3,000 mt was set aside to accommodate incidental bycatch in non-whiting fisheries and catch in research activities. The 2011 fishery harvest guideline (HG) for non-tribal whiting fisheries was therefore 220,995 mt. The HG was allocated to trawl whiting sectors using the formal allocation of 24 percent to motherships, 34 percent to catcher-processors, and 42 percent to shoreside whiting. These values are used in the analysis of impacts in this EIS.

The 2013 and 2014 Pacific whiting harvest specifications are based on annual assessments and are analyzed in this EIS to understand the biological consequences of setting harvest limits (i.e., OYs) for the stock, including potential bycatch implications of future whiting fisheries and potential socioeconomic effects. The analysis and discussion of the bycatch implications of future whiting fisheries in this EIS will serve to better understand effective management strategies to consider for future whiting fisheries. These analyses will also aid the Council in deciding the yields of the most constraining species in whiting-directed fisheries to set-aside when deciding 2013-2014 management measures for non-whiting fisheries, which collectively with 2013-2014 whiting fisheries, must stay under the ACLs for these constraining species.

Sablefish

A new coastwide sablefish stock assessment was conducted in 2011 {Stewart 2011}. The spawning stock biomass was estimated to be at 33 percent of its unfished biomass at the beginning of 2011.

The 2013 and 2014 OFLs for sablefish are projected from the 2011 assessment by applying the proxy $F_{45\%}$ MSY harvest rate to the projected exploitable biomass for the stock. The 2013 and 2014 ABCs are based on applying a P* of 0.4 to the sigma of 0.36 derived for category 1 stocks, resulting in a 8.7 percent reduction of the OFL to account for the scientific uncertainty in estimating these OFLs. Preferred OFLs and ABCs recommended by the SSC are coastwide since the assessment models a coastwide population. However, the convention is to set two area-specific ACLs north and south of 36º N. latitude since formal commercial allocations of the harvestable surplus of sablefish have been adopted for sablefish north and south of 36º N. latitude. The sablefish STAT was asked to provide an estimate of the relative coastwide biomass north and south of 36º N. latitude to provide a scientific basis for apportioning the ACLs. The STAT examined annual (2003-2010) swept area biomass estimates derived from the NMFS Northwest Fisheries Science Center trawl survey to determine that 26.4 percent of the coastwide sablefish biomass occurred south of 36º N. latitude. Therefore, 2013 and 2014 sablefish ABCs were apportioned north and south of 36º N. latitude assuming 73.6 percent of the biomass occurred in the north and 26.4 percent occurred in the south. Since the sablefish stock is in the precautionary zone with a stock biomass below target MSY biomass (i.e., $< B_{40\%}$), the 40-10 harvest control rule specified in the FMP is also applied to determine ACLs (Figure 2-1). Table 2-29 presents the alternative harvest specifications for sablefish consistent with the area apportionment methodology described above and application of the 40-10 control rule to the ABC. The apportionments used to determine 2013 and 2014 sablefish ACLs differ slightly from those used to apportion the No Action 2012 ACLs. Alternative apportionments were analyzed to determine the No Action ACLs; whereas, the STAT was asked to present the best apportionment they could within the new assessment. The 2013 and 2014 sablefish ACLs for the portion of the stock south of 36º N. latitude also differ slightly from the southern No Action ACL in that a further 50 percent scientific uncertainty reduction was not applied to determine these ACLs. The STAT believed that a fuller time series of trawl survey and catch data informing stock biomass in the Conception area reduced the scientific uncertainty in estimating biomass in that area in the 2011 assessment.

Table 2-31. Alternative sablefish harvest specifications (mt).

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
Coastwide	6,621	7,158	6,045	6,535	NA	NA	NA: No coastwide ACL.
North of 36º N. latitude PPA	NA	NA	NA	NA	4,012	4,349	73.6% of coastwide ABC with the 40-10 ACL adjustment.
South of 36º N. latitude PPA	NA	NA	NA	NA	1,439	1,560	26.4% of coastwide ABC with the 40-10 ACL adjustment.

Shortbelly Rockfish

A shortbelly rockfish assessment was done as an academic exercise in 2007 to understand the potential environmental determinants of fluctuations in the recruitment and abundance of an unexploited rockfish population in the California Current ecosystem (Field, *et al*. 2008). The results of the assessment indicated the shortbelly stock was healthy with an estimated spawning stock biomass of 67 percent of its unfished biomass in 2005.

Shortbelly rockfish is an abundant species that is not targeted in any commercial or recreational fisheries or caught in significant amounts. However, shortbelly rockfish is a valuable forage fish species in the California Current ecosystem with fluctuations in stock recruitment and biomass driven by environmental conditions. The consequence of fisheries, including high and low estimates of plausible discards, were estimated to be negligible ($P<0.01$) in all years with the exception of the foreign fisheries of the mid-1960s (Field, *et al*. 2008). Shortbelly rockfish were initially considered for an Ecosystem Component (EC) species[5] categorization under Amendment 23. Rather than classifying shortbelly rockfish as an EC species, the Council chose to recommend a very restrictive ACL for 2011 and beyond.

The 2007 shortbelly assessment was not used to decide 2013 and 2014 harvest specifications since these estimates were not produced in the assessment. The No Action OFL of 6,950 mt is 50 percent of the 2008 shortbelly OY. The STAT advised the Council in 2008 that the harvest rate predicting a 6,950 mt level of harvest would be expected to keep the stock in its current equilibrium. Given that MSY estimates were not produced in the 2007 assessment, the SSC recommended re-specifying the No Action OFL of 6,950 mt as the 2013 and 2014 OFL for shortbelly rockfish. The 2013 and 2014 ABCs are based on applying a P* of 0.4 to the sigma of 0.72 derived for category 2 stocks, resulting in a 16.7 percent reduction of the OFL to account for scientific uncertainty. The preferred 2013 and 2014 ACL of 50 mt is the same as the No Action 2012 ACL and is a level of harvest meant to accommodate unavoidable incidental bycatch of shortbelly rockfish while allowing most of the harvestable surplus of the stock to be available as forage for species in the California Current ecosystem. Such ecological considerations are made when setting ACLs for west coast groundfish species.

[5] The EC species are designated as such in the FMP and are those species that are not considered to be "in the fishery" or targeted in any fishery. EC species are not typically retained for sale or personal use. The EC species are not actively managed. The EC species are determined to not be subject to overfishing, approaching an overfished condition, or overfished, nor are they likely to become subject to overfishing or overfished in the absence of conservation and management measures.

Table 2-32. Alternative shortbelly rockfish harvest specifications (mt).

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
PPA	6,950	6,950	5,789	5,789	50	50	ACL is set equal to the 2012 ACL as a de minimus amount to accommodate incidental bycatch and preserve harvestable surplus to accommodate ecosystem considerations.

Shortspine Thornyhead

The most recent assessment of shortspine thornyhead was done in 2005 (Hamel 2006b). The results of the 2005 coastwide assessment indicated the shortspine thornyhead stock was healthy with an estimated spawning stock biomass of 62.9 percent of its initial, unfished biomass in 2005.

The 2013 and 2014 OFLs for shortspine thornyhead are projected from the 2005 assessment by applying the proxy $F_{50\%}$ MSY harvest rate to the projected exploitable biomass for the stock. The 2013 and 2014 ABCs are based on applying a P* of 0.45 to the sigma of 0.36 derived for category 1 stocks, resulting in a 4.4 percent reduction of the OFL to account for the scientific uncertainty in estimating these OFLs. Shortspine thornyhead has been managed with separate OYs/ACLs north and south of Point Conception at 34°27' N. latitude since 2007. The preferred 2013 and 2014 ACLs for shortspine thornyhead are based on the same area stratification strategy used to manage the stock since 2007 and use the same basis for calculating the ACLs as was used to determine the No Action 2012 ACLs (Table 2-31). The apportionment methodology assumes constant density throughout the Conception area and estimated 66 percent of the assessed coastwide biomass occurs north of Point Conception and 34 percent of the biomass south of Point Conception. The SSC has recommended coastwide OFLs and ABCs for shortspine thornyhead since the 2005 assessment presents a coastwide model. However, the Council and NMFS have decided to apply a differential scientific uncertainty buffer in the ACL specified south of Point Conception. The preferred 2013 and 2014 ACLs of 1,540 mt and 1,525 mt, respectively for the stock north of 34º27' N. latitude are calculated as 66 percent of the projected OFLs. The preferred 2013 and 2014 ACLs of 397 mt and 393 mt, respectively for the stock south of 34º27' N. latitude are calculated as 34 percent of the projected OFLs with a further 50 percent reduction to account for scientific uncertainty. The greater assessment uncertainty for the portion of the stock south of Point Conception is largely due to the fact that a small proportion of the Conception area is surveyed in the NMFS trawl survey given the high proportion of untrawlable habitat and the prohibition of bottom trawling in the CCAs. While higher scientific uncertainty would conceptually be accommodated in specifying the ABC, the higher scientific uncertainty south of Point Conception is accommodated in consideration of the ACL for the shortspine thornyhead stock south of 34°27' N. latitude since the SSC recommended a coastwide OFL and ABC. This is the same basis as was used to determine the No Action 2012 ACLs for shortspine thornyhead north and south of 34º27' N. latitude. The 2013 and 2014 shortspine thornyhead ACLs are within a level of harvest projected to maintain the population at a healthy level.

Table 2-33. Alternative harvest specifications (mt) for shortspine thornyhead occurring north and south of 34º27' N. latitude.

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
Coastwide	2,333	2,310	2,230	2,208	NA	NA	NA: No coastwide ACL.
North of 34º27' N. latitude PPA	NA	NA	NA	NA	1,540	1,525	66% of the coastwide OFL.
South of 34º27' N. latitude PPA	NA	NA	NA	NA	397	393	34% of the coastwide OFL with a 50% scientific uncertainty reduction.

Splitnose Rockfish South of 40°10' N. Latitude

The splitnose rockfish assessment was done in 2009 (Gertseva, *et al.* 2009). Splitnose rockfish is a healthy stock with spawning depletion estimated at 66 percent of its unexploited level at the beginning of 2009. Splitnose rockfish have been taken incidentally in fisheries such as the trawl fisheries targeting POP, mixed slope rockfish, and other deepwater targets, but have not been a commercial target species.

It was decided to continue management of splitnose rockfish with stock-specific specifications south of 40°10' N. latitude and under the Minor Slope Rockfish complex north of 40°10' N. latitude when the coastwide splitnose rockfish assessment was first used to inform management in 2011. A north-south apportionment based on the average 1916-2008 assessed area catch resulting in 64.2 percent stock-specific specification in the southern area and 35.8 percent for the contribution of splitnose rockfish to the Minor Slope Rockfish North complex was used to apportion harvest specifications in 2011 and 2012. The Council recommended continuing this management strategy largely due to the implications of determining the uncertain catch history by trawl permit to initially allocate trawl splitnose quota shares under Amendment 20. Since splitnose rockfish are not targeted and predominantly discarded at sea, little data would be available to determine catch history.

The 2013 and 2014 OFLs for splitnose are projected from the 2009 assessment by applying the proxy $F_{50\%}$ MSY harvest rate to the projected exploitable biomass for the stock. The OFLs were stratified according to the apportionment methodology described above with 64.2 percent of the projected OFLs used to determine the OFLs for the portion of the stock occurring south of 40°10' N. latitude. The 2013 and 2014 ABCs are based on applying a P* of 0.45 to the sigma of 0.36 derived for category 1 stocks, resulting in a 4.4 percent reduction of the OFLs to account for the scientific uncertainty in estimating these OFLs. The preferred 2013 and 2014 ACLs of 1,610 mt and 1,670 mt, respectively are based on setting ACLs equal to the ABCs (Table 2-32), which was the basis for setting the 2012 ACL. The stock is projected to remain healthy while accommodating the current level of catch.

Table 2-34. Alternative harvest specifications (mt) for splitnose rockfish occurring south of 40°10' N. latitude.

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
PPA	1,684	1,747	1,610	1,670	1,610	1,670	ACL is set equal to the ABC.

Starry Flounder

Starry flounder was assessed in 2005 (Ralston 2006). Both the northern and southern populations were estimated to be above the target level of 40 percent of unfished spawning biomass (44 percent of B_0 in Washington-Oregon and 62 percent in California), although the status of this data-poor species remains fairly uncertain compared to that of many other groundfish species.

The 2013 and 2014 OFLs for starry flounder are projected from the 2005 assessment by applying the proxy $F_{30\%}$ MSY harvest rate to the projected exploitable biomass for the stock. There is relatively higher scientific uncertainty in the estimation of the biomass of starry flounder than for many of the assessed groundfish stocks on the west coast. The SSC therefore categorized starry flounder as a category 2 stock due to a very uncertain catch history, a lack of age or size composition data, and poor tracking in the NMFS trawl survey. The 2013 and 2014 ABCs are based on applying a P* of 0.4 to the sigma of 0.72 derived for category 2 stocks, resulting in a 16.7 percent reduction of the OFLs to account for the scientific uncertainty in estimating these OFLs. The preferred 2013 and 2014 ACLs of 1,520 mt and 1,528 mt, respectively are based on setting ACLs equal to the ABCs (Table 2-33), which was the basis for setting the 2012 ACL. The stock is projected to remain healthy while accommodating the current level of catch.

Table 2-35. Alternative starry flounder harvest specifications (mt).

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
PPA	1,825	1,834	1,520	1,528	1,520	1,528	ACL is set equal to the ABC.

Widow Rockfish

A new full assessment of widow rockfish was conducted in 2011 {He et al. 2011}, which indicated the spawning stock biomass was successfully rebuilt with a depletion of 51 percent at the start of 2011. However, there is considerable uncertainty regarding the new stock assessment's finding that the stock has rebuilt. Productivity and status of this stock are highly uncertain because the available biomass indices are not informative. Nonetheless, the SSC considered the base model of the new widow rockfish assessment to be the best available science.

The 2013 and 2014 OFLs for widow rockfish are projected from the 2011 assessment by applying the proxy $F_{50\%}$ MSY harvest rate to the projected exploitable biomass for the stock. The SSC categorized widow rockfish as a category 1 stock. However, the SSC also evaluated the estimated biomass variance in the 2011 widow assessment and determined that the variance is higher than the 0.36 sigma derived for other category 1 stocks. Therefore, the SSC recommended using a sigma of 0.41 derived by comparing the base model results with those for the low state of nature model in the decision table in the 2011 widow assessment. The 2013 and 2014 ABCs are based on applying a P* of 0.45 to the sigma of 0.41 derived for widow rockfish, resulting in a 5.0 percent reduction of the OFLs to account for the scientific uncertainty in estimating these OFLs. The preferred 2013 and 2014 ACL of 1,500 mt is projected to maintain spawning stock biomass above the target $B_{40\%}$ level in the next 10 years and, assuming the more pessimistic low state of nature model in the decision table is correct, above the MSST of $B_{25\%}$ in the next 10 years (Table 2-34). The Alternative b ACL of 2,500 mt is projected to maintain spawning stock biomass above the $B_{40\%}$ target in the next 10 years assuming the base model, but is projected to decline below the $B_{25\%}$ MSST within the next 10 years assuming the low state of nature model.

Table 2-36. Alternative widow rockfish harvest specifications (mt).

<table>
<tr><th rowspan="2">Alternative Harvest Specifications</th><th colspan="2">OFL</th><th colspan="2">ABC</th><th colspan="2">ACL</th><th rowspan="2">Basis for ACL</th></tr>
<tr><th>2013</th><th>2014</th><th>2013</th><th>2014</th><th>2013</th><th>2014</th></tr>
<tr><td>Alt. a; PPA</td><td rowspan="2">4,841</td><td rowspan="2">4,435</td><td rowspan="2">4,598</td><td rowspan="2">4,212</td><td>1,500</td><td>1,500</td><td>Constant catch projected to keep the stock above target biomass under the base model and above the MSST under the pessimistic low state of nature model.</td></tr>
<tr><td>Alt. b</td><td>2,500</td><td>2,500</td><td>Constant catch projected to keep the stock above target biomass under the base model.</td></tr>
</table>

Yellowtail Rockfish North of 40º10' N. Latitude

The most recent yellowtail rockfish assessment was done in 2005 for the area north of 40°10' N. latitude to the U.S.-Canada border {Wallace and Lai 2005}. The assessment indicated yellowtail rockfish are in a healthy status with an estimated depletion of 55 percent of its initial, unfished biomass at the start of 2005.

The 2013 and 2014 yellowtail rockfish OFLs are projected from the 2005 assessment using the proxy $F_{50\%}$ harvest rate used to estimate the MSY harvest level for rockfish. The 2013 and 2014 ABCs are based on applying a P* of 0.45 to the sigma of 0.36 derived for category 1 stocks, resulting in a 4.4 percent reduction of the OFL to account for the scientific uncertainty in estimating these OFLs. The preferred 2013 and 2014 ACLs of 4,378 mt and 4,382 mt, respectively are based on setting ACLs equal to the ABCs (Table 2-35), which was the basis for setting the 2012 ACL. The stock is projected to remain healthy while accommodating the current level of catch.

Table 2-37. Alternative harvest specifications (mt) for yellowtail rockfish occurring north of 40°10' N. latitude.

Alternative Harvest Specifications	OFL		ABC		ACL		Basis for ACL
	2013	2014	2013	2014	2013	2014	
PPA	4,579	4,584	4,378	4,382	4,378	4,382	ACL is set equal to the ABC.

2.1.3.3 Annual Catch Limits for Stock Complexes

There are six stock complexes for which 2012 ACLs are specified under the No Action alternative and under the preferred 2013 and 2014 ACL alternative. These complexes are the Minor Nearshore, Shelf, and Slope Rockfish complexes north and south of 40°10' N. latitude, the Other Flatfish, and the Other Fish complexes.

Most of the component stocks comprising the stock complexes are unassessed category 3 stocks with OFLs that are determined using data-poor methods such as DBSRA, DCAC, or average historical catch (see section 2.1.1). While OFL estimates should not vary from year to year for these stocks, a bias in the DBSRA and DCAC estimates used to inform the 2011 and 2012 OFLs for many of the category 3 stocks was discovered at the April 2011 Data-Limited Methods Review workshop (see "Assessment Methods for Data-limited Stocks – Report of the Review Panel Meeting" available at http://www.pcouncil.org/resources/archives/briefing-books/june-2011-briefing-book/#groundfish/Agenda Item E.2.a, Attachment 6). The bias was corrected in the 2013 and 2014 OFL estimates derived using DBSRA and DCAC and these OFLs tended to be lower than those used to inform the No Action 2012 OFLs (Table 2-2). In cases where assessments were used to inform OFLs for component stocks managed in stock complexes, the OFLs were projected from those assessments using proxy F_{MSY} harvest rates. Preferred 2013 and 2014 ABCs for stock complexes were derived as the summed contribution of ABCs of component stocks using the sigmas and stock categories recommended by the SSC and the P* values recommended by the Council. The preferred 2013 and 2014 ACLs are less than or equal to the summed ABC contribution of each component stock in each complex. Only one ACL alternative is analyzed for the stock complexes with no difference in 2013-2014 ACLs relative to the No Action 2012 ACLs for the Minor Shelf Rockfish North, Minor Slope Rockfish North, Minor Nearshore Rockfish South, Minor Shelf Rockfish South, and Other Flatfish complexes. Minor differences between the No Action 2012 ACLs and the preferred 2013-2014 ACLs exist for the Minor Nearshore Rockfish North and Minor Slope Rockfish South complexes. A significant reduction in the Other Fish complex ACL is proposed due to a change in policy for setting harvest specifications for this complex.

The following sections describe each complex, the component stocks for each complex, and the basis for preferred ACLs.

Minor Nearshore Rockfish North of 40°10' N. Latitude

The Minor Nearshore Rockfish complex north of 40°10' N. latitude is composed of the following species: black and yellow rockfish (*Sebastes chrysomelas*); blue rockfish (*S. mystinus*); brown rockfish (*S. auriculatus*); calico rockfish (*S. dalli*); China rockfish (*S. nebulosus*); copper rockfish (*S. caurinus*); gopher rockfish (*S. carnatus*); grass rockfish (*S. rastrelliger*); kelp rockfish (*S. atrovirens*); olive rockfish (*S. serranoides*); quillback rockfish (*S. maliger*); and treefish (*S. serriceps*). With the exception of the portion of the blue rockfish stock occurring in waters off California (i.e., 40°10' N. latitude to the California-Oregon border at 42° N. latitude), the component species of the Minor Nearshore Rockfish North complex are all unassessed category 3 species. The portion of the blue rockfish stock off California is rated as a category 2 stock on the basis of the relatively data-limited assessment conducted in 2007 {Key et al. 2007}.

The complex OFL for 2013 and 2014 is the summed contribution of the OFLs estimated for the component stocks that were derived using the data-limited methods described above, except for blue rockfish off California where the OFL contribution was projected from the 2007 assessment using the $F_{50\%}$ F_{MSY} proxy harvest rate and apportioning 12.7 percent of the OFL based on average catches of the assessed stock north of 40°10' N. latitude. The preferred 2013 and 2014 complex ABC is the summed contribution of the component stocks' ABCs using the SSC-recommended stock categories (and associated sigmas) and a P* of 0.45 (see section 2.1.2). The basis for deciding these ABCs is the same as that used to derive the 2012 No Action ABC for the complex. The preferred 2013 and 2014 complex ACL is set equal to the ABC. In this case, past experience has shown that the Council has managed the groundfish fishery to prevent overfishing in the overwhelming majority of cases. In addition, the monitoring program for the groundfish fishery provides information throughout the year to guide managers. Finally, the FMP provides a responsive inseason management system that allows managers to react to conservation problems and prevent long term conservation issues. The resulting 2013 and 2014

ACLs for the Minor Nearshore Rockfish North complex is approximately 15 percent less than the complex OFL (Table 2-36).

Table 2-38. Alternative harvest specifications (mt) for the Minor Nearshore Rockfish complex north of 40°10' N. latitude.

Stock Complex and Component Stocks	OFL		ABC		ACL	
	2013	2014	2013	2014	2013	2014
Minor Nearshore Rockfish North	110	110	94	94	94	94
Black and yellow	*0.0*	*0.0*	*0.0*	*0.0*		
Blue (CA)	*27.4*	*27.4*	*25.0*	*25.0*		
Blue (OR & WA)	*32.3*	*32.3*	*26.9*	*26.9*		
Brown	*5.5*	*5.5*	*4.6*	*4.6*		
Calico	*0.0*	*0.0*	*0.0*	*0.0*		
China	*9.8*	*9.8*	*8.2*	*8.2*		
Copper	*26.0*	*26.0*	*21.6*	*21.6*		
Gopher	*0.0*	*0.0*	*0.0*	*0.0*		
Grass	*0.7*	*0.7*	*0.5*	*0.5*		
Kelp	*0.0*	*0.0*	*0.0*	*0.0*		
Olive	*0.3*	*0.3*	*0.3*	*0.3*		
Quillback	*7.4*	*7.4*	*6.2*	*6.2*		
Treefish	*0.2*	*0.2*	*0.2*	*0.2*		

Minor Shelf Rockfish North of 40°10' N. Latitude

The Minor Shelf Rockfish complex north of 40°10' N. latitude is comprised of the following species: bronzespotted rockfish (*Sebastes gilli*); bocaccio (*Sebastes paucispinis*); chameleon rockfish (*S. phillipsi*); cowcod (*S. levis*); dusky rockfish (*S. ciliatus*); dwarf-red rockfish (*S. rufianus*); flag rockfish (*S. rubrivinctus*); freckled rockfish (*S. lentiginosus*); greenblotched rockfish (*S. rosenblatti*); greenspotted rockfish (*S. chlorostictus*); greenstriped rockfish (*S. elongatus*); halfbanded rockfish (*S. semicinctus*); harlequin rockfish (*S. variegatus*); honeycomb rockfish (*S. umbrosus*); Mexican rockfish (*S. macdonaldi*); pink rockfish (*S. eos*); pinkrose rockfish (*S. simulator*); pygmy rockfish (*S. wilsoni*); redstripe rockfish (*S. proriger*); rosethorn rockfish (*S. helvomaculatus*); rosy rockfish (*S. rosaceus*); silvergray rockfish (*S. brevispinis*); speckled rockfish (*S. ovalis*); squarespot rockfish (*S. hopkinsi*); starry rockfish (*S. constellatus*); stripetail rockfish (*S. saxicola*); swordspine rockfish (*S. ensifer*); tiger rockfish (*S. nigrocinctus*); and vermilion rockfish (*S. miniatus*). With the exception of chilipepper rockfish, which was assessed in 2007 (Field 2008); greenstriped rockfish, which was assessed in 2009 (Hicks, *et al.* 2009); and greenspotted rockfish off California, which was assessed in 2011 {Dick et al. 2011}, the Minor Shelf Rockfish North complex north consists of unassessed stocks.

The preferred alternative is to continue to manage chilipepper rockfish within the northern Minor Shelf Rockfish complex in 2011 and 2012. All trawl IQ analyses and initial issuance regulations were done based on management of chilipepper north of $40^{0}10'$ N. lat. within the Minor Shelf Rockfish North complex. Removing chilipepper from the northern Minor Shelf Rockfish complex and designating a coastwide species-specific specification would have required modifications to initial issuance rules, and control and vessel limits (for individual species and aggregate QS) for chilipepper and Minor Shelf Rockfish North. Determining the permit catch histories of chilipepper separately from the other northern Minor Shelf Rockfish catch histories would likely be a very difficult task and was not considered possible for the January 1, 2011 implementation of trawl rationalization. The 2013 and 2014 OFL contribution of chilipepper rockfish to the Minor Shelf Rockfish North complex is 7 percent of the projected OFLs from the 2007 assessment using the $F_{50\%}$ F_{MSY} proxy harvest rate (see section 2.1.3.1).

The greenstriped assessment was a coastwide assessment and the harvest specifications were apportioned using the mean of the 2003-2008 swept area biomass estimates north of 40°10’ N. latitude (84.5 percent) from the NMFS trawl survey. For the 2011-2012 management cycle, the Council recommended continuing to manage greenstriped rockfish within the Minor Shelf Rockfish complexes due to the complications associated with managing this species with IFQs. Species pulled out of a complex must be converted into an IFQ management unit under the Amendment 20 rules. Greenstriped rockfish is a trawl-dominant bycatch species that is rarely landed due to their diminutive size and low market desirability. An initial allocation of quota share for greenstriped would be less than straightforward given the unreliable catch history. The SSC rated the greenstriped stock as category 2 on the basis of the very uncertain catch history in the 2009 assessment that prevented the estimation of discrete year classes.

The new greenspotted rockfish assessment done for the portion of the stock off California was modeled as two area assessments north and south of Point Conception at 34º27’ N. latitude. The assessment indicates the stock is in the precautionary zone with spawning biomass depletions of 30.6 percent and 37.4 percent for the stocks north and south of Point Conception, respectively. The stocks have shown significant biomass increases since implementation of the RCAs in 2003. Shelf rockfish are particularly well protected by the RCAs and greenspotted rockfish catches have been negligible since 2003. The Council recommends continuing to manage greenspotted rockfish within the Minor Shelf Rockfish complexes since catch histories are too uncertain to allocate quota shares in the IFQ fishery. The OFL contribution of greenspotted rockfish to the Minor Shelf Rockfish North complex was based on apportioning 22.2 percent of the projected OFLs from the assessment for the stock north of Point Conception, which is the average estimated catch proportion in the assessment for the stock occurring in the area between 40°10’ N. latitude and the California-Oregon border at 42° N. latitude. The OFL contribution for the portion of the stock occurring north of 42° N. latitude was derived using DBSRA. The SSC categorized the assessed portion of the stock as a category 2 stock since recruitments were not estimated. The unassessed portion of the stock was categorized as a category 3 stock.

The complex OFLs for 2013 and 2014 are the summed contribution of the OFLs estimated for the component stocks that were derived using the data-limited methods for unassessed stocks and the assessments for chilipepper, greenstriped and greenspotted rockfish described above. The preferred 2013 and 2014 complex ABCs are the summed contribution of the component stocks’ ABCs using the SSC-recommended stock categories (and associated sigmas) and a P* of 0.45 (see section 2.1.2). The basis for deciding these ABCs is the same as that used to derive the 2012 No Action ABC for the complex. The preferred 2013 and 2014 ACLs for the Minor Shelf Rockfish North complex of 968 mt is the same as the No Action 2012 ACL and is less than the preferred ABC for the complex. The resulting ACLs for Minor Shelf Rockfish North represent a 56 percent reduction from the OFLs (Table 2-37).

Table 2-39. Alternative harvest specifications (mt) for the Minor Shelf Rockfish complex north of 40°10' N. latitude.

Stock Complex and Component Stocks	OFL		ABC		ACL	
	2013	2014	2013	2014	2013	2014
Minor Shelf Rockfish North	2,183	2,195	1,920	1,932	968	968
Bronzespotted	*0.0*	*0.0*	*0.0*	*0.0*		
Bocaccio	*284.0*	*284.0*	*236.9*	*236.9*		
Chameleon	*0.0*	*0.0*	*0.0*	*0.0*		
Chilipepper	*133.1*	*129.6*	*111.0*	*108.1*		
Cowcod	*0.0*	*0.0*	*0.0*	*0.0*		
Flag	*0.1*	*0.1*	*0.1*	*0.1*		
Freckled	*0.0*	*0.0*	*0.0*	*0.0*		
Greenblotched	*1.3*	*1.3*	*1.1*	*1.1*		
Greenspotted 40°10' to 42° N. latitude	***9.4***	***9.4***	***9***	***9***		
Greenspotted N. of 42° N. latitude (OR & WA)	*6.1*	*6.1*	*5.1*	*5.1*		
Greenstriped	*1,252.3*	*1,268.3*	*1,143*	*1,158*		
Halfbanded	*0.0*	*0.0*	*0.0*	*0.0*		
Harlequin	*0.0*	*0.0*	*0.0*	*0.0*		
Honeycomb	*0.0*	*0.0*	*0.0*	*0.0*		
Mexican	*0.0*	*0.0*	*0.0*	*0.0*		
Pink	*0.0*	*0.0*	*0.0*	*0.0*		
Pinkrose	*0.0*	*0.0*	*0.0*	*0.0*		
Puget Sound	*0.0*	*0.0*	*0.0*	*0.0*		
Pygmy	*0.0*	*0.0*	*0.0*	*0.0*		
Redstripe	*269.9*	*269.9*	*225.1*	*225.1*		
Rosethorn	*12.9*	*12.9*	*10.8*	*10.8*		
Rosy	*3.0*	*3.0*	*2.5*	*2.5*		
Silvergray	*159.4*	*159.4*	*133.0*	*133.0*		
Speckled	*0.2*	*0.2*	*0.1*	*0.1*		
Squarespot	*0.2*	*0.2*	*0.1*	*0.1*		
Starry	*0.0*	*0.0*	*0.0*	*0.0*		
Stripetail	*40.4*	*40.4*	*33.7*	*33.7*		
Swordspine	*0.0*	*0.0*	*0.0*	*0.0*		
Tiger	*1.0*	*1.0*	*0.8*	*0.8*		
Vermilion	*9.7*	*9.7*	*8.1*	*8.1*		

Minor Slope Rockfish North of 40°10' N. Latitude

The Minor Slope Rockfish complex north of 40°10' N. latitude is comprised of the following species: aurora rockfish (*Sebastes aurora*); bank rockfish (*S. rufus*); blackgill rockfish (*S. melanostomus*); redbanded rockfish (*S. babcocki*); rougheye rockfish (*S. aleutianus*); sharpchin rockfish (*S. zacentrus*); shortraker rockfish (*S. borealis*); splitnose rockfish (*S. diploproa*); and yellowmouth rockfish (*S. reedi*).

These are all unassessed species except for splitnose rockfish, which was assessed in 2009 (Gertseva, *et al*. 2009). Splitnose rockfish have been managed with stock-specific harvest specifications south of 40°10' N. latitude and within the northern Minor Slope Rockfish complex north of 40°10' N. latitude. The Council recommended that splitnose rockfish continue to be managed with stock-specific specifications in the south and under the Minor Slope Rockfish complex in the north. The splitnose rockfish assessment was used as the basis for this species' contribution to the Minor Slope Rockfish North complex. A north-south apportionment of the splitnose stock was based on the average 1916-2008 assessed area catch, which indicated 64.2 percent of the catch occurred south of $40^{0}10'$ N. latitude. Therefore, the remaining 35.8 percent represents the contribution of the splitnose stock to the Minor Slope Rockfish North complex. The Council recommended continuing this management strategy largely due to the implications of determining the uncertain catch history by trawl permit to initially allocate trawl splitnose quota shares under Amendment 20, since splitnose rockfish are not targeted and predominantly discarded at sea. Therefore, there is very sparse data available to determine catch history. The SSC categorized splitnose rockfish as a category 1 stock since recruitments were estimated in the assessment.

The complex OFLs for 2013 and 2014 are the summed contribution of the OFLs estimated for the component stocks that were derived using the data-limited methods described above, except for splitnose rockfish where the OFL contribution was projected from the 2009 assessment. The preferred 2013 and 2014 complex ABCs are the summed contribution of the component stocks' ABCs using the SSC-recommended stock categories (and associated sigmas) and a P* of 0.45 (see section 2.1.2). The basis for deciding these ABCs is the same as that used to derive the 2012 No Action ABCs for the complex. The preferred 2013 and 2014 ACL for Minor Slope Rockfish North of 1,160 mt is the same as the No Action 2012 ACL and less than the preferred ABCs for the complex. The resulting 2013 and 2014 ACL for Minor Slope Rockfish North represent a 24 and 25 percent reduction from the 2013 and 2014 OFLs, respectively (Table 2-38).

Table 2-40. Alternative harvest specifications (mt) for the Minor Slope Rockfish complex north of 40°10' N. latitude.

Stock Complex and Component Stocks	OFL		ABC		ACL	
	2013	2014	2013	2014	2013	2014
Minor Slope Rockfish North	1,518	1,553	1,381	1,414	1,160	1,160
Aurora	*15.4*	*15.4*	*12.8*	*12.8*		
Bank	*17.2*	*17.2*	*14.4*	*14.4*		
Blackgill	*4.7*	*4.7*	*3.9*	*3.9*		
Redbanded	*45.3*	*45.3*	*37.7*	*37.7*		
Rougheye	*71.1*	*71.1*	*59.3*	*59.3*		
Sharpchin	*214.5*	*214.5*	*178.9*	*178.9*		
Shortraker	*18.7*	*18.7*	*15.6*	*15.6*		
Splitnose	*939.0*	*974.1*	*897.7*	*931.3*		
Yellowmouth	*192.4*	*192.4*	*160.5*	*160.5*		

Minor Nearshore Rockfish South of 40°10' N. Latitude

The Minor Nearshore Rockfish complex south of 40°10' N. latitude is further subdivided into the following management categories: 1) shallow nearshore rockfish [comprised of black and yellow rockfish (*Sebastes chrysomelas*); China rockfish (*S. nebulosus*); gopher rockfish (*S. carnatus*); grass rockfish (*S. rastrelliger*), and kelp rockfish (*S. atrovirens*)]; and 2) deeper nearshore rockfish: [comprised of black rockfish (*S. melanops*), blue rockfish (*S. mystinus*); brown rockfish (*S. auriculatus*); calico rockfish (*S. dalli*); copper rockfish (*S. caurinus*); olive rockfish (*S. serranoides*); quillback rockfish (*S. maliger*); and treefish (*S. serriceps*)]. With the exception of the blue rockfish stock occurring in waters off California north of Point Conception (i.e., 34°27' N. latitude to 40°10' N. latitude) and gopher rockfish north of Point Conception (34°27' N. latitude), all of the Minor Nearshore Rockfish South stocks are unassessed. The blue rockfish stock was estimated to be at 29.7 percent of its unfished biomass in 2007; therefore, the stock is considered to be in the precautionary zone. Spawning biomass depletion of gopher rockfish north of Point Conception was estimated to be at 97 percent of its unfished biomass in 2005.

During the 2009 and 2010 biennial specifications process, the Council contemplated removing blue rockfish from the Minor Nearshore Rockfish complexes. Blue rockfish was managed within the Minor Nearshore Rockfish complexes because of scientific uncertainty and management needs, given the interaction of blue rockfish with other nearshore species. When blue rockfish occur offshore they can be targeted separately from other nearshore rockfish, but those that occur inshore mix with other nearshore rockfish stocks. Blue rockfish are managed under the California nearshore management plan which has mandatory sorting requirements for landed catch. Landings are routinely tracked and monitored, thereby reducing management uncertainty. For more efficient state management, blue rockfish remains a component stock within the Minor Nearshore Rockfish complexes. The OFL contribution of blue rockfish is projected from the 2007 assessment {Key et al. 2007} using the proxy $F_{50\%}$ F_{MSY} harvest rate and apportioning 87.3 percent of the OFL based on average catches of the assessed stock south of 40°10' N. latitude. The OFL contribution of blue rockfish south of 34º27' N. latitude is based on DCAC. The assessed portion of the blue rockfish stock is categorized as a category 2 stock and the unassessed portion south of 34º27' N. latitude is categorized as a category 3 stock.

During the 2007-2008 biennial specifications process, the Council decided to continue managing gopher rockfish within the Minor Nearshore Rockfish South complex since there was adequate resource protection under the California nearshore management plan and managing gopher rockfish with stock-specific harvest specifications could disrupt that plan. The OFL contribution of gopher rockfish north of 34º27' N. latitude is projected from the 2005 assessment {Key et al. 2005} using the proxy $F_{50\%}$ F_{MSY} harvest rate. The OFL contribution of gopher rockfish south of 34º27' N. latitude is based on DCAC. The assessed portion of the gopher rockfish stock is categorized as a category 1 stock and the unassessed portion south of 34º27' N. latitude is categorized as a category 3 stock.

The complex OFLs for 2013 and 2014 are the summed contribution of the OFLs estimated for the component stocks that were derived using the data-limited methods for unassessed stocks and the assessments for blue and gopher rockfish described above. The preferred 2013 and 2014 complex ABCs are the summed contribution of the component stocks' ABCs using the SSC-recommended stock categories (and associated sigmas) and a P* of 0.45 (see section 2.1.2). The basis for deciding these ABCs is the same as that used to derive the 2012 No Action ABC for the complex. The preferred 2013 and 2014 ACL for the Minor Nearshore Rockfish South complex of 990 mt is the same as the No Action 2012 ACL and is less than the preferred ABCs for the complex. The resulting ACL for Minor Nearshore Rockfish South represents a 15 percent reduction from the OFLs (Table 2-39).

Table 2-41. Alternative harvest specifications (mt) for the Minor Nearshore Rockfish complex south of 40°10' N. latitude.

Stock Complex and Component Stocks	OFL		ABC		ACL	
	2013	2014	2013	2014	2013	2014
Minor Nearshore Rockfish South	1,164	1,160	1,005	1,001	990	990
Shallow Nearshore Species	*NA*	*NA*	*NA*	*NA*		
Black and yellow	*27.5*	*27.5*	*23.0*	*23.0*		
China	*16.6*	*16.6*	*13.8*	*13.8*		
Gopher (N. of Point Conception)	*157.0*	*153.0*	*150.1*	*146.3*		
Gopher (S. of Point Conception)	*25.6*	*25.6*	*21.4*	*21.4*		
Grass	*59.6*	*59.6*	*49.7*	*49.7*		
Kelp	*27.7*	*27.7*	*23.1*	*23.1*		
Deeper Nearshore Species	*NA*	*NA*	*NA*	*NA*		
Blue (assessed area)	*187.8*	*187.8*	*171.4*	*171.4*		
Blue (S. of 34°27' N. latitude)	*72.9*	*72.9*	*60.8*	*60.8*		
Brown	*204.6*	*204.6*	*170.6*	*170.6*		
Calico	*0.0*	*0.0*	*0.0*	*0.0*		
Copper	*141.5*	*141.5*	*118.0*	*118.0*		
Olive	*224.6*	*224.6*	*187.4*	*187.4*		
Quillback	*5.4*	*5.4*	*4.5*	*4.5*		
Treefish	*13.2*	*13.2*	*11.0*	*11.0*		

Minor Shelf Rockfish South of 40°10' N. Latitude

The Minor Shelf Rockfish complex south of 40°10' N. latitude is composed of the following species: bronzespotted rockfish (*Sebastes gilli*); chameleon rockfish (*S. phillipsi*); dusky rockfish (*S. ciliatus*); dwarf-red rockfish (*S. rufianus*); flag rockfish (*S. rubrivinctus*); freckled rockfish (*S. lentiginosus*); greenblotched rockfish (*S. rosenblatti*); greenspotted rockfish (*S. chlorostictus*); greenstriped rockfish (*S. elongatus*); halfbanded rockfish (*S. semicinctus*); harlequin rockfish (*S. variegatus*); honeycomb rockfish (*S. umbrosus*); Mexican rockfish (*S. macdonaldi*); pink rockfish (*S. eos*); pinkrose rockfish (*S. simulator*); pygmy rockfish (*S. wilsoni*); redstripe rockfish (*S. proriger*); rosethorn rockfish (*S. helvomaculatus*); rosy rockfish (*S. rosaceus*); silvergray rockfish (*S. brevispinis*); speckled rockfish (*S. ovalis*); squarespot rockfish (*S. hopkinsi*); starry rockfish (*S. constellatus*); stripetail rockfish (*S. saxicola*); swordspine rockfish (*S. ensifer*); tiger rockfish (*S. nigrocinctus*); vermilion rockfish (*S. miniatus*); and yellowtail rockfish (*S. flavidus*). With the exception of greenstriped rockfish, which was assessed in 2009 (Hicks, *et al*. 2009) and greenspotted rockfish, which was newly assessed in 2011 {Dick et al. 2011}, none of the Minor Shelf Rockfish South stocks have been assessed.

The Council recommended continuing to manage greenstriped rockfish within the Minor Shelf Rockfish complexes due to the complications associated with managing this species with IFQs. Species pulled out of a complex must be converted into an IFQ management unit under the Amendment 20 rules. Greenstriped rockfish is a trawl-dominant bycatch species that is rarely landed due to their diminutive size and low market desirability. An initial allocation of quota share for greenstriped would be less than straightforward given the unreliable catch history. The 2013 and 2014 OFL contributions from greenstriped rockfish were projected from the 2009 assessment using the proxy $F_{50\%}$ F_{MSY} harvest rate and apportioned using the mean of the 2003-2008 swept area biomass estimates south of 40°10' N. latitude (15.5 percent) from the NMFS trawl survey. The greenstriped rockfish stock is recommended as a category 2 stock based on relatively high assessment uncertainty due to uncertain estimates of historical discards (greenstriped rockfish are rarely landed due to their small size and lack of market value and desirability).

The new greenspotted rockfish assessment done for the portion of the stock off California was modeled as two area assessments north and south of Point Conception at 34º27' N. latitude. The assessment indicates the stock is in the precautionary zone with spawning biomass depletions of 30.6 percent and 37.4 percent for the stocks north and south of Point Conception, respectively. The stocks have shown significant biomass increases since implementation of the RCAs in 2003. Shelf rockfish are particularly well protected by the RCAs and greenspotted rockfish catches have been negligible since 2003. The Council recommends continuing to manage greenspotted rockfish within the Minor Shelf Rockfish complexes since catch histories are too uncertain to allocate quota shares in the IFQ fishery. The OFL contribution of greenspotted rockfish to the Minor Shelf Rockfish South complex was based on apportioning 77.8 percent of the projected OFLs from the assessment for the stock north of Point Conception, which is the average estimated catch proportion in the assessment for the stock occurring in the area between 34º27' N. latitude and 40°10' N. latitude. The OFL contributions for the stock occurring south of 34º27' N. latitude were projected from the assessment using the proxy $F_{50\%}$ harvest rate. The SSC categorized the assessed portion of the stock as a category 2 stock since recruitments were not estimated.

The complex OFLs for 2013 and 2014 are the summed contribution of the OFLs estimated for the component stocks that were derived using the data-limited methods for unassessed stocks and the assessments for greenstriped and greenspotted rockfish described above. The preferred 2013 and 2014 complex ABCs are the summed contribution of the component stocks' ABCs using the SSC-recommended stock categories (and associated sigmas) and a P* of 0.45 (see section 2.1.2). The basis for deciding these ABCs is the same as that used to derive the 2012 No Action ABC for the complex. The preferred 2013 and 2014 ACL for the Minor Shelf Rockfish South complex of 714 mt is the same as the No Action 2012 ACL and is less than the preferred ABC for the complex. The resulting ACL for Minor Shelf Rockfish South represent a 63 percent reduction from the OFLs (Table 2-40).

Table 2-42. Alternative harvest specifications (mt) for the Minor Shelf Rockfish complex south of 40°10' N. latitude.

Stock Complex and Component Stocks	OFL		ABC		ACL	
	2013	2014	2013	2014	2013	2014
Minor Shelf Rockfish South	1,910	1,913	1,617	1,620	714	714
Bronzespotted	*3.6*	*3.6*	*3.0*	*3.0*		
Chameleon	*0.0*	*0.0*	*0.0*	*0.0*		
Flag	*23.4*	*23.4*	*19.5*	*19.5*		
Freckled	*0.0*	*0.0*	*0.0*	*0.0*		
Greenblotched	*23.1*	*23.1*	*19.3*	*19.3*		
Greenspotted	***80.3***	***80.3***	*73.3*	*73.3*		
Greenstriped	*229.7*	*232.7*	*209.7*	*212.4*		
Halfbanded	*0.0*	*0.0*	*0.0*	*0.0*		
Harlequin	*0.0*	*0.0*	*0.0*	*0.0*		
Honeycomb	*9.9*	*9.9*	*8.2*	*8.2*		
Mexican	*5.1*	*5.1*	*4.2*	*4.2*		
Pink	*2.5*	*2.5*	*2.1*	*2.1*		
Pinkrose	*0.0*	*0.0*	*0.0*	*0.0*		
Pygmy	*0.0*	*0.0*	*0.0*	*0.0*		
Redstripe	*0.5*	*0.5*	*0.4*	*0.4*		
Rosethorn	*2.1*	*2.1*	*1.8*	*1.8*		
Rosy	*44.5*	*44.5*	*37.1*	*37.1*		
Silvergray	*0.5*	*0.5*	*0.4*	*0.4*		
Speckled	*39.4*	*39.4*	*32.8*	*32.8*		
Squarespot	*11.1*	*11.1*	*9.2*	*9.2*		
Starry	*62.6*	*62.6*	*52.2*	*52.2*		
Stripetail	*23.6*	*23.6*	*19.7*	*19.7*		
Swordspine	*14.2*	*14.2*	*11.9*	*11.9*		
Tiger	*0.0*	*0.0*	*0.0*	*0.0*		
Vermilion	*269.3*	*269.3*	*224.6*	*224.6*		
Yellowtail	*1,064.4*	*1,064.4*	*887.7*	*887.7*		

Minor Slope Rockfish South of 40°10' N. Latitude

The Minor Slope Rockfish complex south of 40°10' N. latitude is composed of the following species: aurora rockfish (*Sebastes aurora*); bank rockfish (*S. rufus*); blackgill rockfish (*S. melanostomus*); Pacific ocean perch (*S. alutus*); redbanded rockfish (*S. babcocki*); rougheye rockfish (*S. aleutianus*); sharpchin rockfish (*S. zacentrus*); shortraker rockfish (*S. borealis*); and yellowmouth rockfish (*S. reedi*). With the exception of bank rockfish, which was assessed in 2000 (Piner, *et al.* 2000), and blackgill rockfish, which was newly assessed in 2011 {Field et al. 2011}, none of the Minor Slope Rockfish South stocks have been assessed.

The new blackgill rockfish assessment was done for the stock south of 40°10' N. latitude. Blackgill rockfish spawning biomass depletion was estimated to be 30 percent of its unfished biomass at the start of 2011, which places this stock in the precautionary zone. The Council recommends continuing to manage this stock in the Minor Slope Rockfish South complex and establishing 2013 and 2014 HGs equal to the 40-10 adjusted ACLs calculated for the stock (see section 2.X.X). The blackgill OFL contribution to the 2013 and 2014 complex OFLs are projected from the 2011 assessment using the proxy $F_{50\%}$ F_{MSY} harvest rate. The SSC categorized blackgill rockfish as a category 2 stock since recruitments were not estimated in the new assessment.

The complex OFLs for 2013 and 2014 are the summed contribution of the OFLs estimated for the component stocks that were derived using the data-limited methods for unassessed stocks and the assessments for bank and blackgill rockfish described above. The preferred 2013 and 2014 complex ABCs are the summed contribution of the component stocks' ABCs using the SSC-recommended stock categories (and associated sigmas) and a P* of 0.45 (see section 2.1.2). The basis for deciding these ABCs is the same as that used to derive the 2012 No Action ABC for the complex. The preferred 2013 and 2014 ACLs for the Minor Slope Rockfish South complex of 618 mt and 622 mt, respectively are equal to the preferred ABCs. These ACLs are slightly lower than the No Action 2012 ACL of 626 mt since the ACLs cannot exceed the ABCs. The resulting ACLs for Minor Slope Rockfish South represent a 9 percent reduction from the OFLs (Table 2-41).

Table 2-43. Alternative harvest specifications (mt) for the Minor Slope Rockfish complex south of 40°10' N. latitude.

Stock Complex and Component Stocks	OFL		ABC		ACL	
	2013	2014	2013	2014	2013	2014
Minor Slope Rockfish South	681	685	618	622	618	622
Aurora	*26.1*	*26.1*	*21.7*	*21.7*		
Bank	*503.2*	*503.2*	*459.4*	*459.4*		
Blackgill	***130.0***	***134.0***	***118.7***	***122.3***		
Pacific ocean perch	*0.0*	*0.0*	*0.0*	*0.0*		
Redbanded	*10.4*	*10.4*	*8.7*	*8.7*		
Rougheye	*0.4*	*0.4*	*0.3*	*0.3*		
Sharpchin	*9.8*	*9.8*	*8.2*	*8.2*		
Shortraker	*0.1*	*0.1*	*0.1*	*0.1*		
Yellowmouth	*0.8*	*0.8*	*0.7*	*0.7*		

Other Flatfish

The Other Flatfish complex contains all the unassessed flatfish species in the Groundfish FMP. These species include butter sole (*Isopsetta isolepis*), curlfin sole (*Pleuronichthys decurrens*), flathead sole (*Hippoglossoides elassodon*), Pacific sanddab (*Citharichthys sordidus*), rex sole (*Glyptocephalus zachirus*), rock sole (*Lepidopsetta bilineata*), and sand sole (*Psettichthys melanostictus*).

The complex OFL for 2013 and 2014 is the summed contribution of the OFLs estimated for the component stocks that were derived using the data-limited methods for unassessed stocks described above. The preferred 2013 and 2014 complex ABC is the summed contribution of the component stocks' ABCs using the SSC-recommended category 3 for these unassessed stocks, the associated sigma of 1.44, and a P* of 0.4 (see section 2.1.2). The basis for deciding this ABC is the same as that used to derive the 2012 No Action ABC for the complex. The preferred 2013 and 2014 ACL for the Other Flatfish complex of 4,884 mt is equal to No Action 2012 ACL. This ACL represents a 51 percent reduction from the OFL (Table 2-42). For sanddabs and rex sole, the available trawl survey data and the sizes of selectivity and maturity leads to the assumption that the stocks are above B_{MSY}. The reduction is expected to adequately address management uncertainty.

Table 2-44. Alternative harvest specifications (mt) for the Other Flatfish complex.

Stock Complex and Component Stocks	OFL		ABC		ACL	
	2013	2014	2013	2014	2013	2014
Other Flatfish	10,060	10,060	6,982	6,982	4,884	4,884
Butter sole	*4.6*	*4.6*	*3.2*	*3.2*		
Curlfin sole	*8.2*	*8.2*	*5.7*	*5.7*		
Flathead sole	*35.0*	*35.0*	*24.3*	*24.3*		
Pacific sanddab	*4,801.0*	*4,801.0*	*3,331.9*	*3,331.9*		
Rex sole	*4,371.5*	*4,371.5*	*3,033.8*	*3,033.8*		
Rock sole	*66.7*	*66.7*	*46.3*	*46.3*		
Sand sole	*773.2*	*773.2*	*536.6*	*536.6*		

Other Fish

The Other Fish stock complex contains all the unassessed groundfish FMP species that are neither rockfish (family *Scorpaenidae*) nor flatfish, except for spiny dogfish which was newly assessed in 2011. These species include big skate (*Raja binoculata*), California skate (*Raja inornata*), leopard shark (*Triakis semifasciata*), soupfin shark (*Galeorhinus zyopterus*), spiny dogfish (*Squalus acanthias*), finescale codling (*Antimora microlepis*), Pacific grenadier (*Coryphaenoides acrolepis*), ratfish (*Hydrolagus colliei*), cabezon (*Scorpaenichthys marmoratus*) (off Washington), and kelp greenling (*Hexagrammos decagrammus*).

A new assessment of spiny dogfish was done in 2011 indicating a healthy status with a spawning biomass depletion of 63 percent of its unfished biomass in 2011 {Gertseva et al. 2011}. The spiny dogfish contribution to the complex 2013 and 2014 OFLs were projected from the new assessment using the proxy $F_{45\%}$ F_{MSY} harvest rate. The SSC categorized the stock as a category 2 stock since recruitments were not estimated.

The Other Fish complex is an aggregation of species with different life history characteristics and depth distributions. The historical catch of many of the component stocks is poorly understood with some stocks missing any record of landings on the west coast. The SSC recommended re-evaluating the formation of this complex for the next management cycle and giving consideration to adding new species related to the component species of the complex into the FMP and re-grouping species with similar vulnerabilities, ecological interactions, and distributions.

The complex OFL for 2013 and 2014 is the summed contribution of the known OFLs estimated for the component stocks that were derived using the data-limited methods for unassessed stocks and the projections from the new spiny dogfish assessment described above. The 2013 and 2014 OFL is biased low since three of the eleven stocks do not contribute an OFL yield due to lack of available catch information for these stocks. The preferred 2013 and 2014 complex ABC is the summed known contribution of the component stocks' ABCs using the SSC-recommended category 3 for these unassessed stocks, the associated sigma of 1.44, and a P* of 0.4; and a P* of 0.3 applied to the sigma of 0.72 for category 2 stocks to determine the spiny dogfish ABC contribution (see section 2.1.2). The basis for deciding the 2013 and 2014 ABCs is dramatically different from that used to derive the 2012 No Action ABC for the complex since only the contributions of species with calculated ABCs (based on a positive OFL contribution) are summed to determine the ABCs. The preferred 2013 and 2014 ACLs for the Other Fish complex of 4,717 mt and 4,697 mt, respectively are equal to the preferred 2013 and 2014 ABCs, which are lower than the No Action 2012 ACL of 5,575 mt. These ACLs represent a 31 percent reduction from the OFLs (Table 2-43). The 2013 and 2014 OFLs represent a 39 percent reduction from the No Action OFL of 11,150 mt and the 2013 and 2014 ACLs represent a 39 percent reduction from the No Action ACL.

Table 2-45. Alternative harvest specifications (mt) for the Other Fish complex.[a/]

Stock Complex and Component Stocks	OFL		ABC		ACL	
	2013	2014	2013	2014	2013	2014
Other Fish	6,832	6,802	4,717	4,697	4,717	4,697
Big skate	*458.0*	*458.0*	*317.9*	*317.9*		
Cabezon (WA)	*b/*	*b/*	*b/*	*b/*		
California skate	*86.0*	*86.0*	*59.7*	*59.7*		
Finescale codling	*b/*	*b/*	*b/*	*b/*		
Kelp greenling (CA)	*118.9*	*118.9*	*82.5*	*82.5*		
Kelp greenling (OR & WA)	*b/*	*b/*	*b/*	*b/*		
Leopard shark	*167.1*	*167.1*	*116.0*	*116.0*		
Pacific grenadier	*1,519.0*	*1,519.0*	*1,054.2*	*1,054.2*		
Ratfish	*1,441.0*	*1,441.0*	*1,000.1*	*1,000.1*		
Soupfin shark	*61.6*	*61.6*	*42.8*	*42.8*		
Spiny dogfish	***2,980***	***2,950***	***2,044***	***2,024***		

a/ Values for these specifications are the sum of known contributions of component stocks.
b/ No OFL or ABC contribution for these stocks given the lack of an approved method for estimating the OFL.

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2. DESCRIPTION OF THE ALTERNATIVES

2.1

2.2 Accountability Measures

Accountability measures, which are also referred to as management measures, are used to meet the goals of the MSA and groundfish FMP, including preventing the ACL from being exceeded and correcting or mitigating overages of the ACL if they occur. For the 2013-14 cycle, the first set of AMs are implemented when deductions from the ACL, also called set-asides, are made to account for groundfish mortality in other sectors. The ACL less the set-asides is called the fishery harvest guideline or commercial harvest guideline (sablefish north of 36° N. latitude and Pacific whiting), which is the amount available for the sector specific allocations. Sector allocations include formal long-term allocations (e.g., Amendments 6 and 21) and short-term allocations implemented for the biennial period. Section 2.2 details the proposed accountability measures for 2013-14.

2.2.1 Deductions from the ACL

Deductions from most groundfish ACLs are made to account for groundfish mortality in the Pacific Coast treaty Indian tribal fisheries, scientific research, non-groundfish target fisheries (hereinafter incidental open access fisheries), and, as necessary, EFPs. Set-asides from the sablefish north of 36° N. latitude ACL are slightly different due to the sablefish allocation framework (see Section 2.2.2.1, Amendment 6). Set-asides from the sablefish north of 36° N. latitude ACL include groundfish mortality in tribal fisheries, research, recreational fisheries, and EFPs. The Council and NMFS do not have direct management control over these activities, except for EFPs and recreational fisheries. While NMFS has direct control over the terms and conditions of the EFP permits and recreational fishery management, sufficient yield set-aside must be available to accommodate the anticipated groundfish impacts. Deductions from the ACL to account for these activities are important accountability measures that increase the probability that catches will remain below the ACLs.

If the Council discovers that groundfish mortality in tribal fisheries, scientific research, non-groundfish fisheries, recreational fisheries (sablefish only) and EFPs is higher than estimated during the biennial process, inseason adjustments to management measures may be needed. A wide range of management measure adjustments can be considered for the non-trawl sector (e.g., bag limits, trip limits, season dates), however limited adjustments can be made in the trawl sector since quota pounds for the year have already been issued. If the deductions from the ACL are higher than actual catches in tribal fisheries, scientific research, non-groundfish fisheries, or EFPs, unused portions of the set-aside could allow management measures in the non-trawl fisheries to be adjusted through inseason action to allow for harvest that attains the fishery HGs and ultimately the ACLs. Additional catch cannot be reassigned to the trawl sector without recalculating quota pounds for the year, an action which is not considered routine.

Table 2-1 and Table 2-2 detail the deductions from the preliminary preferred ACLs for the 2013-14 cycle, which were used in the analysis of the integrated alternatives. The ACLs for canary and POP vary between the integrated alternatives (see Section 2.4 Integrated Alternatives); however the set-aside values remain constant. The set-asides for sablefish north of 36° N. latitude are outlined in Table 2-3 and were also used in the analysis of the integrated alternatives. The approach used to calculate appropriate set-asides is similar to the approach used in 2011-2012 (No Action). A brief summary of the calculations behind the set-asides follows below; detailed information is provided in Appendix B.

2.2.1.1 Tribal Fishery Set-Asides

Tribal fisheries consist of trawl (bottom, mid-water, and whiting), fixed gear, and troll. The requested tribal set-asides are based on the amounts in the January 1, 2012 regulations except for petrale sole and widow rockfish which were updated based on the projected catches outlined in a letter received from Makah at the November 2011 Council meeting (Agenda Item E.4.b, Supplemental Tribal Report, November 2011). The 2011-2012 set-aside of 45.4 mt for petrale sole was used in the analysis of the integrated alternatives, instead of the tribal projected catches for 2012 of 70 mt noted in the Tribal Report, which was an error. The corrected petrale set-aside, including any additional requests to modify other set-aside amounts, will be included in the analysis of the final preferred alternative.

2.2.1.2 Research Set-Asides

Research activities include the NMFS trawl survey, International Pacific Halibut Commission longline survey, and other federal and state research. The Council approach is that set-asides should be equal to the maximum historical scientific research catch from 2005-2010, except for canary rockfish and yelloweye rockfish. The maximum historical catch for canary rockfish was considered a rare event and therefore not used. The yelloweye rockfish set-aside was set higher than the historical maximum to accommodate anticipated research. The Council adopted set-aside values for darkblotched, POP, and widow rockfish, which were used in the integrated alternatives analysis, were incorrectly specified. The Council will be asked in April 2012 to adopt the maximum values, consistent with their preferred approach. There is no practical impact of this error on the results of the integrated alternatives since the maximum value is only slightly higher than the value used in the analysis (see footnote b in Table 2-1 and Table 2-2). The corrected set-asides will be included in the analysis of the final preferred alternative.

As stated above, the Council policy for canary and yelloweye rockfish was not based on the maximum historical value. The Council considered the high canary rockfish research catches of 7.2 mt in 2006 a rare event. The largest catches came from the NMFS trawl survey and surveys in later years encountered significantly less canary. The Council adopted a 4.5 mt canary rockfish set aside, which is higher than the average research catch from 2005-2010. For yelloweye rockfish, the Council adopted a 3.3 mt research set aside based on anticipated research needs of the International Pacific Halibut Commission (1.1 mt), Washington Department of Fish and Wildlife (1 mt), Oregon Department of Fish & Wildlife (1 mt), and other projects (0.2 mt).

2.2.1.3 Incidental Open Access Set-Asides

Deductions from ACLs are made to account to groundfish mortality in the incidental open access fisheries. The set-asides for all species, except longnose skate, were derived from the maximum historical values in the 2007-2010 WCGOP Total Mortality reports. The recommended set-aside for longnose skate was based on data from the 2009 and 2010 Total Mortality reports, the years in which longnose skate were reported separately from the Other Fish category.

2.2.1.4 EFP Set-Asides

The Council adopted three EFPs and set-asides for public review at their November 2011 meeting. The first EFP seeks to test the effectiveness of trolled longline gear to selectively harvest chilipepper rockfish in waters off central California (Agenda Item E.3.a, Attachment 1, November 2011). The second EFP seeks to test the effectiveness of vertical hook-and-line gear to selectively harvest midwater species such as yellowtail rockfish (Agenda Item E.3.a, Attachment 2, November 2011). The third EFP seeks to survey the distribution and size of overfished species in the Rockfish Conservation Area off the central coast of California using hook-and-line and trap gear (Agenda Item E.3.a, Attachment 3, November 2011).

The Council adopted a range of EFP total catch limits for the trolled longline and the vertical hook and line EFPs but narrowed the values for use in the integrated alternatives analysis. No total catch limits or yield set-asides are required for the third EFP since those catches will be covered using quota pounds allocated in the shorebased IFQ fishery.

2.2.1.5 Recreational (Sablefish north of 36° N. latitude only)

The allocation framework for sablefish north of 36° N. latitude specifies that anticipated recreational catches of sablefish be deducted from the ACL prior to the commercial limited entry and open access allocations. For 2013-2014, the set-aside is the maximum historical value from recreational fisheries from 2004-2011.

Table 2-1. 2013 preliminary preferred ACLs and estimates of tribal, EFP, research (Res.), and incidental open access (OA) groundfish mortality in metric tons, used to calculate the fishery harvest guideline, under all integrated alternatives.

Species	Area	ACL	Tribal a/	EFP	Res. b/	OA	Fishery HG
Arrowtooth flounder	Coastwide	6,157	2,041	0	8	30	4,078.0
Black rockfish	N of 46º16' N. lat.	411	14	0	0	0	397.0
Black rockfish	S of 46º16' N. lat.	1,000	0	0	0	0	1,000.0
Bocaccio	S of 40º10' N. lat.	320	0	2.6	1.7	0.7	315.0
Cabezon	46º16' to 42º N. lat.	47	0	0	0	0	47.0
Cabezon	S of 42º N. lat.	163	0	0	0	0	163.0
California scorpionfish	S of 34°27' N. lat.	120	0	0	0	2	118.0
Canary rockfish	Coastwide	116	9.5	0.8	4.5	2	99.2
Chilipepper	S of 40º10' N. lat.	1,690	0	200	9	5	1,476.0
Cowcod	S of 40º10' N. lat.	3	0	0.02	0.1	0	2.9
Darkblotched rockfish	Coastwide	317	0.1	0.2	1.4	18	297.3
Dover sole	Coastwide	25,000	1,497	0	38	55	23,410.0
English sole	Coastwide	6,815	91	0	5	7	6,712.0
Lingcod	N of 40'10º N. lat.	3,036	250	0	5	16	2,765.0
Lingcod	S of 40'10º N. lat.	1,111	0	1.9	0	7	1,102.1
Longnose skate	Coastwide	2,000	56	0	3	3	1,938.0
Longspine thornyhead	N of 34º27' N. lat.	2,009	30	0	13	3	1,963.0
Longspine thornyhead	S of 34º27' N. lat.	356	0	0	1	2	353.0
Minor nearshore rockfish	N of 40º10' N. lat.	94	0	0	0	0	94.0
Minor nearshore rockfish	S of 40º10' N. lat.	990	0	0	0	0	990.0
Minor shelf rockfish north	N of 40º10' N. lat.	968	9	0	3	26	930.0
Minor shelf rockfish south	S of 40º10' N. lat.	714	0	30.2	6	9	668.8
Minor slope rockfish north	N of 40º10' N. lat.	1,160	36	0	6	19	1,099.0
Minor slope rockfish south	S of 40º10' N. lat.	618	0	5.2	2	17	593.8
Other fish	Coastwide	2,286	0	3	0	0	2,283.0
Other flatfish	Coastwide	4,884	60	0	17	125	4,682.0
Pacific cod	Coastwide	1,600	400	0	0	2	1,198.0
Pacific whiting	Coastwide	TBD	TBD	2.3	133	2,000	
Petrale sole	Coastwide	2,592	45.4	0	4.7	0.1	2,541.8
POP	Coastwide	150	10.9	0	1.6	0.4	137.1
Sablefish	N of 36º N. lat.	4,012	401	12.2	26	35	Table 2-3
Sablefish	S of 36º N. lat.	1,439	0	0	3	2	1,434.0
Shortbelly	Coastwide	50	0	0	2	0	48.0
Shortspine thornyhead	N of 34º27' N. lat.	1,540	38	0	5	2	1,495.0
Shortspine thornyhead	S of 34º27' N. lat.	397	0	0	1	41	355.0
Splitnose	S of 40º10' N. lat.	1,610	0	0.5	9	0	1,600.5
Starry flounder	Coastwide	1,520	2	0	0	5	1,513.0
Widow	Coastwide	1,500	60	18	1.6	3.3	1,417.1
Yelloweye rockfish	Coastwide	18	2.3	0.02	3.3	0.2	12.2
Yellowtail	N of 40º10' N. lat.	4,378	490	30	4	3	3,851.0

a/ The tribal set-aside for petrale sole was mis-specified as 45.4 mt (No Action value) and should be 70.0 mt. Analysis of the final preferred alternative will include the correct set-aside.

b/ Slight increases to the research set-aside values for darkblotched (from 1.4 to 2.1 mt), POP (from 1.6 to 2.7 mt), and widow (1.6 to 5.3 mt) are anticipated under the final preferred alternative.

Table 2-2. 2014 ACLs and estimates of tribal, EFP, research (Res.), and incidental open access (OA) groundfish mortality, used to calculate the fishery harvest guideline, under all integrated alternatives.

Species	Area	ACL	Tribal a/	EFP	Res. b/	OA	Fishery HG
Arrowtooth flounder	Coastwide	5,758	2,041	0	8	30	3,679.0
Black	N of 46º16' N. lat.	409	14	0	0	0	395.0
Black	S of 46º16' N. lat.	1,000	0	0	0	0	1,000.0
Bocaccio	S of 40º10' N. lat.	337	0	2.6	1.7	0.7	332.0
Cabezon	46º16' to 42º N.	47	0	0	0	0	47.0
Cabezon	S of 42º N. lat.	158	0	0	0	0	158.0
California scorpionfish	S of 34°27' N. lat.	117	0	0	0	2	115.0
Canary rockfish	Coastwide	119	9.5	0.8	4.5	2	102.2
Chilipepper	S of 40º10' N. lat.	1,647	0	200	9	5	1,433.0
Cowcod	S of 40º10' N. lat.	3	0	0.02	0.1	0	2.9
Darkblotched rockfish	Coastwide	330	0.1	0.2	1.4	18	310.3
Dover sole	Coastwide	25,000	1,497	0	38	55	23,410.0
English sole	Coastwide	5,646	91	0	5	7	5,543.0
Lingcod	N of 40'10º N. lat.	2,878	250	0	5	16	2,607.0
Lingcod	S of 40'10º N. lat.	1,063	0	2.6	0	7	1,053.4
Longnose skate	Coastwide	2,000	56	0	3	3	1,938.0
Longspine thornyhead	N of 34º27' N. lat.	1,958	30	0	13	3	1,912.0
Longspine thornyhead	S of 34º27' N. lat.	347	0	0	1	2	344.0
Minor nearshore rockfish	N of 40º10' N. lat.	94	0	0	0	0	94.0
Minor nearshore rockfish	S of 40º10' N. lat.	990	0	0	0	0	990.0
Minor shelf rockfish north	N of 40º10' N. lat.	968	9	0	3	26	930.0
Minor shelf rockfish south	S of 40º10' N. lat.	714	0	30.2	6	9	668.8
Minor slope rockfish north	N of 40º10' N. lat.	1,160	36	0	6	19	1,099.0
Minor slope rockfish south	S of 40º10' N. lat.	622	0	5.2	2	17	597.8
Other fish	Coastwide	2,286	0	3	0	0	2,283.0
Other flatfish	Coastwide	4,884	60	0	17	125	4,682.0
Pacific cod	Coastwide	1,600	400	0	0	2	1,198.0
Pacific whiting	Coastwide	TBD	TBD	3.4	133	2,000	TBD
Petrale sole	Coastwide	2,652	45.4	0	4.7	0.1	2,601.8
POP	Coastwide	153	10.9	0	1.6	0.4	140.1
Sablefish	N of 36º N. lat.	4,349	435	16	26	35	Table
Sablefish	S of 36º N. lat.	1,560	0	0	3	2	1,555.0
Shortbelly	Coastwide	50	0	0	2	0	48.0
Shortspine thornyhead	N of 34º27' N. lat.	1,525	38	0	5	2	1,480.0
Shortspine thornyhead	S of 34º27' N. lat.	393	0	0	1	41	351.0
Splitnose	S of 40º10' N. lat.	1,670	0	0.5	9	0	1,660.5
Starry flounder	Coastwide	1,528	2	0	0	5	1,521.0
Widow	Coastwide	1,500	60	18	1.6	3.3	1,417.1
Yelloweye rockfish	Coastwide	18	2.3	0.02	3.3	0.2	12.2
Yellowtail	N of 40º10' N. lat.	4,382	490	30	4	3	3,855.0

a/ The tribal set-aside for petrale sole was mis-specified as 45.4 mt (No Action value) and should be 70.0 mt. Analysis of the final preferred alternative will include the correct set-aside.

b/ Slight increases to the research set-aside values for darkblotched (from 1.4 to 2.1 mt), POP (from 1.6 to 2.7 mt), and widow (1.6 to 5.3 mt) are anticipated under the final preferred alternative.

Table 2-3. Sablefish ACLs and estimates of tribal, research, recreational, and EFPs mortality in metric tons used to calculate the commercial harvest guideline, under all integrated alternatives.

Year	ACL	Tribal	Research	Recreational	EFP	Commercial HG
2013	4,012	401	26	6.1	10	3,569
2014	4,349	435	26	6.1	10	3,872

2.2.2 Allocations

The fishery harvest guidelines (Table 2-1 and Table 2-2) for most species are further allocated between the trawl and non-trawl fisheries. The trawl and non-trawl allocations are based on the percentages adopted under Amendment 21 to the groundfish FMP or decided during the 2013-14 biennium. Sablefish north of 36° N. latitude is allocated under the Amendment 6 framework, which allocates the commercial harvest guideline (Table 2-3) between the limited entry (trawl and fixed gear) and open access sectors. Further, the FMP outlines criteria for allocating Pacific whiting between the shorebased IFQ, catcher-processor, and mothership sectors. For some species, no allocations are necessary since ACL attainment has historically been low due to the lack of market demand, limited access as a result of the RCA configurations, or the need to limit overfished species interactions. Further, some species are managed and allocated by the west coast states (e.g., nearshore species).

For any stock that has been declared overfished, the formal trawl/non-trawl and open access/limited entry allocation established under provisions of the FMP and regulations (50 CFR 660.50) may be temporarily revised for the duration of the rebuilding period. Details of formal allocations that are temporarily suspended are detailed in the following sections.

2.2.2.1 Long-Term Allocations

Amendment 6

Amendment 6, established allocation procedures in the FMP between the open access (including directed and incidental open access) and limited entry sectors. Amendment 21-1 modified the list of species subject to Amendment 6 allocations. The species and complexes that continue to have open access and limited entry allocations, unless modified by the biennial actions, are found in Table 2-4. The species that comprise the nearshore and shelf complexes are outlined in Chapter 2.1, Table XX.

The limited entry and open access allocations for bocaccio, canary, cowcod, and yelloweye are temporarily suspended since the stocks are overfished. Further, the shelf rockfish allocations are suspended since access is limited by RCAs and the need to limit overfished species catches. Nearshore rockfish allocations are also suspended due to overfished species constraints. As such, the Council adopted two-year allocations, except for nearshore rockfish, which are described in Section 2.2.2.2 Short-Term Allocations. The nearshore rockfish complex is managed by the west coast states which implement allocations through state regulations.

Detailed descriptions of the allocations for sablefish north of 36° north latitude can be found in Chapter 6 of the FMP. Table 2-5 to Table 2-10 detail the sablefish allocations calculations for use in the 2013-2014 cycle.

Table 2-4. Limited entry and open access allocations established by FMP Amendment 6.

Stock or Stock Complex	Limited Entry Share	Open Access Share
Nearshore and Shelf Rockfish North of 40°10 N. latitude	91.7%	8.3%
Nearshore and Shelf Rockfish South of 40°10 N. latitude	55.7%	44.3%
Sablefish north of 36° N. latitude	90.6%	9.4%

Table 2-5. Limited entry and open access FMP allocations applied to the 2013-2014 ACLs and reulsting commercial harvest guideline for sablefish north of 36° N. latitude (in mt).

			Limited Entry Harvest Guideline		Open Access Harvest Guideline	
Year	ACL	Commercial HG (MT) a/	%	MT	%	MT
2013	4,012	3,569	90.6%	3,233	9.4%	335
2014	4,349	3,872	90.6%	3,508	9.4%	364

a/ Set-asides from the ACL used to calculate the commercial HG can be found in Table XXX.

Table 2-6. Sablefish north of 36° N. latitude allocations, in metric tons, between limited entry fixed gear and limited entry trawl for 2013-2014.

	Limited Entry HG	Limited Entry Fixed Gear		Limited Entry Trawl	
Year	MT	%	MT	%	MT
2013	3,233	42%	1,358	58%	1,875
2014	3,508	42%	1,473	58%	2,035

Table 2-7. Sablefish north of 36° N. latitude allocations, in metric tons, within the limited entry fixed gear sector for 2013-2014. The total catch share is reduced by approximately 16 percent to account for discard mortality, a value calculated from WCGOP observations.

	Limited Entry Fixed Gear			
Year	Total Catch Share (mt)	Landed Catch Share (mt)	Primary Season Share (mt)	LEFG DTL Share (mt)
2013	1,358	1,315	1,118	197
2014	1,473	1,427	1,213	214

Table 2-8. Tier limits in pounds for the primary season for sablefish north of 36° N. latitude.

	Limited Entry Fixed Gear			
Year	Primary Season Share (mt)	Tier 1 (lbs)	Tier 2 (lbs)	Tier 3 (lbs)
2013	1,118	34,455	15,661	8,949
2014	1,213	37,383	16,992	9,710

Table 2-9. Sablefish north of 36° N. latitude allocations, in metric tons within the limited entry trawl sector for 2013-14.

	Limited Entry Trawl		
Year	All Trawl (mt)	At-sea Whiting (mt)	Shorebased IFQ (mt)
2013	1,875	50	1,825
2014	2,035	50	1,985

Table 2-10. Open access allocations in metric tons for sablefish north of 36° N. latitude allocations for 2013-14. Sablefish mortality in non-groundfish fisheries is accounted for in the incidental OA column. The total catch share is reduced by approximately 16 percent to account for discard mortality, a value calculated from WCGOP observations.

Year	Open Share (OA) (mt)	Incidental OA Removals (mt)	Directed OA Total Catch Share (mt)	Directed OA Landed Catch Share (mt)
2013	335	35	300	291
2014	364	35	329	319

Amendment 21

Amendment 21 to the FMP specified allocations between the trawl and non-trawl sectors. The trawl allocation is necessary for the shorebased IFQ and at-sea co-op programs. Long-term, formal allocations are expected to provide more stability to the trawl fishery sectors by reducing the risk of the trawl sector being closed as a result of a non-trawl sector exceeding an allocation or harvest guideline (e.g., recreational fisheries).

The Council recommended suspending the allocation of petrale sole (95 percent to trawl and 5 percent to non-trawl) during rebuilding and recommended using a two-year allocation of 35 mt to non-trawl with the remainder allocated to trawl (Table 2-11 and Table 2-12). This same approach was used in 2011-2012. The 35 mt value represents roughly twice the maximum non-trawl catch of petrale from 2004-2008 (see Figure 2 in Agenda Item B.7.b, Supplemental GMT Report, June 2010)

Amendment 21 also specified procedures for Pacific halibut bycatch allocations to the shorebased IFQ fishery. The FMP and regulations sets the trawl bycatch mortality limit at 15 percent of the Area 2A total constant exploitation yield (TCEY) for legal size halibut (net weight), not to exceed 130,000 pounds annually for legal size halibut (net weight) for 2012 through 2014 and, beginning in 2015, not to exceed 100,000 pounds annually for legal size halibut (net weight). Details of the Pacific halibut calculation can be found in 50 CFR 660.55(m). The Pacific halibut harvest specifications and associated allocations have not yet been specified for 2012, therefore the analysis of the integrated alternatives uses the 2011 values.

Pacific Whiting

Pacific whiting is managed consistent with the agreement with Canada on Pacific hake/whiting and the Pacific Whiting Act. The Joint Management Committee (US and Canada) recommends the coastwide total allowable catch (TAC) and corresponding US TAC for Pacific whiting no later than March 25th of each year. Except for establishing the catch level, all other aspects of Pacific whiting management are subject to the MSA. The FMP states that the commercial harvest guideline for Pacific whiting is allocated among three sectors, as follows: 42 percent to the shorebased IFQ program, 34 percent for the catcher-processor co-operative program, and 24 percent for the mothership co-operative program. The Pacific whiting harvest specifications and associated allocations have not yet been specified for 2012, therefore the analysis of the integrated alternatives uses the 2011 allocations.

2.2.2.2 Short-Term Allocations

Two-year trawl and non-trawl allocations are decided during the biennial process for those species without long-term allocations or species where the long-term allocation is suspended. The preliminary preferred ACLs and allocations for species subject to short-term allocations are indicated in Table 2-11 and Table 2-12. Further, the integrated alternatives explore a range of canary and POP ACLs and allocations which are described by alternative in Section 2.4 Integrated Alternatives.

There is no specified trawl and non-trawl allocation for the Other Fish complex, however the Council recommended a two-year trawl and non-trawl HG for spiny dogfish, a component species, of 75 percent and 25 percent, respectively.

2.2.2.3 Species Without Allocations

Species without trawl and non-trawl or limited entry and open access allocations include: black rockfish, cabezon (Oregon and California), California scorpionfish, longspine thornyhead south of 34° 27' N. latitude, minor nearshore rockfish north and south, shortbelly, and the Other Fish complex. The nearshore species, including nearshore rockfish, are managed and allocated by the west coast states. For the remaining species, ACL attainment has historically been low due to the lack of market demand, limited access as a result of the RCA configurations, or the need to limit overfished species interactions. While there is no need for allocations between sectors, management measures for these species are proposed to keep total catch within the ACL (e.g., trip limits, bag limits, etc.).

Table 2-11. Species specific fishery harvest guidelines and allocations, in metric tons, for 2013.

				Allocations			
				Trawl		Non-trawl	
Species	**Area**	**Fishery HG**	**Allocation Type**	**%**	**Mt**	**%**	**Mt**
Arrowtooth flounder	Coastwide	4,078.0	FMP	95%	3,874	5%	204
Black	N of 46º16' N. lat.	397.0	None				
Black	S of 46º16' N. lat.	1,000.0	None				
Bocaccio	S of 40º10' N. lat.	315.7	Biennial	NA	76.9	NA	243.1
Cabezon	46º16' to 42º N.	47.0	None				
Cabezon	S of 42º N. lat.	163.0	None				
California scorpionfish	S of 34°27' N. lat.	118.0	None				
Canary rockfish	Coastwide	99.2	Biennial	NA	53.1	NA	46.4
Chilipepper	S of 40º10' N. lat.	1,476.0	FMP	75%	1,107	25%	369
Cowcod	S of 40º10' N. lat.	2.9	Biennial	NA	1.9	NA	1
Darkblotched rockfish	Coastwide	297.3	FMP	95%	282	5%	15
Dover sole	Coastwide	23,410.0	FMP	95%	22,240	5%	1,171
English sole	Coastwide	6,712.0	FMP	95%	6,376	5%	336
Lingcod	N of 40'10º N. lat.	2,765.0	FMP	45%	1244	55%	1,521
Lingcod	S of 40'10º N. lat.	1,102.1	FMP	45%	496	55%	606
Longnose skate	Coastwide	1,938.0	Biennial	90%	1,744	10%	194
Longspine thornyhead	N of 34º27' N. lat.	1,963.0	FMP	95%	1,865	5%	98
Longspine thornyhead	S of 34º27' N. lat.	353.0	None				
Minor nearshore	N of 40º10' N. lat.	94.0	None				
Minor nearshore	S of 40º10' N. lat.	990.0	None				
Minor shelf rockfish	N of 40º10' N. lat.	930.0	Biennial	60.2	560	39.8	370
Minor shelf rockfish	S of 40º10' N. lat.	668.8	Biennial	12.2	82	87.8	587
Minor slope rockfish	N of 40º10' N. lat.	1,099.0	FMP	81%	890	19%	209
Minor slope rockfish	S of 40º10' N. lat.	593.8	FMP	63%	374	37%	220
Other fish	Coastwide	2,283.0					
Other flatfish	Coastwide	4,682.0	FMP	90%	4,214	10%	468
Pacific cod	Coastwide	1,198.0	FMP	95%	1,138	5%	60
Pacific whiting	Coastwide	TBA		100%	TBA	0%	TBA
Petrale sole	Coastwide	2,541.8	Biennial	NA	2,507	NA	35
POP	Coastwide	137.1	FMP	95%	130	5%	7
Sablefish	N of 36º N. lat.	See Table 2-5 to Table 2-10					
Sablefish	S of 36º N. lat.	1,434.0	FMP	42%	602	58%	832
Shortbelly	Coastwide	48.0	None				
Shortspine thornyhead	N of 34º27' N. lat.	1,495.0	FMP	95%	1,420	5%	75
Shortspine thornyhead	S of 34º27' N. lat.	355.0	FMP	NA	50	NA	305
Splitnose	S of 40º10' N. lat.	1,600.5	FMP	95%	1,520	5%	80
Starry flounder	Coastwide	1,513.0	FMP	50%	757	50%	757
Widow	Coastwide	1,417.1	FMP	91%	1,290	9%	128
Yelloweye rockfish	Coastwide	12.2	Biennial	NA	1	NA	11.2
Yellowtail	N of 40º10' N. lat.	3,851.0	FMP	88%	3,389	12%	462

Table 2-12. Species specific fishery harvest guidelines and allocations, in metric tons, for 2014.

				Allocation			
				Trawl		Non-trawl	
Species	**Area**	**Fishery HG**	**Allocation Type**	**%**	**Mt**	**%**	**Mt**
Arrowtooth flounder	Coastwide	3,679.0	FMP	95%	3,495	5	184
Black	N of 46º16' N. lat.	395.0	None				
Black	S of 46º16' N. lat.	1,000.0	None				
Bocaccio	S of 40º10' N. lat.	332.7	Biennial	NA	79.8	N	252.2
Cabezon	46º16' to 42º N.	47.0	None				
Cabezon	S of 42º N. lat.	158.0	None				
California scorpionfish	S of 34°27' N. lat.	115.0	None				
Canary rockfish	Coastwide	103.7	Biennial	NA	54.7	N	47.8
Chilipepper	S of 40º10' N. lat.	1,433.0	FMP	75%	1,075	25	358
Cowcod	S of 40º10' N. lat.	2.9	Biennial	NA	1.9	N	1
Darkblotched rockfish	Coastwide	310.3	FMP	95%	295	5	16
Dover sole	Coastwide	23,410.0	FMP	95%	22,240	5	1,171
English sole	Coastwide	5,543.0	FMP	95%	5,266	5	277
Lingcod	N of 40'10º N. lat.	2,607.0	FMP	45%	1173	55	1,434
Lingcod	S of 40'10º N. lat.	1,053.4	FMP	45%	474	55	579
Longnose skate	Coastwide	1,938.0	Biennial	90%	1,744	10	194
Longspine thornyhead	N of 34º27' N. lat.	1,912.0	FMP	95%	1,816	5	96
Longspine thornyhead	S of 34º27' N. lat.	344.0	None				
Minor nearshore rockfish	N of 40º10' N. lat.	94.0	None				
Minor nearshore rockfish	S of 40º10' N. lat.	990.0	None				
Minor shelf rockfish north	N of 40º10' N. lat.	930.0	Biennial	60.2	560	39	370
Minor shelf rockfish south	S of 40º10' N. lat.	668.8	Biennial	12.2	82	87	587
Minor slope rockfish north	N of 40º10' N. lat.	1,099.0	FMP	81%	890	19	209
Minor slope rockfish south	S of 40º10' N. lat.	597.8	FMP	63%	377	37	221
Other fish	Coastwide	2,283.0					
Other flatfish	Coastwide	4,682.0	FMP	90%	4,214	10	468
Pacific cod	Coastwide	1,198.0	FMP	95%	1,138	5	60
Pacific whiting	Coastwide	TBA		100	TBA	0	TBA
Petrale sole	Coastwide	2,601.8	Biennial	NA	2,567	N	35
POP	Coastwide	140.1	FMP	95%	133	5	7
Sablefish	N of 36º N. lat.	See Table 2-5 to Table 2-10					
Sablefish	S of 36º N. lat.	1,555.0	FMP	42%	653	58	902
Shortbelly	Coastwide	48.0	None				
Shortspine thornyhead	N of 34º27' N. lat.	1,480.0	FMP	95%	1,406	5	74
Shortspine thornyhead	S of 34º27' N. lat.	351.0	FMP	NA	50	N	301
Splitnose	S of 40º10' N. lat.	1,660.5	FMP	95%	1,577	5	83
Starry flounder	Coastwide	1,521.0	FMP	50%	761	50	761
Widow	Coastwide	1,417.1	FMP	91%	1,290	9	128
Yelloweye rockfish	Coastwide	12.4	Biennial	NA	1	N	11.2
Yellowtail	N of 40º10' N. lat.	3,855.0	FMP	88%	3,392	12	463

2.2.3 Within Sector Allocations

2.2.3.1 Within Trawl Allocations

Amendment 21 Within Trawl Allocations

Amendment 21 and implementing regulations specified that the within trawl whiting allocations of darkblotched, POP, and widow would be done pro-rata to the sector's whiting allocation. The whiting allocations are 42 percent to shoreside, 34 percent to the catcher-processor, and 24 percent to the mothership sector. The whiting shoreside sector allocations are combined with the non-whiting shorebased allocations to create the total shorebased IFQ sector allocation. Table 2-13 and Table 2-14 detail the allocation calculations for darkblotched, POP, and widow for 2013 and 2014.

The Council adopted the rebuilt widow rockfish Amendment 21 within trawl allocation as the preliminary preferred alternative, as specified in the FMP and regulations. Additionally, the Council requested analyzing a range of widow rockfish within trawl allocations to the whiting sectors. The requested range for the at-sea sector is the status quo 2012 level (147.9 mt) to 300 mt, which would be further allocated between the mothership and catcher-processor sector pro-rata to the sectors whiting allocation. The remainder would be allocated to the shoreside whiting sector which is combined with the non-whiting shorebased allocations to create the total shorebased IFQ sector. This analysis can be found Appendix C and within Chapter 4, Sections XX.XX.

Table 2-13. Darkblotched, POP, and widow within trawl FMP allocations for 2013.

		Allocation Formula			
Species	**Trawl Allocation (mt)**	**Non-Whiting**	**Whiting**	**Non-Whiting (mt)**	**Whiting (mt)**
Darkblotched	282	The rest	9% or 25 mt, whichever is greater	257	25
POP	130	The rest	17% or 30 mt, whichever is greater	100	30
Widow	1,290	The rest	10% or 500 mt, whichever is greater	790	500

	Within Whiting Sector Allocations			
Species	**Whiting Sector Total (mt)**	**Shorebased 42% (mt)**	**Catcher-processor 34% (mt)**	**Mothership 24% (mt)**
Darkblotched	25	10.7	8.6	6.1
POP	30	12.6	10.2	7.2
Widow	500	210.0	170.0	120.0

Shorebased IFQ Total Allocations			
Species	**Shorebased Whiting (mt)**	**Non-Whiting (mt)**	**Shorebased IFQ Total (mt)**
Darkblotched	10.7	257	268
POP	12.6	100	113
Widow	210.0	790	1,000

Table 2-14. Darkblotched, POP, and widow within FMP trawl allocations for 2014.

Species	Trawl Allocation (mt)	Allocation Formula: Non-Whiting	Allocation Formula: Whiting	Non-Whiting (mt)	Whiting (mt)
Darkblotched	295	The rest	9% or 25 mt, whichever is greater	268	27
POP	133	The rest	17% or 30 mt, whichever is greater	103	30
Widow	1,290	The rest	10% or 500 mt, whichever is greater	790	500

	Within Whiting Sector Allocations			
Species	Whiting Sector Total (mt)	Shorebased 42% (mt)	Catcher-processor 34% (mt)	Mothership 24% (mt)
Darkblotched	27	11.1	9.0	6.4
POP	30	12.6	10.2	7.2
Widow	500	210.0	170.0	120.0

Shorebased IFQ Allocation Calculations			
Species	Shoreside Whiting (mt)	Shorebased Non-Whiting (mt)	Shorebased IFQ Total (mt)
Darkblotched	11.1	268	279
POP	12.6	103	116
Widow	210.0	790	1,000

At-Sea Whiting Set-Asides

Unlike set-asides that are taken as off-the-top deductions after setting the ACL, set-asides for some species are taken from the trawl allocation to accommodate bycatch in the at-sea whiting fishery (catcher-processor and mothership). Like other set-asides, these catches are not actively managed inseason, therefore the set-aside amounts need to be set high enough to accommodate the historical maximum or any increased catch that is anticipated. Recent catch in the at-sea sectors from 2009-2010 was evaluated and set-asides recommended by the Council in November 2011 (Table 2-15). The proposed changes from No Action for arrowtooth flounder, lingcod north of 42° N. latitude, and minor slope rockfish north of 40°10 N. latitude were calculated by roughly doubling the maximum value.

Table 2-15. At-sea whiting set-asides, which are deducted from the trawl allocation, for 2013-14.

Species or Species Complex	Area	Set Aside (mt)
Arrowtooth Flounder	Coastwide	20
Dover Sole	Coastwide	5
English Sole	Coastwide	5
Lingcod	N. of 40°10 N. lat.	15
Longnose Skate	Coastwide	5
Longspine Thornyhead	N. of 34°27 N. lat.	5
Minor Shelf Rockfish	N. of 40°10 N. lat.	35
Minor Slope Rockfish	N. of 40°10 N. lat.	100
Other Fish	Coastwide	520
Other Flatfish	Coastwide	20
Pacific Cod	Coastwide	5
Pacific Halibut a/	Coastwide	10
Petrale Sole	Coastwide	5
Sablefish	N. of 36° N. lat.	50
Shortspine Thornyhead	N. of 34°27 N. lat.	20
Starry Flounder	Coastwide	5
Yellowtail	N. of 40°10 N. lat.	300

2.2.3.2 Within Non-Trawl Allocations

The Council adopted two-year within non-trawl allocations for bocaccio, canary, and yelloweye for 2013-2014 under the preliminary preferred alternative (Table 2-16). The recreational values would be implemented as harvest guidelines (HGs). The canary within non-trawl allocations vary by alternative and are further explained under the analysis of the integrated alternatives (Section 2.4 Integrated Alternatives).

Table 2-16. Preliminary preferred two-year within non-trawl allocations for bocaccio, canary, and yelloweye for 2013-2014.

2013			
Sector	**Bocaccio (mt)**	**Canary (mt)**	**Yelloweye (mt)**
ACL	320	116	18
Total Set-Asides	5	16.8	5.82
Fishery Harvest Guideline	315.0	99.2	12.2
Non-Nearshore	74.2	3.6	1.1
Nearshore Fixed Gear	0.9	6.2	1.2
Washington Recreational HGs	N/A	3.1	2.9
Oregon Recreational HGs	N/A	10.9	2.6
California Recreational HGs	167.9	22.6	3.4
2014			
Sector	**Bocaccio (mt)**	**Canary (mt)**	**Yelloweye (mt)**
ACL	337	119	18
Total Set-Asides	5	17	5.8
Fishery Harvest Guideline	332.0	102.0	12.2
Non-Nearshore	77	3.7	1.1
Nearshore Fixed Gear	0.9	6.4	1.2
Washington Recreational HGs	N/A	3.2	2.9
Oregon Recreational HGs	N/A	11.2	2.6
California Recreational HGs	174.2	23.3	3.4

Harvest Guidelines

Accountability measures that increase the likelihood that total catch stays within the ACL include HGs, which are a specified numerical harvest objective that is not a quota. Attainment of an HG does not require closure of a fishery.

Black Rockfish (OR and CA)

HGs are recommended for the southern component of the black rockfish stock with 58 percent to Oregon and 42 percent to California. This allocation scheme is based on recent year landings, consistent with allocations that have been in place since 2004 (Agenda Item E.9.b, Supplemental Joint ODFW/CDFG Report, November 2011). Both states further allocate black rockfish between commercial and recreational nearshore fisheries; however, those allocations are not implemented in Federal regulations.

Blackgill South of 40°10 N. latitude

Blackgill rockfish is part of the minor slope rockfish complex south of 40°10’ N latitude and subject to an Amendment 21 allocation (63 percent to trawl and 37 percent to non-trawl). To improve inseason tracking of blackgill rockfish south of 40°10’ N latitude, the Council recommended HGs for 2013-2014 of 119 mt and 122 mt, respectively. Further, the Council provided guidance that the commercial non-trawl apportionment of blackgill should be 60 percent to limited entry and 40 percent to open access fixed gears. This apportionment reflects the historical distribution of catch between the limited entry and open access fixed gear sectors from 2005-2010 (Table 3 in Agenda Item E.9.b, GMT Report 2, November 2011).

Table 2-17. Blackgill rockfish within non-trawl allocations for limited entry and open access fixed gears for 2013-2014.

Year	Non-Trawl Allocation (mt)	Limited Entry Fixed Gear (mt)	Open Access Fixed Gear (mt)
2013	44	26.4	17.6
2014	45	27	18

Blue Rockfish South of 42° N. latitude

Since 2009, blue rockfish south of 42° N. latitude has been managed with an HG to prevent overfishing blue rockfish, which is in the precautionary zone (below B_{MSY}). Table 2-18 shows the OFL contribution, ABC contribution, and 40-10 adjusted values for both the assessed and unassessed portions of the blue rockfish stock both north and south of 40º10’ N. latitude within California. For development of the integrated alternatives the Council recommended specifying a 2013-2014 blue rockfish HG of 236 mt for California fisheries. This HG was calculated from the 2007 assessment (Key, *et al.* 2008), which was conducted for the portion of the stock in waters off California north of Point Conception at 34º27’ N. latitude. The OFLs were derived from the assessment. The ABCs were derived using a P* of 0.45 for a category 2 stocks, which was then adjusted using the 40-10 default harvest policy, as specified in the FMP for species in the precautionary zone. The HG contribution for the unassessed portion of the stock south of Point Conception was calculated by first estimating an OFL using the DCAC methodology and then applying an ABC adjustment (using a P* of 0.45 for a category 3 stock). The HG contribution for the unassessed area was set equal to the ABC since the stock is assumed to be above B_{MSY}. The 2013 and 2014 blue rockfish HG contributions for the assessed and unassessed areas are then summed to determine the HG.

Table 2-18. Blue rockfish harvest guideline calculations for both the assessed and unassessed areas within California for 2013-2014.

Area	OFL contribution by area		ABC contribution by area		40-10 adjusted HG contribution by area	
	2013	2014	2013	2014	2013	2014
North of 34°27’ N. lat. (assessed area)	215	215	196	196	175	175
South of 34°27’ N. lat. (unassessed area)	73	73	61	61	61	61
Total for California	288	288	257	257	236	236

Spiny Dogfish

Spiny dogfish is a component species to the Other Fish complex. There is no specified trawl and non-trawl allocation for the Other Fish complex, however the Council recommended a trawl and non-trawl HG for spiny dogfish of 75 percent and 25 percent, respectively. These percentages reflect the average catches within each sector from 2007-2010 (see Table 12 in Agenda Item E.9.b, Supplemental GMT Report 3).

Sablefish South of 36º N latitude

The Council recommended trip limits for sablefish south of 36º N latitude be modeled assuming a 55 percent to limited entry and 45 percent to open access allocation, based on the historical landings from 2000-2009 (see Table 9 in Agenda Item E.9.b, Supplemental GMT Report 3, November 2011). These percentages are not implemented as HGs but influence the catch and revenue for each sector under the integrated alternatives.

2.

2.3 New Accountability Measures

Several new accountability measures, designed to meet the goals and objectives specified in the FMP, were recommended for analysis for use in 2013-2014. The following section provides an overview of the proposed measures considered within the integrated alternatives. Section 2.4 describes the integrated alternatives and discusses the performance of these new measures in relation to the objectives of the proposed action. A focused evaluation of the performance and effects of the new accountability measures and range of options considered can be found in Appendix B.

Implementation of these new measures is included under all of the integrated alternatives described in Section 2.4, except under No Action. The new measures would not be implemented under the No Action alternative.

2.3.1 Modifications to the Boundaries Defining Rockfish Conservation Areas

Rockfish conservation areas (RCAs) are large area closures intended to protect a complex of species, such as the overfished shelf rockfish species. The boundaries for RCAs are defined by straight lines connecting a series of latitude and longitude coordinates that approximate depth contours. A set of coordinates are defined for each depth contour and the RCA structures are implemented by gear and/or fishery (e.g., trawl RCA, a non-trawl RCA, and a recreational RCAs). For the 2013-2014 cycle, changes to selected coordinates are proposed that more closely approximate the boundaries with depth contours based on the best available data (Table 2-1). These modifications should provide improved and more efficient access to target species while minimizing interactions with overfished species. The analysis of the integrated alternatives examines the impacts of the proposed changes.

Table 2-1. Summary of boundary adjustments proposed for 2013-2014 and included in the analysis of the integrated alternatives.

Area	Proposed Modifications
Washington and Oregon	150 and 200 fm lines
Oregon	200 fm lines
California – Usal and Noyo Canyons	150 fm lines

2.3.2 Sorting Requirements

Sorting requirements for aurora, shortraker, and rougheye rockfish north of 40°10 N. latitude and blackgill rockfish south of 40°10 N. latitude are proposed for 2013-2014. The proposed measures would require processors to sort and report these species from the slope rockfish complex prior to the first weighing after offload. The purpose of a sorting requirement would be to improve the accuracy of total mortality estimates for these stocks and the frequency with which they are reported. Improved monitoring would improve the ability to evaluate the need for inseason management action to keep catch within the harvest specifications.

2.3.3 Catch Accounting Between Limited Entry and Open Access

This proposed FMP amendment reinstates a provision that was inadvertently deleted when Amendment 21 was implemented, and clarifies the application of that provision with respect to catch accounting[1] for set-asides. The provision that was inadvertently deleted specified the decision rules for determining the allocation against which a vessel's catch would count, i.e. whether it would count against the limited entry allocation or the open access allocation. As it was specified, the provision also set up the situation in which catch might be deducted from both the ACL before sector allocations are made and deducted from an open access or limited entry sector allocation. In this regard, this amendment would add a clarification to eliminate the possibility of a duplicate deduction.

2.3.4 Remove or Modify the Lingcod Length Limit in the Shorebased IFQ Fishery

Lingcod length limits have been in place since the late 1990's and were implemented to minimize harvest of immature fish while maintaining the reproductive potential of the stock. Current commercial length limits vary north and south of 42° N. latitude, and are 22 inches and 24 inches, respectively. In 2011, the limited entry trawl fishery was rationalized with total catch IFQ issued for many species, including lingcod. Since the IFQ program monitors total catch, the existing length limit induces regulatory discards for some fish that may be marketable. The purpose of the proposed management measures would be to remove the lingcod length limit or reduce it to 20 inches coastwide while still maintaining the reproductive potential of the stock.

2.3.5 Shorebased IFQ Accumulation Limits

The maximum number of quota shares (QSs) and quota pounds (QPs) an entity may control in the shorebased IFQ fishery is limited by accumulation limits (defined in regulation at 50 CFR 660.111). These limits vary according to the management unit for the stock or stock complex and are intended to restrict the consolidation of quota holdings by just a few entities. The QS limits restrict the amount an individual or entity may control through ownership or other means. The annual QP limits refer to the maximum amount that may be assigned to any one vessel during a given year to cover catch. The annual QP vessel limits are larger than control limits to allow several QS holders to work together on a single vessel. Additionally, there are daily vessel limits that regulate the unused QP in vessel accounts for Pacific halibut and overfished species. Performance of the accumulation limits have been evaluated based on fishery performance in 2011 and revisions to the harvest specifications are proposed for 2013-2014.

2.3.6 Shorebased IFQ Surplus Carry-Over

Current regulations provide for a carry-over provision that allows a limited amount of surplus QP or IBQ pounds in a vessel account to be carried over from one year to the next or allows a deficit in a vessel account in one year to be covered with QP or IBQ pounds from a subsequent year, up to a carryover limit (50 CFR 660.140(e)(5)). The carry-over provision is anticipated to increase individual flexibility for harvesters, improve economic efficiency, and achieve optimum yield (OY) while preserving the conservation of stocks. The proposed action seeks to clarify regulations with regard to current accountability measures, which include modifications (reductions or suspension) to the eligible surplus

[1] The terms "catch accounting" and "catch," as used in this section, cover the application of a vessel's harvest against a sector allocation. Depending on how the allocations and management measures are specified, harvest may be measured as landings (catch minus discards), catch (including discards), or total mortality (catch minus discard survival). Regardless of the measure used in a particular situation, the management objective is to maintain total mortality within the ACLs.

carry-over percentages, in the event it is necessary to address MSA conservation requirements. The proposed alternative seeks to implement such accountability measures through routine inseason actions based on recommendations generated at a Council meeting. Lastly, the current list of automatic actions that may be implemented by NMFS would be revised to include closing the non-whiting shorebased IFQ fisheries, in addition to the IFQ shorebased whiting fishery (see regulations at 660.60 (d)).

2.3.7 Recreational Shelf Rockfish Retention in the Cowcod Conservation Area

In 2001, Cowcod Conservation Areas (CCAs) were implemented as part of the cowcod rebuilding strategy. As specified in the FMP Appendix F (see Cowcod Rebuilding Strategy), as new information becomes available on cowcod behavior and fisheries interactions with cowcod, the boundaries or related regulations concerning the current CCAs may change, and additional CCAs may be established by regulation. Some recreational fishing is currently permitted within the CCA (see regulations at 660.360(3)(B)). During these fishing operations, shelf rockfish, including bocaccio, are encountered but are required to be discarded resulting in bycatch. Modifications to the retention allowances for shelf rockfish in the CCA are proposed to reduce bycatch (i.e., regulatory discards) by recreational fisheries operating in the CCAs, while still rebuilding cowcod and bocaccio.

2.3.8 Remove the California Recreational Bocaccio Size Limit

Federal regulations for the California recreational fisheries, implement a 10 inch minimum size limit for bocaccio. The size limit was implemented in 2001 to protect juveniles from pier and jetty anglers during years of heavy recruitment. At that time, managers believed that bocaccio below that size, would have a high survival rate when caught in shallow water. Recent data suggest that there have been very few encounters of small bocaccio during good recruitment years (e.g., 2003, 2005, and 2009), and even fewer discards, suggesting the size limit is ineffective. The proposed management measure would remove the recreational bocaccio size limit for 2013-2014, while still rebuilding the bocaccio stock consistent with Council objectives.

2. CHAPTER 2

2.4 Integrated Alternatives

This section contains a description of the integrated alternatives which link the ACL alternatives described in Section 2.1 to the management measures necessary to meet the goals and objectives outlined in the FMP and MSA. Prior to the 2011-2012 cycle, the integrated alternatives were referred to as the strategic rebuilding alternatives or the holistic approach to rebuilding. The integrated alternatives contain the preferred non-overfished species ACLs along with a strategically arrayed range of overfished species ACLs (including the preferred). The results of the integrated analysis demonstrate how rebuilding overfished species within the complex structure of a fishery constrains fishing opportunities by sector (or gear type) and region and how those constraints affect communities along the west coast. Constraining fishing opportunity, in this context, refers the number and degree of management controls necessary to keep overfished species mortality within the ACLs. Previous analyses conducted for biennial cycle management have generally demonstrated that as overfished species ACLs are reduced, more management measures are required to keep overfished species mortality within the harvest specifications, which, in turn, limits access to healthy stocks. At some level, when access to healthy stocks is limited, communities are impacted.

Under the preferred alternative, harvest rates, or in the case of petrale sole, the harvest control rule, specified in the current rebuilding plans is recommended to rebuild all overfished species. As discussed in Section 2.1, the target years for canary and POP must be modified because new scientific information shows that T_{TARGET} is less than $T_{F=0}$ for both these stocks (in other words, even if no fishing mortality were to occur, the new information tells us these stocks could not be rebuilt by the T_{TARGET} specified in the current rebuilding plans). Therefore, the integrated alternatives in 2013-2014 explore a range of canary and POP ACLs, while maintaining the current rebuilding plans for the other overfished species showing steady progress towards rebuilding. The results inform whether the preferred alternative rebuilds these stocks as quickly as possible, while taking into account the needs of the fishing communities and other MSA requirements. As such, the canary and POP ACLs and allocations vary between the alternatives while all other variables remain constant. Table 2-1 and Table 2-2 outline the overfished species ACLs used in the integrated alternatives analysis, detailed descriptions of each alternative follow.

Management measures under the action alternatives (i.e., Alternatives 1-7) include adjustments to routine measures as well as the new measures described in Section 2.3.

Table 2-1. 2013 Integrated Alternatives for Overfished Species.

Species	No Action	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
Bocaccio	274	320	320	320	320	320	320	320
Canary	107	116	101	116	48	216	101	147
Cowcod	3	3	3	3	3	3	3	3
Darkblotched	296	317	317	317	317	317	317	317
POP a/	183	150	150	74	247	74	222	222
Petrale	1,160	2,592	2,592	2,592	2,592	2,592	2,592	2,592
Yelloweye	17	18	18	18	18	18	18	18

a/ Under No Action, a 157 mt ACT is implemented.

Table 2-2. 2014 Integrated Alternatives for Overfished Species.

Species	No Action	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
Bocaccio	274	337	337	337	337	337	337	337
Canary	107	119	104	119	49	220	104	151
Cowcod	3	3	3	3	3	3	3	3
Darkblotched	296	330	330	330	330	330	330	330
POP a/	183	153	153	76	251	76	226	226
Petrale	1,160	2,652	2,652	2,652	2,652	2,652	2,652	2,652
Yelloweye	17	18	18	18	18	18	18	18

a/ Under No Action, a 157 mt ACT is implemented.

2.4.1 No Action Alternative

The No Action Alternative represents the 2012 harvest specifications and management measures specified in regulation as of January 1, 2012 (76 FR 77415). The No Action Alternative does not incorporate the best available scientific information represented by new stock assessments, projections from previous stock assessments, and new rebuilding analyses (where applicable) adopted by the Council in 2011 for use in 2013-14. Therefore, for some species the ACLs and other stock reference points (e.g., OFL, ABC) may not be consistent with the harvest management framework outlined in the FMP. That is, for some species, carrying the 2012 harvest specifications forward to 2013-2014 would result in unsustainable harvest levels.

CEQ regulations at 40 CFR 1502.14 require an EIS to include the No Action Alternative. While in this case this alternative is inconsistent with the purpose and need for the proposed action, it is used to compare the effects of continuing to manage the fishery using current measures versus implementing new harvest specifications and any adjustments to management measures associated with those specifications (for example, to prevent ACLs from being exceeded).

Other constructs of a No Action Alternative were explored, including incorporating the best available science developed since 2009 (when the previous round of stock assessments was completed) and applying the results to status quo harvest policies. However, this construct would not reflect current conditions in the fishery to which the action alternatives could be compared. In fact, as discussed below, the Council’s preferred alternative, Alternative 1, represents new science applied to status quo policies for overfished species. The current conditions in the fishery are best reflected by the regulations in place on January 1, 2012 and the associated estimates of landings, revenue, and community impacts.

2.4.1.1 No Action Allocation Scheme

Section 2.1 describes the harvest specifications considerations and the OFLs and ABCs under the No Action alternative. The ACLs and associated allocations under the integrated alternatives analysis of No Action are summarized Table 2-3. Table 2-4 through Table 2-9 detail the allocation of sablefish north of 40°10 N. latitude among sectors. (Because sablefish is the most valuable commercial groundfish species and is caught in a number of different groundfish fisheries, its allocation scheme is complex.) Table 2-10 summarizes the allocations of overfished species under the No Action alternative.

Table 2-3. No Action Alternative: 2012 ACLs, Fishery Harvest Guidelines, and Allocations. All areas are north latitude.

Species	Area	ACL	Fishery HG	Trawl % of HG	Trawl Mt	Non-Trawl % of HG	Non-Trawl Mt
Arrowtooth flounder	Coastwide	12,049	9,971.0	95%	9,472	5%	499
Black	N of 46º16'	415	401.0				
Black	S of 46º16'	1,000	1,000.0				
Bocaccio	S of 40º10'	274	260.6	N/A	60.0	N/A	189.6
Cabezon	46º16' to 42º	48	48.0				
Cabezon	S of 42º	168	168.0				
California scorpionfish	S of 34°27'	126	124.0				
Canary rockfish	Coastwide	107	87.0	N/A	34.8	N/A	29.8
Chilipepper	S of 40º10'	1,789	1,775.0	75%	1,331	25%	444
Cowcod	S of 40º10'	3	2.7	N/A	1.8	N/A	1
Darkblotched rockfish	Coastwide	296	277.3	95%	263	5%	14
Dover sole	Coastwide	25,000	23,410.0	95%	22,240	5%	1,171
English sole	Coastwide	10,150	10,050.0	95%	9,548	5%	503
Lingcod	N of 40'10º	2,151	1,880.0	45%	846	55%	1,034
Lingcod	S of 40'10º	2,164	2,157.0	45%	971	55%	1,186
Longnose skate	Coastwide	1,349	1,220.0	95%	1,159	5%	61
Longspine thornyhead	N of 34º27'	2,064	2,020.0	95%	1,919	5%	101
Longspine thornyhead	S of 34º27'	366	363.0				
Nearshore rockfish north	N of 40º10'	99	99.0				
Nearshore rockfish south	S of 40º10'	990	990.0				
Minor shelf rockfish north	N of 40º10'	968	925.0	60.2%	557	39.8%	368
Minor shelf rockfish south	S of 40º10'	714	701.0	12.2%	86	87.8%	615
Minor slope rockfish north	N of 40º10'	1,160	1,092.0	81%	885	19%	207
Minor slope rockfish south	S of 40º10'	626	599.0	63%	377	37%	222
Other fish	Coastwide	5,575	5,575.0		5,575		0
Other flatfish	Coastwide	4,884	4,686.0	90%	4,217	10%	469
Pacific cod	Coastwide	1,600	1,200.0	95%	1,140	5%	60
Pacific whiting	Coastwide	0	0.0	100%	0	0%	0
Petrale sole	Coastwide	1,160	1,094.6	N/A	1,060	N/A	35
POP	Coastwide	157	144.1	95%	137	5%	7
Sablefish	N of 36º	5,347	See Table 2-4 to Table 2-9				
Sablefish	S of 36º	1,258	1,224.0	42%		58%	710
Shortbelly	Coastwide	50	49.0		49		0
Shortspine thornyhead	N of 34º27'	1,556	1,511.0	95%	1,435	5%	76
Shortspine thornyhead	S of 34º27'	401	359.0	NA	50	NA	309
Splitnose	S of 40º10'	1,538	1,531.0	95%	1,454	5%	77
Starry flounder	Coastwide	1,360	1,353.0	50%	677	50%	677
Widow	Coastwide	600	539.1	91%	491	9%	49
Yelloweye rockfish	Coastwide	17	11.1	N/A	0.6	N/A	10.5
Yellowtail	N of 40º10'	4,371	3,872.0	88%	3,407	12%	465

Table 2-4. No Action: Allocations, in metric tons, of the sablefish north of 36° N. latitude commercial harvest guideline, between limited entry and open access for 2012.

		Limited Entry Harvest Guideline		Open Access Harvest Guideline	
Year	**Commercial HG (MT)**	% Comm. HG	MT	% Comm. HG	MT
2012	4,790	90.6%	4,340	9.4%	450

Table 2-5. No Action. Sablefish north of 36° N. latitude allocations, in metric tons, between limited entry fixed gear and limited entry trawl for 2012.

	Limited Entry HG	Limited Entry Fixed Gear		Limited Entry Trawl	
Year	MT	% of LE HG	MT	% of LE HG	MT
2012	4,340	42%	1,823	58%	2,517

Table 2-6. No Action. Sablefish north of 36° N. latitude allocations, in metric tons, within the limited entry fixed gear sector for 2012. The total catch share is reduced by approximately 16 percent to account for discard mortality, a value calculated from WCGOP observations.

	Limited Entry Fixed Gear			
Year	**Total Catch Share (mt)**	**Landed Catch Share (mt)**	**Primary Season Share (mt)**	**LEFG DTL Share (mt)**
2012	1,823	1,764	1,500	265

Table 2-7. No Action. Tier limits in pounds for the primary season for sablefish north of 36° N. latitude in 2012.

	Limited Entry Fixed Gear			
Year	**Primary Season Share (mt)**	**Tier 1 (lbs)**	**Tier 2 (lbs)**	**Tier 3 (lbs)**
2012	1,500	46,237	21,017	12,010

Table 2-8. No Action. Sablefish north of 36° N. latitude allocations, in metric tons within the limited entry trawl sector for 2012.

	Limited Entry Trawl		
Year	**All Trawl (mt)**	**At-sea Whiting (mt)**	**Shorebased IFQ (mt)**
2012	2,517	50	2,467

Table 2-9. No Action. Open access allocations in metric tons for sablefish north of 36° N. latitude allocations. Sablefish mortality in non-groundfish fisheries is accounted for in the incidental OA column. The total catch share is reduced by approximately 16 percent to account for discard mortality, a value calculated from WCGOP observations.

Year	**Open Share (OA) (mt)**	**Incidental OA Mortality (mt)**	**Directed OA Total Catch Share (mt)**	**Directed OA Landed Catch Share (mt)**
2012	450	17	433	419

Table 2-10. No Action Allocation of Overfished Species.

<table>
<tr><th colspan="8">No Action - 2012</th></tr>
<tr><th>Sector</th><th>Bocaccio</th><th>Canary</th><th>Cowcod</th><th>DKB</th><th>POP a/</th><th>Petrale</th><th>Yelloweye</th></tr>
<tr><td>ACL</td><td>274</td><td>107</td><td>3</td><td>296</td><td>157</td><td>1160</td><td>17</td></tr>
<tr><td>Total Set-Asides</td><td>13.4</td><td>20</td><td>0.3</td><td>18.7</td><td>12.9</td><td>65.4</td><td>5.9</td></tr>
<tr><td>Fishery Harvest Guideline</td><td>260.6</td><td>87</td><td>2.7</td><td>277.3</td><td>144.1</td><td>1094.6</td><td>11.1</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Trawl Allocation</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Shorebased IFQ</td><td>60</td><td>26.2</td><td>1.8</td><td>248.9</td><td>119.5</td><td>1054.6</td><td>0.6</td></tr>
<tr><td>At-Sea Whiting</td><td>N/A</td><td>8.2</td><td>N/A</td><td>14.5</td><td>17.4</td><td rowspan="3">5</td><td>N/A</td></tr>
<tr><td>Catcher Processor</td><td>N/A</td><td>3.4</td><td>N/A</td><td>6</td><td>7.2</td><td>N/A</td></tr>
<tr><td>Mothership</td><td>N/A</td><td>4.8</td><td>N/A</td><td>8.5</td><td>10.2</td><td>N/A</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Non-Trawl Allocation</td><td></td><td></td><td>0.9</td><td>14</td><td>7</td><td>35</td><td></td></tr>
<tr><td>Non-Nearshore Fixed Gear</td><td>57.9</td><td>2.3</td><td></td><td></td><td></td><td></td><td>1.3</td></tr>
<tr><td>Nearshore Fixed Gear</td><td>0.7</td><td>4</td><td></td><td></td><td></td><td></td><td>1.1</td></tr>
<tr><td>Washington Recreational [b/]</td><td>N/A</td><td>2</td><td></td><td></td><td></td><td></td><td>2.6</td></tr>
<tr><td>Oregon Recreational [b/]</td><td>N/A</td><td>7</td><td></td><td></td><td></td><td></td><td>2.4</td></tr>
<tr><td>California Recreational [b/]</td><td>131</td><td>14.5</td><td></td><td></td><td></td><td></td><td>3.1</td></tr>
<tr><td colspan="8">a/ The POP ACL is 183 and the ACT is 157 mt. The set-asides are subtracted from the ACT.</td></tr>
<tr><td colspan="8">b/ Values represent HGs.</td></tr>
</table>

2.4.1.2 Shorebased IFQ Fishery – No Action

Groundfish allocated to the shorebased limited entry trawl fishery are managed under an IFQ program in which all vessels with trawl permits making shorebased groundfish landings with groundfish trawl or legal groundfish non-trawl gear are required to participate. Within the IFQ fishery a number of strategies are used which may be subjected to different regulations. The three primary strategies are the use of mid-water trawl gear to target Pacific whiting during the primary whiting season (see regulations at 660.131(b)(2)(iii)(c)), the use of bottom-trawl gear to target non-whiting, and the use of legal groundfish non-trawl gears to target groundfish (termed gear switching, 660.140(k)). Principle management measures for shorebased IFQ fishery include:

- Catch Controls: IFQ and IBQ for Pacific halibut are the primary catch control tools in the shorebased IFQ fishery. Additionally, cumulative monthly landing limits (hereinafter trip limits) for non-IFQ species and Pacific whiting outside the primary season dates apply to each vessel (see regulations Table 1 North and South to Part 660, Subpart D). Once a vessel reaches a limit, the species or species complex can no longer be retained and sold.
- Accumulation limits: The maximum number of QS and QP an entity may control in the shorebased IFQ fishery is limited by accumulation limits (defined in regulation at 50 CFR 660.111). These limits vary according to the management unit for the stock or stock complex and are intended to restrict the consolidation of quota holdings by just a few entities.
- Carry-over provision: The carry-over provision allows a limited amount of surplus QP or IBQ pounds in a vessel account to be carried over from one year to the next or allows a deficit in a vessel account in one year to be covered with QP or IBQ pounds from a subsequent year, up to a carryover limit. The carry-over provision is anticipated to increase individual flexibility for harvesters, improve economic efficiency, and achieve OY while preserving the conservation of stocks. The eligible percentages used for the carry-over provision may be modified during the biennial specifications and management measures process or automatically by NMFS under MSA authority at 305(d).
- Pacific Whiting Reapportionment: A Pacific whiting reapportionment provision is available, such that when a whiting sector is closed, any remaining yield may be distributed to the other non-tribal whiting sectors (including the shorebased IFQ fishery) using the same pro-rata apportionment used to allocate whiting quota.
- Monitoring and Reporting: All trips in the shorebased IFQ fishery are monitored at sea by the WCGOP observer program and landings are tracked by electronic fishtickets, verified by catch monitors. Together, these two programs provide robust, near-real time tracking and reporting of IFQ species and Pacific halibut IBQ.
- Gear Restrictions: IFQ species may be harvested with groundfish trawl or legal groundfish non-trawl gear. Trawl gear restrictions prohibit certain types of gear that may be used in rocky habitat, reducing habitat impacts and also limiting overfished species bycatch for those species that inhabit rocky substrate. Further, gear restrictions minimize catch of overfished species while allowing sufficient access to target species. For example, the selective flatfish trawl net, which is required shoreward of the trawl RCA north of 40°10' N. latitude, reduces rockfish bycatch while efficiently catching flatfish. Scottish seine gear is exempted from trawl RCA closures in the area between 38° N. latitude and 36° N. latitude and depths less than 100 fm because the gear has demonstrated low bycatch rates of overfished species. IFQ species can also be harvested with legal non-trawl gears, which have different selectivity and habitat impacts than trawl gears.
- RCAs: Vessels harvesting IFQ must abide by RCA closures, which are specified by gear type (see regulations Table 1 North and South to Part 660, Subpart D and Table 2 North and South to Part 660, Subpart E). For example, features of the trawl RCA include eliminating trawl fishing opportunity north of Cape Alava (48°10' N. latitude) in depths 150 fm or less. South of Cape Alava to 40°10 N. latitude, fishing is restricted to depths shallower than 75 fm for five of the six fishing two-month periods. These RCA features were designed to provide sufficient access to target species while minimizing bycatch of overfished species, particularly canary and yelloweye rockfish. The non-trawl RCA is less complicated and dynamic than the trawl RCA, however the non-trawl RCA still provides for reductions in canary and yelloweye bycatch.

- Bycatch Reduction Areas: Bycatch in the Pacific whiting fishery can be mitigated by implementing bycatch reduction areas. These areas restrictions apply to vessels using mid-water gear during the primary whiting season and limit fishing to depths greater than any of the specified management lines between 75 fm and 150 fm (see regulations at 660.131(c)(4) Subpart D).
- Ocean Conservation Zones: Chinook salmon bycatch in the Pacific whiting fishery can be mitigated by implementing the ocean salmon conservation zones. These zones apply to vessels using mid-water gear during the primary whiting season and restrict fishing to depths seaward of 100 fm.
- Other Groundfish Conservation Areas – Several other groundfish conservation areas exist and provide overfished species and habitat protection. Though not much bottom trawling is done south of Point Conception at 34°27' N. latitude in the Southern California Bight, bottom trawling and other bottom fishing activities are prohibited in two discrete areas called the CCAs (Figure 2-1). Closed EFH areas are used to protect bottom habitat from the adverse effects of trawl gear (see regulations at 660.75). Three areas off the Washington coast are designed to reduce bycatch of yelloweye rockfish. North Coast Area B and South Coast Area B are closed to commercial fishing (Figure 2-2, Figure 2-3). South Coast Area A was a voluntary "area to be avoided" for commercial groundfish fisheries (Figure 2-3).

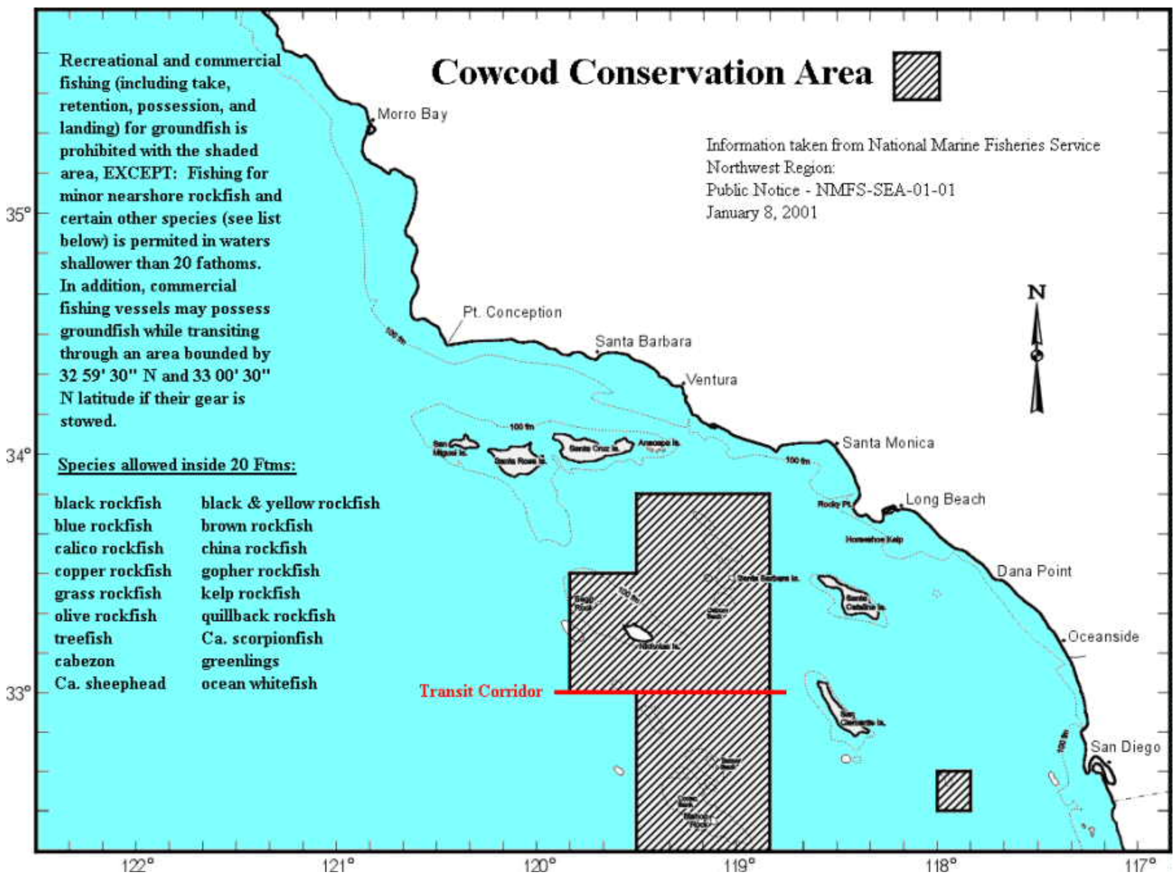


Figure 2-1. The current Cowcod Conservation Areas located in the Southern California Bight.

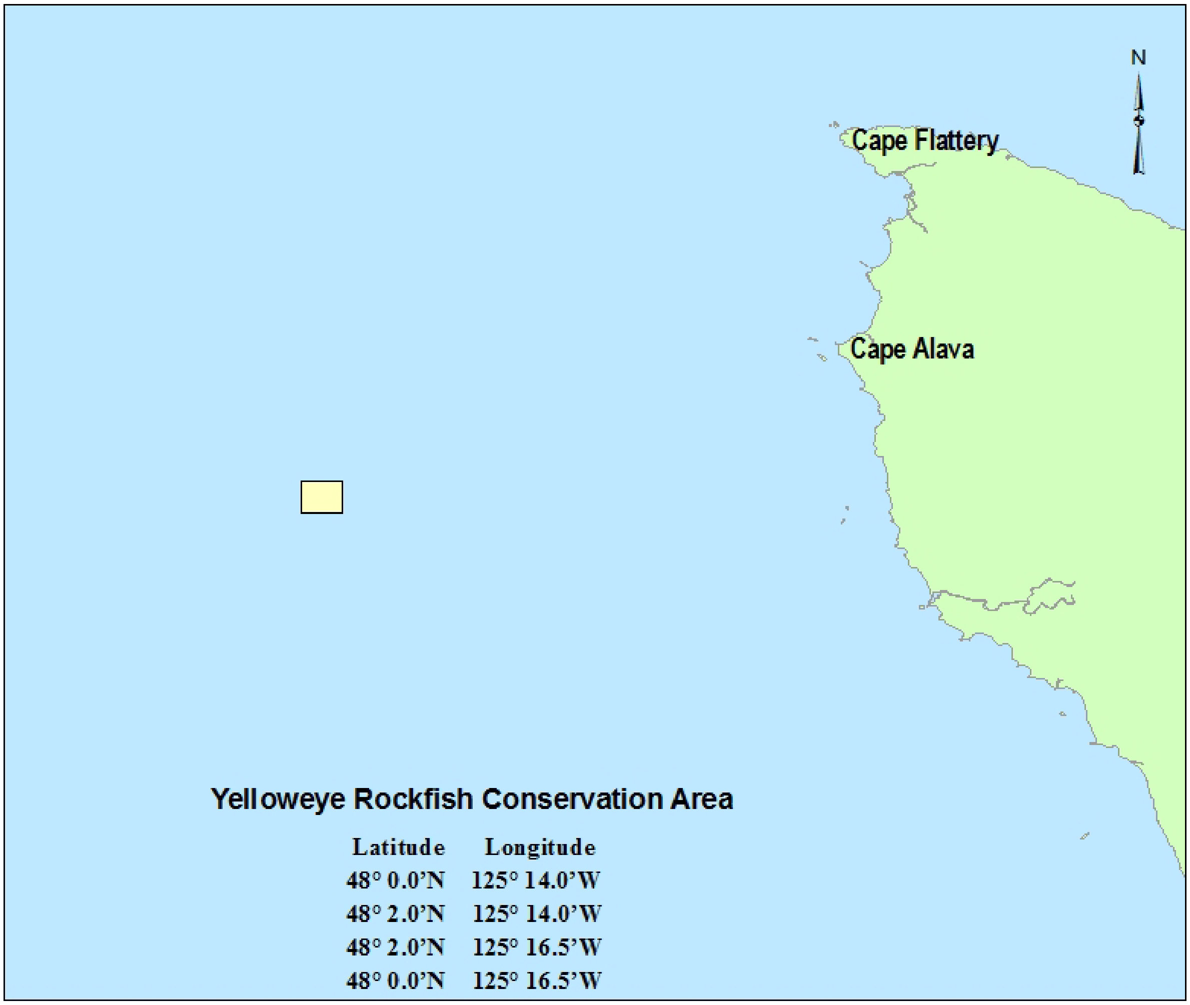


Figure 2-2. North Coast Area B, a Yelloweye Rockfish Conservation Area in northern Washington.

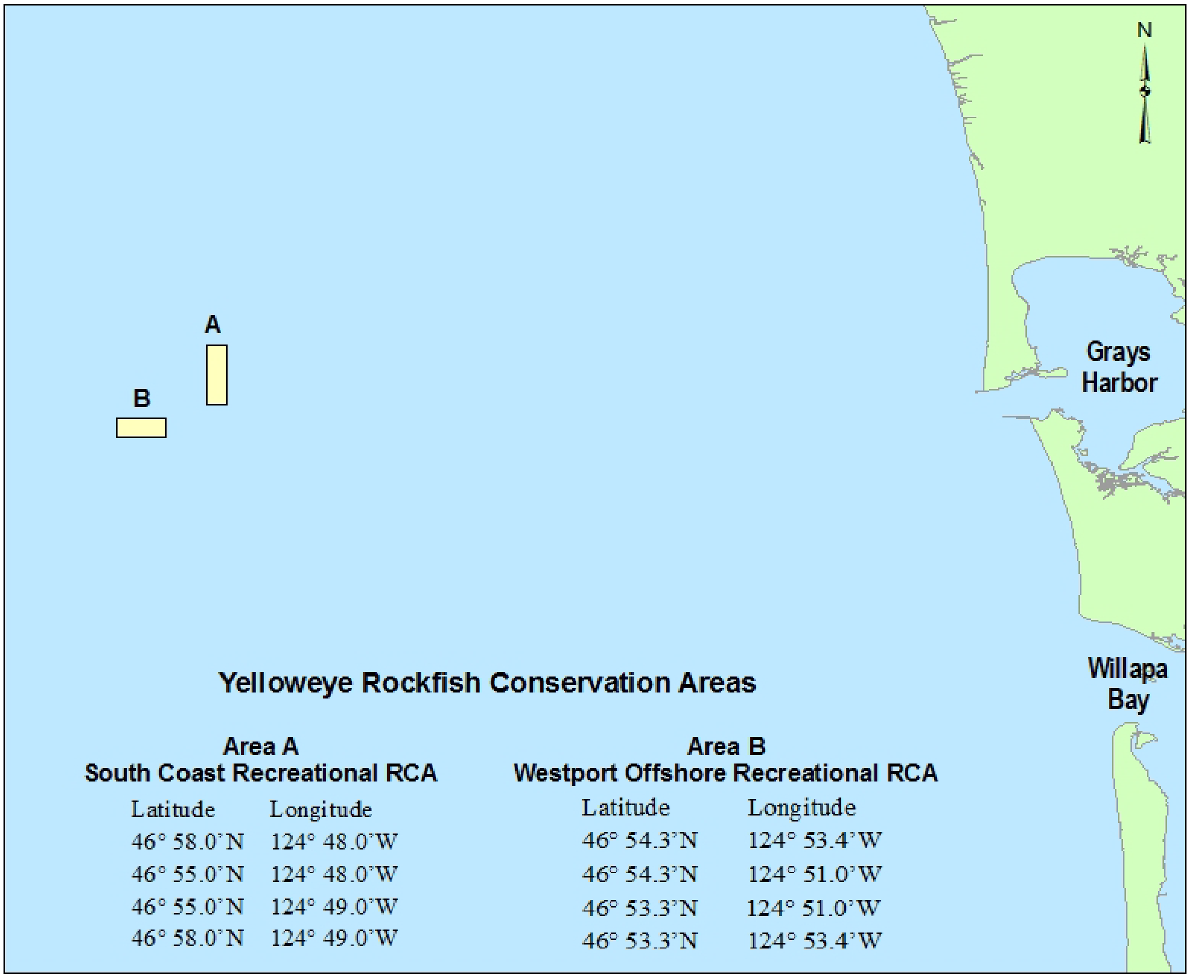


Figure 2-3. South Coast Area A and B, Yelloweye Rockfish Conservation Areas in southern Washington. South Coast Area A is an area to be voluntarily avoided.

2.4.1.3 At-Sea Whiting Co-ops – No Action

The at-sea sector is composed of catcher-processors and motherships that target Pacific whiting with mid-water trawl gear and process at sea. This sector is managed under a system of cooperatives (co-ops) that are somewhat like IFQs except that the harvest privilege is assigned to a group, the co-op, instead of an individual. The members of the group then decide how and when the collectively-held harvest privilege would be used. The trawl rationalization program establishes a set of rules for the formation of co-ops in the at-sea mothership sector that provide a strong incentive for catcher vessels to form co-ops associated with a mothership processor (see regulations at 660.150). In the case of the catcher-processor sector, a single, voluntary co-op has been in existence for some time. In that instance the allocation to the sector is essentially an allocation to the co-op. Further, a catcher-processor permit endorsement is required, which essentially closes this sector to new entrants; a move intended to lend greater stability to the functioning of the current, voluntary co-op. Regulations at 660.160 outline the catcher-processor co-op provisions.

Principle management measures in the at-sea sector are similar to those included for the shorebased IFQ vessels using mid-water gears during the primary whiting season and include bycatch reduction areas and ocean salmon conservation zones. Also, the Pacific whiting reapportionment provision is also available to the at-sea sectors.

2.4.1.4 Limited Entry and Open Access Fixed Gear Management – No Action

The limited entry fixed gear fishery includes vessels that hold a Federal limited entry permit endorsed by gear type (pot or longline) that target groundfish. Some limited entry permits have a sablefish endorsement which allows them to participate in the primary sablefish fishery and land higher amounts of sablefish (i.e., tiers) compared to the trip limit fishery (see regulations at 660.231). Further, permit stacking allows sablefish tier limits from one to three permits to be used on a single vessel during the primary sablefish season. Additional catch controls in the limited entry fishery include trip limits for numerous species and a non-trawl RCA to limit interactions with overfished species. Table 2-11 summarizes the principle management measures for limited entry fixed gear vessels.

The directed open access sector is composed of vessels without a Federal limited entry permit (trawl or fixed gear) that target groundfish, including sablefish and nearshore species. Commercial fishing vessels targeting non-groundfish species (e.g., salmon, pink shrimp, etc.), but landing groundfish under the open access limits are included in the category of incidental open access fisheries. Catch controls for both the incidental and directed open access fishery include trip limits and the non-trawl RCA. Table 2-12 summarizes the principle management measures for open access fixed gear vessels.

Table 2-13 summarizes the limited entry and open access sablefish trip limits north and south of 36° N. latitude under the No Action alternative. Alternatives 1-7 propose to reduce the trip limits in response to lower sablefish ACLs.

One non-trawl RCA is implemented for the limited entry and open access fixed gear fisheries. Routine RCA adjustments can be made for four northern subareas bounded by Cape Mendocino at 40°10' N. latitude, 43° N. latitude, Cascade Head, Point Chehalis at 46.888° N. latitude, and the U.S.-Canada border. These adjustments maybe necessary inseason to reduce projected catches of overfished species, typically yelloweye and canary rockfish. The non-trawl RCA seaward boundary south of 40°10' N. latitude under the No Action Alternative is defined by management lines specified with waypoints at roughly 150 fm to avoid areas where bocaccio, canary and yelloweye rockfish are most abundant.

Other groundfish conservation areas include the North Coast Area B YRCA in Washington (Figure 2-2) which has been closed to limited entry and open access fixed gears since 2007. Additionally, the South Coast Areas A and B YRCAs (Figure 2-3) and the “C-shaped” YRCA in waters off northern Washington (Figure 2-4) were voluntary “areas to be avoided.” Fishing is not allowed in the CCAs (Figure 2-1) under the No Action Alternative, except for some nearshore commercial fishing opportunities described in the nearshore section.

The models used project overfished species catches in the limited entry and directed open access fisheries and inform management measures are stratified by area of fishing shoreward (nearshore) or seaward (non-nearshore) of the non-trawl RCA. Therefore, the following discussion describes No Action in this context.

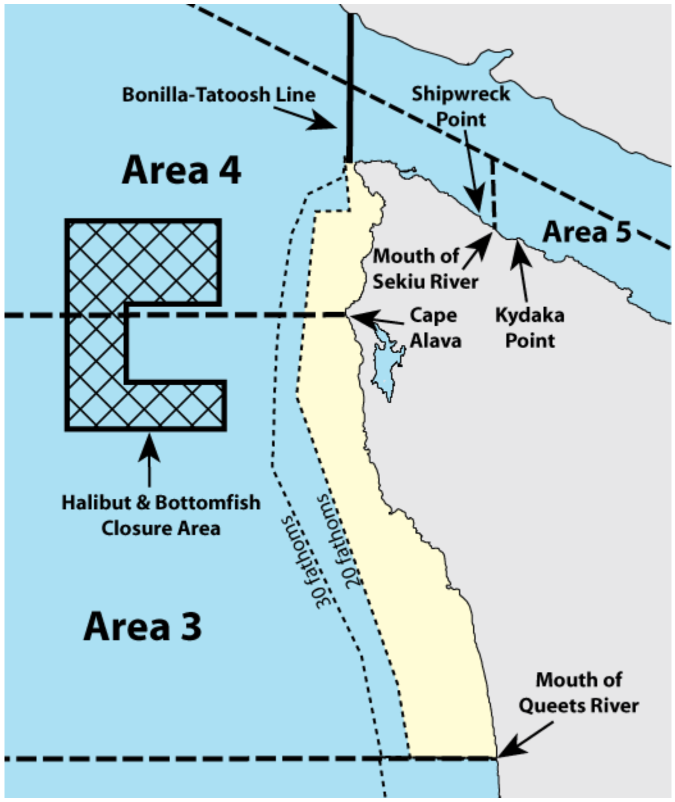


Figure 2-4. The current "C-shaped" Yelloweye Rockfish Conservation Area in waters off northern Washington where recreational groundfish and Pacific halibut fishing was prohibited. Commercial limited entry and open access fixed gear fleets were asked to voluntarily avoid fishing in this YRCA in 2009-2010.

Table 2-11. Summary of limited entry fixed gear fishery management measures under the No Action Alternative.

Cumulative limits	• Cumulative trip limits for most species, specific to geographic area (See regulations Table 2 North and South to Part 660, Subpart E) • Primary sablefish fishery managed with tier limits Tier 1 = 46,238 lb, Tier 2 = 21,017 lb, Tier 3 = 12,010 lb • Canary and yelloweye landings prohibited coastwide • South of 40°10 N. latitude landings of cowcod and bronzespotted rockfish prohibited
Size limits	Lingcod • North of 42° N. lat. minimum size limit 22 inches total length • South of 42° N. lat. minimum size limit 24 inches total length
Gear restrictions	• Longline, trap or pot marked at the surface, at each terminal end, with a pole, flag, light, radar reflector, and a buoy • Must be attended at least once every 7 days • Traps must have biodegradable escape panels
Seasons	• Primary sablefish fishery from 4/1 to 10/31 • Permit stacking of up to 3 permits is allowed in primary sablefish fishery. • Additional seasonal restrictions may be implemented via routine action or the fishery may "close" for some species or some areas during the year through inseason action.
GCAs	YRCA • North Coast Commercial YRCA (WA) closed to commercial fixed gears. • North Coast Recreational YRCA (WA) is a voluntary area to be avoided. • Westport Offshore Recreational YRCA (WA) is a voluntary area to be avoided.
	CCA Fishing is prohibited in CCAs with the following exceptions: • Fishing for "other flatfish" when using no more than 12 hooks, #2 or smaller • Fishing for rockfish and lingcod shoreward of the 20 fm
	Farallon Islands commercial fishing for groundfish is prohibited shoreward of 10 fm with the following exceptions: Fishing for "other flatfish" when using no more than 12 hooks, #2 or smaller Cordell Banks Commercial fishing for groundfish is prohibited in depths less than 100 fm
	EFH Fishing with all bottom contact gear, including longline and pot/trap gear, is prohibited within the following EFH conservation areas: Thompson Seamount, President Jackson Seamount, Cordell Bank (50 fm (91 m) isobath), Harris Point, Richardson Rock, Scorpion, Painted Cave, Anacapa Island, Carrington Point, Judith Rock, Skunk Point, Footprint, Gull Island, South Point, and Santa Barbara. Fishing with bottom contact gear is also prohibited within the Davidson Seamount
Non-trawl RCAs	• North of 46°16 N. lat. Shoreline to 100 fm • 46°16- 43° N. lat. 30 to 100 fm • 43°-42° N. lat. 20 to 100 fm • 42°-40°10 N. lat. 20 fm depth contour to 100 fm • 40°10-34°27 N. lat. – 30 to 150 fm • South of 34°27 N. lat. – 60 to 150 fm Fishing is prohibited in non-trawl RCAs with the following exception: Fishing for "other flatfish" when using no more than 12 hooks, #2 or smaller
Monitoring	• VMS required • WCGOP observer coverage when requested
Reporting	• VMS declarations

Table 2-12. Summary of open access fishery management measures under the No Action Alternative.

Cumulative limits	• Cumulative trip limits for most species, specific to trawl type and geographic area (See regulations Table 2 North and South to Part 660, Subpart E) • Canary and yelloweye landings prohibited coastwide • South of 40°10 N. latitude landings of cowcod and bronzespotted rockfish prohibited
Gear restrictions	• Longline, trap, pot, hook-and-line (fixed or mobile), setnet (anchored gillnet or trammel net (south of 38° N. lat. only), spear, and non-groundfish trawl gear for: pink shrimp, ridgeback prawn, and California halibut or sea cucumbers (south of Pt. 38°57.50' N. lat.) Non-groundfish trawl gear: • Is exempt from the limited entry trawl gear restrictions • Footrope (>19") prohibited in EFH Fixed gear: • Must be marked at the surface, at each terminal end, with a pole, flag, light, radar reflector, and a buoy; vertical hook-and-line gear that is closely tended may be marked only with a single buoy of sufficient size to float the gear. • Must be attended at least once every 7 days. • Fishing for groundfish with set nets is prohibited in the fishery management area north of 38°00.00' N. lat. • Traps must have biodegradable escape panels • Spears may be propelled by hand or by mechanical means
Seasons	Seasonal restrictions may be implemented via routine action or the fishery may "close" for some species or some areas during the year through inseason action.
GCAs	YRCA • North Coast Commercial YRCA (WA) closed to commercial fixed gears. • North Coast Recreational YRCA (WA) is a voluntary area to be avoided. • Westport Offshore Recreational YRCA (WA) is a voluntary area to be avoided. • Salmon Troll YRCA. Fishing for salmon is prohibited
	CCA Fishing is prohibited in CCAs with the following exceptions: • Fishing for "other flatfish" when using no more than 12 hooks, #2 or smaller • Fishing for rockfish and lingcod shoreward of the 20 fm
Open Access non-trawl RCAs	• North of 46°16 N. lat. Shoreline to 100 fm • 46°16- 43° N. lat. 30 to 100 fm • 43°-42° N. lat. 20 to 100 fm • 42°-40°10 N. lat. 20 fm depth contour to 100 fm • 40°10-34°27 N. lat. – 30 to 150 fm • South of 34°27 N. lat. – 60 to 150 fm Fishing is prohibited in non-trawl RCAs with the following exception: Fishing for "other flatfish" when using no more than 12 hooks, #2 or smaller
Monitoring	• VMS required • WCGOP observer coverage when requested
Reporting	• VMS declarations

Table 2-13. No Action. Sablefish trip limits north and south of 36° N. latitude for limited entry and open access fixed gears.

Area	Fishery	Jan-Feb	Mar-Apr	May-Jun	July-Aug	Sept-Oct	Nov-Dec
North of 36° N. lat. (U.S./Canada Border to 36° N. lat.)	LE N.	1,300 lb. per week, not to exceed 5,000 lb. per 2 mo.					
	OA N.	300 lb. per day, or 1 landing per week of up to 900 lb., not to exceed 1,800 lb. per 2 mo.					
South of 36° N. lat.	LE S.	1,800 lb. per week					
	OA S.	300 lb. per day, or 1 landing per week of up to 1,350 lb., not to exceed 2,700 lb. per 2 mo.					

Non-Nearshore - No Action

The non-nearshore model projects mortality for the limited entry fixed gear and the open access sectors north of 36° N. latitude and seaward of the non-trawl RCA based on the sablefish north ACL. The sablefish north stock is the primary target and provides the main source of revenue in both sectors. The bycatch projections are based on the assumption that the limited entry and open access allocations for sablefish are completely harvested.

Yelloweye rockfish and canary rockfish are the two key rebuilding stocks for these sectors, and the seaward non-trawl RCA boundary is the main management measure for lowering catches of these two stocks. The non-trawl RCA was put in place to mitigate bycatch of the rebuilding stocks and has closed off productive, traditional fishing grounds for these sectors. In general, the WCGOP data and distribution of these stocks suggests that overall encounters of these two stocks would decrease as the non-trawl RCA is extended seaward.

Nearshore - No Action

The nearshore model projects mortality based on landings of nearshore species by the limited entry and opens access sectors shoreward of the non-trawl RCA. The majority of vessels participating in nearshore commercial fisheries do not hold Federal limited entry permits, and the most common gear used is jig gear. However, some vessels use longline gear to target nearshore species and, in rare instances, pots or traps are used in the nearshore fishery.

California and Oregon limit entry to the nearshore groundfish fishery by requiring a state limited entry permit to take commercial quantities of nearshore groundfish species. Washington does not allow a nearshore commercial fishery. More conservative state harvest targets or guidelines than those specified in Federal regulations exist for most nearshore species and state trip limits supersede Federal limits in these cases. State trip limits are designed to stay within nearshore species limits while providing a year-round opportunity, if possible. Federal management measures for west coast nearshore commercial groundfish fisheries are typically stratified north and south of 40°10' north latitude.

In Oregon, limited entry permit holders may land commercial quantities of black and blue rockfish under state cumulative trip limits (currently 2 month periods), with an additional total of 15 lbs per day of any combination of other nearshore groundfish species and two rockfish species with Federal designation as shelf rockfish (tiger and vermillion). Vessels that also have a nearshore endorsement permit, in addition to the black/blue limited entry permit, may land commercial quantities of other nearshore groundfish species up to the state's cumulative trip limits and the Federal limits for tiger and vermilion rockfish. For vessels that do not hold a state permit or endorsement, an incidental landing limit of no more than 15 pounds per day of any combination of black rockfish, blue rockfish, and/or other nearshore fish is allowed, with a few exceptions. Salmon trollers with a valid troll permit may land 100 pounds of black rockfish, blue rockfish, or a combination thereof in the same landing in which a salmon is landed. These rockfish may only be landed dead. If the cumulative landing of black and blue rockfish combined in the salmon troll fishery reaches 3,000 pounds in any calendar year, then each salmon troll vessel is limited to 15 pounds of black rockfish, blue rockfish, or a combination thereof per troll landing for the remaining calendar year. Trawlers may land up to 1,000 pounds of black rockfish, blue rockfish, or a combination thereof per calendar year and these fish must be 25 percent or less of the total poundage of each landing and must be landed dead.

In California, limited entry permit holders who also have either a shallow nearshore fishery or deeper nearshore fishery permit administered by CDFG may land minor nearshore rockfish from either the shallow nearshore or deeper nearshore complexes. Trip limits for shallow nearshore rockfish, deeper nearshore rockfish, cabezon, and California scorpionfish vary by period. There is some nearshore commercial fishing allowed in the CCAs (Figure 2-1) in depths shallower than 20 fm under the No Action Alternative. Only southern minor nearshore rockfish, (both shallow and deeper nearshore rockfish), California scorpionfish, cabezon, greenlings, California sheephead, and ocean whitefish are allowed to be retained in depths less than 20 fm in the CCAs.

2.4.1.5 Tribal Fishery Management Measures – No Action

Tribal fisheries consist of trawl (bottom, mid-water, and whiting), fixed gear, and troll. Principle management controls in the tribal fisheries include set-asides, HGs, and trip limits. Tribal set-asides are outlined in xxxSection 2.2.1.1. Set-asides are the same as the values in the January 1, 2012 regulations however projected catches of petrale sole and widow rockfish were updated based on a letter received from Makah at the November 2011 Council meeting (Agenda Item E.4.b, Supplemental Tribal Report, November 2011). The Washington coastal tribes (Makah, Quileute, Hoh, and Quinault) conducted their groundfish fisheries in 2011 with the trip limits shown in Table 2-14 and the following allocations:

- The sablefish allocation was 10 percent of the sablefish ACL north of 36° north latitude (6,471 mt). The allocation of 535 mt was further reduced by 1.5 percent for discard mortality, to produce landed catch allocations of 527 mt.

- Black rockfish was managed with a harvest guideline of 30,000 pounds north of Cape Alava, Washington at 48°09'30" north latitude, and 10,000 pounds between Destruction Island, Washington at 47°40' north latitude and Leadbetter Point, Washington at 46°38'10" north latitude. There were no harvest restrictions on black rockfish between Cape Alava and Destruction Island.

- Lingcod had a 250 mt harvest guideline.

- Pacific cod had a 400 mt tribal harvest guideline.

- Longspine and shortspine thornyheads were managed to the limited entry cumulative limits in place at the beginning of the year, but with those limits were accumulated across vessels into a cumulative fleetwide harvest target for the year.

- The Makah Tribe would manage the midwater trawl fisheries as follows: Yellowtail rockfish taken in the directed tribal mid-water trawl fisheries are subject to a catch limit of 677 mt for the entire fleet. Landings of widow rockfish must not exceed 10 percent of the weight of yellowtail rockfish landed, for a given vessel, throughout the year. These limits may be adjusted by the tribe inseason to minimize the incidental catch of canary rockfish and widow rockfish, provided the catch of yellowtail rockfish does not exceed 677 mt for the fleet.

- The 2012 Pacific whiting OY has not been adopted, therefore the 2011 OY and allocations are used under No Action. In 2011 the U.S. OY of 290,903 mt for Pacific whiting resulted in a start of the year tribal allocation of 66,908 mt that NMFS based on the percentage requested by Makah (17.5 percent of the U.S. OY) and an additional amount to accommodate the Quileute's developing fishery (76FR28897).

All mid-water landing limits were subject to inseason adjustments to minimize the take of both canary and widow rockfish. Full rockfish retention programs, where all overfished and marketable rockfish are retained, as well as a Makah trawl observer program, were in place to provide catch accountability.

Table 2-14. The No Action: Tribal fishery.

Cumulative limits	Full retention of rockfish Rockfish taken during open competition tribal commercial fisheries for Pacific halibut would not be subject to trip limits. Thornyheads • Shortspine thornyhead cumulative trip limits are 17,000-lb per 2 months • Longspine thornyhead cumulative trip limits are 22,000-lb per 2 months Canary rockfish 300 lb per trip Yelloweye rockfish 100 lb per trip Makah Tribe midwater trawl fisheries: Yellowtail rockfish taken in the directed tribal mid-water trawl fisheries are subject to a catch limit of 677 mt for the entire fleet. Landings of widow rockfish must not exceed 10 percent of the weight of yellowtail rockfish landed, for a given vessel, throughout the year. These limits may be adjusted by the tribe inseason to minimize the incidental catch of canary rockfish and widow rockfish, provided the catch of yellowtail rockfish does not exceed 677 mt for the fleet. Other rockfish, including minor nearshore, minor shelf, and minor slope rockfish 300 lb per trip limit per species or species group, or to the non-tribal limited entry trip limit for those species if those limits are less restrictive than 300 lb (136 kg) per trip. Lingcod. subject to an overall catch of 250 mt for all treaty fishing. Flatfish and other fish (bottom trawl). • For Dover sole, English sole, other flatfish 110,000 lbs (49,895 kg) per 2 months; and for arrowtooth flounder 150,000 lbs (68,039 kg) per 2 months. The Dover sole and arrowtooth limits in place at the beginning of the season would be combined across periods and the fleet to create a cumulative harvest target. The limits available to individual vessels would then be adjusted inseason to stay within the overall harvest targets and overfished species limits. • Petrale sole - 50,000 lb per 2 month limit for the entire year. Trawl vessels are restricted to small footrope trawl gear. Pacific whiting -The tribal allocation for 2011 is 66,908 mt. Pacific cod - Managed to the tribal HG of 400 mt. Spiny dogfish - limited entry trip limits for the non-tribal fisheries apply
Monitoring	• The Makah Tribe shoreside observer program to monitor and enforce Makah limits.
Reporting	• VMS declarations for trawl only

2.4.1.6 Recreational Fishery Management Measures – No Action

<u>Washington Recreational – No Action</u>

Primary catch controls for the Washington recreational fishery are season dates, depth closures, bag limits, and groundfish conservation areas, including yelloweye rockfish conservation areas (YRCAs). Under the No Action Alternative, Washington recreational fisheries would operate under the 2012 ACLs for yelloweye rockfish of 17 mt and canary rockfish of 107 mt (Table 2-3) and the associated Washington recreational harvest guidelines of 2.6 mt for yelloweye rockfish and 2.0 mt for canary rockfish (Table 2-10).

Groundfish Seasons and Area Restrictions

Season Structure

Under the No Action Alternative, the Washington recreational fishery would be open year round for groundfish, except lingcod. Washington would continue to prohibit the retention of canary and yelloweye rockfish in all areas.

Depth restrictions are the primary tool used to keep recreational mortality of yelloweye and canary rockfish within specified harvest guidelines. Restrictions limiting the depth where groundfish fisheries are permitted are more severe in the area north of the Queets River (Marine Areas 3 and 4) where yelloweye and canary rockfish abundance is higher and therefore caught incidentally at a higher rate. Depth restrictions are fewer in the south coast where incidental catch of yelloweye and canary becomes progressively less. Table 2-15 summarizes key features of the Washington recreational regulations.

Table 2-15. No Action. Washington Recreational Seasons and Groundfish Retention Restrictions.

<table>
<tr><th>Marine Area</th><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>June</th><th>July</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
<tr><td>3 & 4 (N. Coast)</td><td colspan="5">Open all depths</td><td colspan="4">Open <20 fm June 1-Sep 30 a/</td><td colspan="3">Open all depths</td></tr>
<tr><td>2 (S. Coast)</td><td colspan="2">Open all depths</td><td colspan="4">Open <30 fm Mar 15 - June 15 b/, c/, d/, g/</td><td colspan="2">Open all depths except lingcod prohibited on Fri. and Sat. >30 fm e/,g</td><td colspan="4">Open all depths g/</td></tr>
<tr><td>1 (Col. R.)</td><td colspan="4">Open all depths g/</td><td colspan="5">Open all depths f/, g/</td><td colspan="3">Open all depths g/</td></tr>
<tr><td colspan="13">a/ Groundfish retention allowed >20 fm on days when Pacific halibut is open.
b/ Retention of sablefish and Pacific cod allowed seaward of 30 fm from May 1- June 15.
c/ Retention of rockfish allowed seaward of 30 fm.
d/ Retention of lingcod allowed seaward of 30 fm on days that the primary halibut season is open.
e/ Retention of lingcod prohibited >30 fm, south of 46°58 on Fri. and Sat. from July 1 – August 31.
f/ Retention of groundfish, except sablefish and Pacific cod, prohibited with Pacific halibut on board.
g/ Retention of lingcod prohibited in deepwater areas at all times.</td></tr>
</table>

<u>North Coast (Marine Areas 3 and 4)</u>

The retention of bottomfish is prohibited seaward of a line approximating 20 fathoms from June 1-September 30, except on days that Pacific halibut fishing is open. Fishing for, retention or possession of groundfish and Pacific halibut is prohibited in the C-shaped yelloweye rockfish conservation area (YRCA) (Figure 2-4).

<u>South Coast (Marine Area 2)</u>
The retention of bottomfish, except rockfish, is prohibited seaward of 30 fathoms from March 15 through June 15, except sablefish and Pacific cod retention is allowed May 1 through June 15. Retention of lingcod is allowed on days open to the primary Pacific halibut season. The retention of lingcod is prohibited south of 46°58 N. latitude and seaward of 30 fathoms on Fridays and Saturdays from July 1 through August 31. Fishing for, retention or possession of lingcod is prohibited in deepwater areas seaward of a line extending from 47°31.70 N. latitude, 124°45.00’ W. longitude to 46°38.17’ N. latitude, 124°30.00’ W. longitude year round, except as allowed on days open to the Pacific halibut fishery (Figure 2-5). Fishing for, retention or possession of bottomfish or Pacific halibut is prohibited in the South Coast YRCA and Westport Offshore YRCA (Figure 2-3).

<u>Columbia River (Marine Area 1)</u>
Retention of bottomfish, except sablefish and Pacific cod, is prohibited with halibut onboard from May 1 through September 30 and; fishing for, retention or possession of lingcod in deepwater areas seaward of a line extending 47°31.70 N. latitude, 124°45.00’ W. longitude to 46°38.17’ N. latitude, 124°30.00’ W. longitude year round (Figure 2-5).

Area Restrictions
Under the No Action Alternative, fishing for, retention or possession of groundfish and halibut during the Washington recreational groundfish and Pacific halibut fisheries would be prohibited in the C-shaped YRCA in the north coast (Figure 2-2), and the South Coast and Westport YRCAs in the south coast (Figure 2-3**Error! Reference source not found.**).

Fishing for, retention or possession of lingcod would be prohibited seaward of a line connecting the following coordinates from the Queets River (47°31.70’ N. latitude, 124° 45.00’ W. longitude) to 46°25.00’ N. latitude, 124°21.00’ W. longitude, year round except as allowed in Washington Marine Area 2 on days open to the primary Pacific halibut fishery (Figure 2-5):

1. 47°31.70’ N. lat 124°45.00’ W. lon.
2. 46°38.17’ N. lat 124°30.00’ W. lon.
3. 46°38.17’ N. lat 124°21.00’ W. lon.
4. 46°25.00’ N. lat 124°21.00’ W. lon.

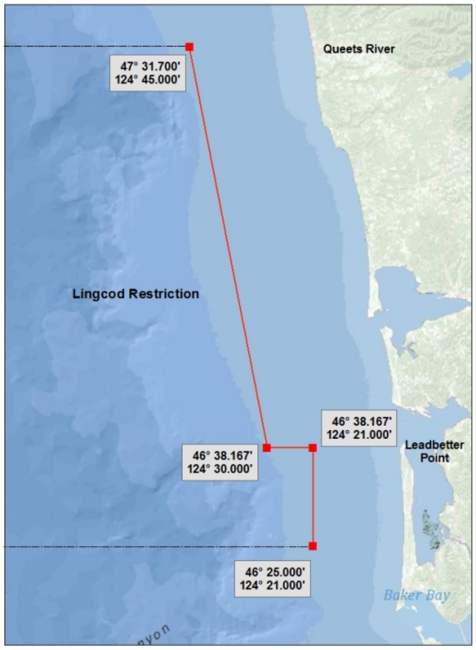


Figure 2-5. No Action. Washington Lingcod Restricted Area.

Groundfish Bag Limits

Under the No Action Alternative the recreational groundfish bag limit, including rockfish and lingcod, would be 12 fish per day. Of the 12 recreational groundfish allowed to be landed per day, sub limits of 10 rockfish, two lingcod and two cabezon apply.

Lingcod Seasons and Size Limits

The lingcod season in Marine Areas 1 through 3 (Washington-Oregon border at 46°16' N. latitude to Cape Alava at 48°10' N. latitude) was open from the Saturday closest to March 15 through the Saturday closest to October 15, which is March 17 through October 13 in 2012. Marine Area 4 (Cape Alava to the U.S. Canadian border) was open from April 16 through the Saturday closest to October 15, whichever is earlier, which is April 16 through October 13 in 2012.

Under the No Action Alternative the lingcod seasons and size limits ares:

- Marine Areas 1-3: March 16 through October 12 in 2013 and March 15 through October 18 in 2014. Minimum size, 22 inches.
- Marine Area 4: April 16 through October 12 in 2013 and April 16 to October 15 in 2014. Minimum size, 24 inches.

Pacific Halibut Seasons

It is expected that the Pacific halibut seasons in 2013 and 2014 would be similar to the halibut seasons in 2011 and 2012. There are no changes to the restrictions on groundfish retention during the Pacific halibut season proposed under the No Action Alternative.

Additional Management Measures Analyzed
No additional management measures were analyzed for the No Action Alternative. Status quo management measures would be used to keep recreational harvests of overfished species within specified harvest guidelines.

Inseason Management Response
Projected mortality for Washington's recreational fishery are based upon the previous season's harvest estimated by the Ocean Sampling Program (OSP) and incorporated in RecFIN. It should be noted that the precision of recreational groundfish catch estimates based upon previous seasons would continue to be influenced by factors such as the length and success of salmon and halibut seasons, weather and unforeseen factors.

Washington's Ocean Sampling Program is able to produce estimates of groundfish catch with a one month lag time. Management measures such as more restrictive depth closures, area closures, groundfish retention restrictions or changes to seasons can be implemented immediately through emergency changes to state regulations if inseason catch reports indicate that recreational harvests of overfished species are exceeding pre-season projections to the point where harvest guidelines are at risk of being exceeded.

Oregon Recreational – No Action

Primary catch controls for the Oregon recreational fishery are season dates, depth closures, bag limits, and groundfish conservation areas, including YRCAs. The No Action Alternative analyzes the Oregon recreational fishery under the 2012 ACLs (Table 2-3) and Oregon recreational a HGs (Table 2-10). Additionally, a HG of 440.8 mt for black rockfish would be implemented.

Groundfish Seasons and Area Restrictions

Season structure
Under the No Action Alternative, the Oregon recreational groundfish fishery would be open offshore year-round, except from April 1 to September 30 when fishing is only allowed shoreward of 40 fm, as defined by waypoints (Figure 2-6). Closing the fishery outside of 40 fm from April 1 to September 30, months when angler effort and yelloweye rockfish encounters are greatest, mitigate mortality of yelloweye rockfish. Projected mortality of yelloweye and canary rockfish are within the HG, therefore the shore-based fishery would be open year-round.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Groundfish Season	Open all depths			Open < 40 fm						Open all depths		
Marine Bag Limit 1	Ten (10)			1 Fish Cabezon Sub-Bag 2						Ten (10)		
Lingcod Bag Limit	Three (3)											
Flatfish Bag Limit 3	Twenty Five (25)											

1 Marine bag limit includes all species other than lingcod, salmon, steelhead, Pacific halibut, flatfish, surfperch, sturgeon, striped bass, pelagic tuna and mackerel species, and bait fish such as herring, anchovy, sardine, and smelt

2 From April 1 through September 30, the marine bag limit is Ten (10) fish per day, of which no more than one (1) may be cabezon.

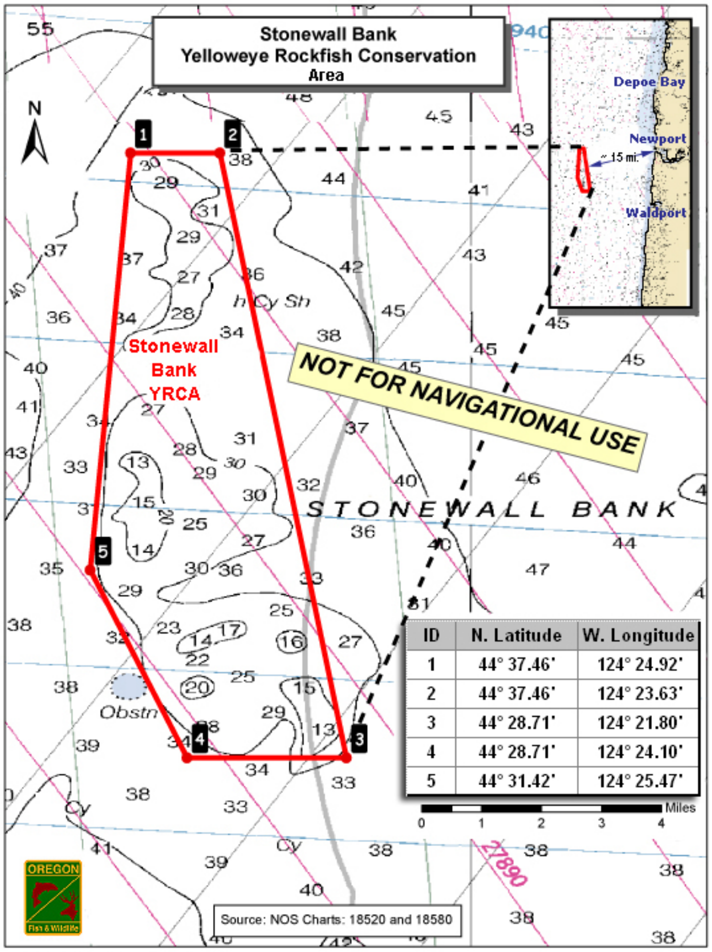
3 Flounders, soles, sanddabs, turbots and halibuts except Pacific halibut

Figure 2-6. No Action. Oregon recreational groundfish season structure and bag limits under the No Action Alternative.

Area Closures

The Stonewall Bank YRCA has been in place since 2006 and would also remain under the No Action alterative (Figure 2-7). The YRCA is located approximately 15 miles west of the Port of Newport and consists of the high-relief area of Stonewall Bank, an area of high yelloweye rockfish encounters. No recreational fishing for groundfish and Pacific halibut can occur within this YRCA, which is bounded by the following waypoints:

44°37.458’ N lat. 124°24.918’ W long.
44°37.458’ N lat. 124°23.628’ W long.
44°28.710’ N lat. 124°21.798’ W long.
44°28.710’ N lat. 124°24.102’ W long.
44°31.422’ N lat. 124°25.500’ W long.



ODFW, 05/22/06. Reprinted 12/12/06

Figure 2-7. The Stonewall Bank Yelloweye Rockfish Conservation Area where recreational fishing for groundfish and Pacific halibut is prohibited. Under the No Action alternative, the area would remain closed.

Groundfish Bag Limits and Size Limits

Under the No Action alternative, the marine fish daily bag limit of ten fish in aggregate that was allowed in 2011-2012 Oregon recreational fisheries would carry forward for 2013-2014 (Figure 2-6). The marine bag includes all species other than lingcod, salmon, steelhead, Pacific halibut, flatfish, surfperch, sturgeon, striped bass, pelagic tuna and mackerel species, and bait fish such as herring, anchovy, sardine and smelt. During April through September, there was a one fish sub-bag limit for cabezon (of the 10 fish marine bag limit no more than one could be cabezon). This cabezon sub-bag limit would also carry forward for 2013-2014. A flatfish daily bag limit of 25, which includes all soles and flounders except Pacific halibut, was allowed in addition to the marine fish daily bag limit. Additionally a three fish bag limit was allowed for lingcod. Retention of canary and yelloweye rockfish was prohibited in 2011-2012 and would continue to be prohibited under the No Action alternative.

The following minimum size limits applied to 2011-2012 Oregon recreational fisheries and would be carried forward under the No Action alternative:

- Lingcod – 22 in.
- Cabezon – 16 in.
- Kelp greenling – 10 in.

Pacific Halibut Seasons
Under the No Action Alternative, the recreational Pacific halibut fisheries should be able to proceed as in 2011 and 2012, in regards to days and areas open, etc., depending on the halibut quota. Since 2009, only sablefish and Pacific cod may be retained in the Pacific halibut fishery at any depth in the area north of Humbug Mountain, Oregon. It is expected that groundfish retention in the all-depth Pacific halibut fishery would be similarly limited in 2013 and 2014.

Additional Management Measures Analyzed
Under the No Action Alternative, no additional management measures were analyzed for the Oregon recreational fisheries. Since projected mortality is within the HGs for the No Action Alternative, the status quo season structure and regulations should be sufficient, therefore no additional management measures were analyzed.

Inseason Management Tools
Oregon has a responsive port based monitoring program through their Ocean Recreational Boat Survey (ORBS) and regulatory processes in place to track mortality and take actions inseason if necessary. The following are suggested management measures that could be implemented inseason if the 2013 (or 2014) fishery does not proceed as expected.

Inseason management tools, designed to mitigate mortality, include bag limit adjustments (including non-retention), length limit adjustments, gear restrictions, and season, days per week, depth, and area closures.

Season, depth, days open per week, and area closures are the primary inseason tools for limiting yelloweye rockfish and canary rockfish mortality, since retention of this species is prohibited. If catch rates indicate that the harvest targets for yelloweye rockfish would be reached prematurely, offshore depth closures may be implemented inseason at 30, 25, or 20 fm as these two species are less abundant nearshore and release survival rates are higher in shallow waters. Additionally, days per week may also be closed to reduce mortality. ODFW would monitor inseason progress toward recreational harvest targets for canary rockfish and yelloweye rockfish. Regulations would depend upon the timing of the determination for their need.

Adjustments to the marine fish daily-bag limit to no more than 10 fish may be implemented to achieve season duration goals in the event of accelerated or decelerated black rockfish or other nearshore rockfish harvest. The lingcod daily bag limits may be adjusted to no more than 3 fish in the event the marine bag limit changes or the halibut catch limit is reduced from 2011 levels. Season and/or area closures may also be considered if harvest targets are projected to be attained. Closing one or more days per week is an inseason tool that could be used to limit mortality. Closing certain days each week would help lengthen the duration of a fishery approaching a harvest guideline.

Non-retention and length restrictions are the likely inseason tools to use for cabezon and greenling as release survival is very high. They may also be used to reduce mortality of nearshore species, such as black rockfish and other nearshore rockfish species.

Gear restrictions and/or release technique requirements may be implemented to reduce the impact of depleted rockfish species if successful techniques are developed, researched, reviewed, and accepted. Research in this area is currently being conducted and would continue into 2013-2014, testing the effectiveness and selectivity of various gears and the survivability of rockfish released at depth.

Directed yellowtail rockfish and/or flatfish fisheries may be implemented inseason, as were implemented in 2004, in the event of a closure of the recreational groundfish fishery due to attainment federal or state harvest guidelines or targets. Specific gear restrictions may be implemented in the event that yellowtail rockfish and/or flatfish fisheries remain open during a groundfish closure. Additionally, the fishery may be expanded to waters seaward of the RCA, promoting directed yellowtail rockfish opportunity. Directed flatfish fisheries would be legal year round and open shoreward of 40 fm during any period the groundfish fishery has any depth restrictions (i.e. 40, 30, 25, and 20 fathom lines). The flatfish fishery would not have any depth restrictions when the groundfish fishery has no depth restrictions. Fisheries would be monitored to ensure that mortality of yelloweye and canary rockfish are within the harvest targets/guidelines.

In the event that the duration of total season is reduced from 12 months; the nearshore waters are closed to groundfish fishing due to management of nearshore species; or the Pacific halibut catch limit is reduced from 2011 levels, the fishery may be expanded to waters seaward of the RCA that is in effect at the time, promoting directed yellowtail rockfish and offshore lingcod opportunity. Fisheries would be monitored to ensure that mortality of yelloweye rockfish and canary rockfish is not in excess of the harvest guidelines.

<u>California Recreational – No Action</u>

Primary catch controls for the California recreational fishery are season dates, bag limits, and groundfish conservation areas. Projected mortality and season structures for 2013-2014 under the No Action Alternative would be based on CDFG's updated RecFISH model. Model projections were originally calculated in April 2011 for the five recreational groundfish management areas using updated 2009 and 2010 RecFIN estimates; overfished species mortality is reported statewide. Recreational harvest guidelines are reported in Table 2-10.

Groundfish Seasons and Area Restrictions:
Figure 2-11 details the groundfish seasons and area restrictions under the No Action Alternative. All divers and shore-based anglers are exempt from the seasonal closures for rockfish, cabezon, greenlings, lingcod, and California scorpionfish.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed					May 12–Oct 31 <20fm					Closed	
Mendocino	Closed					May 12–Aug 15<20fm			Closed			
San Francisco	Closed					Jun 1 – Dec 31 <30fm						
Central	Closed				May 1 – Dec 31 <40fm							
Southern	Closed		Mar 1 – Dec 31 <60fm									

Figure 2-8. No Action: California recreational groundfish season structure for 2013-2014.

In 2009, four YRCAs were adopted in the Northern and Mendocino Management Areas for use in management. The YRCAs include habitat in both state and Federal waters and can be implemented inseason (if needed) to reduce yelloweye rockfish mortality. To date, these YRCAs have not been implemented but would remain available under the No Action Alternative.

The California Fish and Game Commission (Commission) has implemented or is currently in the process of implementing marine protected areas (MPAs) throughout the entire state. When MPA implementation is complete, more than of 124 MPAs covering approximately 848 square miles (16 percent) of state waters would be in effect (XXXCDFG 2011). Since most of these MPAs occur in state waters, many in 20 fathom or less, the available fishing areas, particularly in the Northern and Mendocino Management Areas, would be reduced.

Groundfish Bag Limits and Size Limits:
Under the No Action Alternative, a statewide 10 fish rockfish, cabezon, and greenling bag limit with a sub-bag limit of two fish for bocaccio and greenlings and a three fish sub-bag limit for cabezon would remain in place. Retention of bronzespotted, canary, cowcod, and yelloweye rockfish was prohibited in 2011-2012 and would continue to be prohibited under the No Action alternative. The following bag limits would also apply:

- California scorpionfish – 5 fish
- Leopard shark – 3 fish
- Lingcod – 2 fish
- Sanddabs – None
- Soupfin shark – 1 fish

There is no bag limit for Pacific sanddab, petrale sole and starry flounder. A bag limit of 10 fish of any one species within the 20 finfish maximum bag limit would apply to the remaining species in the groundfish FMP.

The following minimum size limits applied to 2011-2012 California recreational fisheries would be carried forward under the No Action alternative:

- Bocaccio – 10 inches
- California scorpionfish – 10 inches
- Cabezon – 15 inches
- Kelp greenling – 12 inches
- Leopard shark – 36 inches
- Lingcod – 22 inches

Inseason Management Response:

CDFG closely monitors yelloweye rockfish and cowcod – performing weekly tracking using preliminary CRFS field reports. These preliminary CFRS reports are converted into an anticipated catch value in metric tons using catch and effort data from previous years. This weekly "proxy" value is then used to approximate catch during the five to eight week lag time in CRFS catch estimates. If angler effort or bycatch of overfished groundfish species changes dramatically from prior years, actual mortality can be higher or lower than projected. Based on the inseason tracking, if any of the overfished species harvest guidelines are projected to be attained inseason, CDFG could enact emergency management actions to slow and/or reduce catches. Management measures include closing one or more recreational groundfish management areas for boat based anglers, restricting recreational fishery seasons, and/or modifying depth restrictions.

2.4.2 Alternative 1 (Preferred) – 116 mt Canary Rockfish ACL and 150 mt POP ACL

Alternative 1, the Council's preferred alternative, (and all of the action alternatives) incorporates the best available scientific information for stock assessment projections described in Section 2.1.

Alternative 1 represents the continuation of status quo harvest management policies for overfished species while contemplating several new management measures, as described in section 2.3. New stock assessments and rebuilding analyses show that the current target rebuilding years for canary rockfish and POP are less than the re-estimated minimum feasible rebuilding time ($T_{F=0}$, or prohibiting all harvest).[1] Under Alterative 1, the target year for canary rockfish would be changed by 3 years (from 2027 to 2030), which is 2 years longer than the re-estimated $T_{F=0}$. The target year for POP would be changed by 31 years (from 2020 to 2051), which is 8 years longer than $T_{F=0}$. Overfished species ACLs are derived using a constant SPR harvest rate for rockfish that is specified in the current rebuilding plans and the harvest control rule for petrale sole, applied to the latest stock assessment and rebuilding analyses.

Alternative 1 is consistent with the FMP and SSC recommendations. Maintaining the current rebuilding plans for species other than canary and POP is consistent with FMP Section 4.6.3.4. That is, the new rebuilding analyses for the species other than canary and POP are showing steady progress to rebuilding and changes are not required. The SSC recommended the canary and POP rebuilding plans be revised since current target rebuilding years are less than the re-estimated minimum feasible rebuilding time ($T_{F=0}$). The target years and associated harvest rates for canary and POP under this Alternative result in ACLs that are intended to rebuild the stocks in a time period that is as short as possible taking into account the status and biology of overfished stocks and the needs of the fishing communities.

2.4.2.1 Alternative 1 Allocation Scheme

The ACLs and allocations under Alternative 1 are detailed in XXXSection 2.2. A summary of the overfished species ACLs and allocations that influence the projected amount of target species attained and the recommended management measures under this alternative is presented in Table 2-16.

[1] Put another way, even if all harvest of these two species were to be prohibited (likely requiring closure of many fisheries) the likelihood of canary rebuilding by 2027 is 48 percent and POP rebuilding by 2020 is 25 percent.

Table 2-16. Alternative 1. Overfished species ACLs and allocations for 2013-2014.

Alternative 1. 2013							
Sector	**Bocaccio**	**Canary**	**Cowcod**	**DKB**	**POP**	**Petrale**	**Yelloweye**
ACL	320	116	3	317	150	2,592	18
Total Set-Asides	5	16.8	0.12	19.7	12.9	74.8	5.82
Fishery Harvest Guideline	315.0	99.2	2.9	297.3	137.1	2,517.2	12.2
Trawl Allocation	76.9	53.1	1.9	282.7	130.4	2482	1
Shorebased IFQ	76.9	40.3	1.9	268	113	2,477	1
At-Sea Whiting	N/A	12.8	N/A	14.7	17.4	5	--
Catcher Processor	N/A	7.5	N/A	8.6	10.2		--
Mothership	N/A	5.3	N/A	6.1	7.2		--
Non-Trawl Allocations	243.0	46.4	1.0	15.0	7.0	35.0	11.2
Non-Nearshore	74.2	3.6					1.1
Nearshore Fixed Gear	0.9	6.2					1.2
Washington Recreational [a/]	N/A	3.1					2.9
Oregon Recreational [a/]	N/A	10.9					2.6
California Recreational [a/]	167.9	22.6					3.4
a/ Values represent HGs.							

Alternative 1. 2014							
Sector	**Bocaccio**	**Canary**	**Cowcod**	**DKB**	**POP**	**Petrale**	**Yelloweye**
ACL	337	119	3	330	153	2,652	18
Total Set-Asides	5	16.8	0.12	19.7	12.9	74.8	5.8
Fishery Harvest Guideline	332.0	102.2	2.9	310.3	140.1	2,577.2	12.2
Trawl Allocation	79.8	54.70	1.9	294.4	133.4	2542	1
Shorebased IFQ	79.8	41.5	1.9	279	116	2,537	1
At-Sea Whiting	N/A	13.2	N/A	15.4	17.4	5	--
Catcher Processor	N/A	7.7	N/A	9	10.2		--
Mothership	N/A	5.5	N/A	6.4	7.2		--
Non-Trawl Allocations	252.1	47.8	1	16	7	35	11.2
Non-Nearshore	77	3.7					1.1
Nearshore Fixed Gear	0.9	6.4					1.2
Washington Recreational [a/]	N/A	3.2					2.9
Oregon Recreational [a/]	N/A	11.2					2.6
California Recreational	174.2	23.3					3.4
a/ Values represent HGs.							

2.4.2.2 Alternative 1 Management Measures

The following bullet points summarize management measure changes by sector under Alternative 1. A more detailed discussion of management measures by sector follows. If adopted by the Council, new measures discussed under Section 2.3 and analyzed in Appendix C, would be implemented. Overarching changes include modifications to the boundaries defining the RCAs, sorting requirements for aurora, shortraker, and rougheye rockfish north of 40°10 N. latitude, and modifications to catch accounting language between the limited entry and open access sectors. New management measures that are specific to a sector are described below.

- The shorebased IFQ fishery would operate under the same management measures as No Action,[2] except that trip limits for longnose skate and spiny dogfish would be adjusted as described below. Additionally, the following changes to management measures are contemplated: increases to the shorebased widow rockfish allocation, changes to the shorebased IFQ accumulation limits, modifications to the shorebased IFQ surplus carry-over provisions, and removing or modifying the lingcod length limit.
- At-sea whiting co-ops would continue to be managed under the co-op program and the same management measures as No Action. Additionally, reductions to the at-sea widow rockfish allocation are contemplated.
- Tribal fisheries would operate under the same management measures as No Action.
- The non-nearshore fixed gear fishery would operate under the same management measures as the No Action Alternative. Routine adjustments to sablefish, spiny dogfish, longnose skate, blackgill south of 40°10 N. latitude bi-monthly trip limits are proposed. The No Action non-trawl RCA configuration could be maintained or modified to reduce catches of spiny dogfish.
- There are two sub-alternatives for the nearshore fixed gear fishery analyzed under Alternative 1 (Alternative 1a and 1b). In the area north of 42° N. latitude, Alternative 1a proposes the No Action non-trawl RCA configuration and trip limits that are projected to increase landings 25 percent relative to No Action. In the area north of 42° N. latitude under Alternative 1b, the non-trawl RCA would be moved from 20 fm to 30 fm in the area 42° N. latitude to 43° N. latitude and landings would increase only 8 percent compared to No Action to stay within the overfished species allocations. South of 42° N. latitude, the No Action non-trawl RCA configuration could be maintained and landings are projected to be the same as No Action, except for increases to greenling and lingcod, under Alternatives 1a and 1b.
- Washington and Oregon recreational fisheries would operate under the same management measures as No Action.
- For California recreational fisheries, the season length in the Mendocino Management Area could be increased relative to No Action (from 104 days to 111 days). Other proposed changes to management measures include increases to the bocaccio and greenling bag limits, removing the bocaccio length limit, and providing for shelf rockfish retention, including bocaccio rockfish, in the CCA.

[2] A variety of program changes are planned for the shorebased IFQ fishery during 2013-14 under separate regulatory actions. For the purposes of this evaluation "No Action" assumes these changes are external actions contributing to cumulative effects.

Shorebased IFQ Fishery

The following routine adjustments to longnose skate and spiny dogfish trip limits and/or RCAs are considered under Alternative 1 (see Appendix C for detailed analysis).

The range of longnose skate trawl trip limits under consideration is 4,000 lb/2 months to 12,000 lbs/2 months. For fixed gear the range is 200 lb/2 months to 4,000 lb/2 months. A seaward trawl RCA adjustment to 300 fm or 50 fm shoreward is also contemplated to reduce longnose skate catch.

Three dogfish trip limits are under consideration: 600, 5,000, and 20,000 pounds/2 months for trawl and 300, 2,500, and 18,000 pounds/2 months for fixed gear. For spiny dogfish three alternative depth restrictions are contemplated (a) move the shoreward trawl RCA from 75 fm to 50 fm between 45°46 to 48°10’ N latitude, (b) move the seaward trawl RCAs from 150 fathoms to 200 fathoms north of 48°10’ and from 150/200 fathoms to 250 fathoms south of 48°10’ N latitude, and (c) move the seaward fixed gear RCA from 100 to 150 fm north of 45°46’ N latitude.

Limited Entry and Open Access Fixed Gear

Non-nearshore

Under Alterative 1, the non-nearshore fishery would operate under the management measures described under No Action. Routine adjustments to sablefish, spiny dogfish, longnose skate, and blackgill south of 40°10 N. latitude trip limits and/or the non-trawl RCA are anticipated and described below. Further, if adopted, the new measures discussed under Section 2.3 and analyzed in Appendix C, would be implemented.

Under this alternative, the sablefish north of 36° N. latitude ACL decreases substantially, from 5,347 mt in 2012 to 3,569 mt and 3,872 mt in 2013 and 2014, respectively (XXXTable 2-3 and REFERENCE). These amounts represent a 19-25 percent decrease relative to the No Action Alternative. Landings for other species encountered in the non-nearshore fishery are anticipated to be the same as in 2011, except spiny dogfish, longnose skate, and blackgill south of 40°10 N. latitude.

The decrease in the sablefish landings translates directly into lower expected catch of the rebuilding stocks for the non-nearshore sector that are within the proposed allocations (Table 2-16). Since the projected mortality overfished species is within the allocations, the No Action non-trawl RCA structure is recommended (Table 2-11). The expected decrease in yelloweye and canary bycatch are not substantial enough to consider modifying the seaward boundary of the non-trawl RCA to provide greater access to fishing grounds since such action would be expected to increase encounters with canary, yelloweye, and other shelf rockfish stocks like bocaccio. The non-trawl RCA was established at 100 fathoms because the 100 fm depth contour marks the transition between shelf and slope habitats. If fishing areas are reopened on the shelf, catch of shelf rockfish stocks like canary and yelloweye could increase. In addition, estimates of yelloweye catch in these sectors have shown variability in recent years with estimates of actual catch differing by more than 50 percent higher and lower than the bycatch projections from the non-nearshore model. Such volatility requires some caution when interpreting and planning based on projected mortality.

Adjustments to sablefish trip limits to coincide with the lower sablefish ACLs are proposed for the both the limited entry and open access fixed gear sectors (Table 2-17 and Table 2-18). These trip limits are estimated to attain approximately 91 percent of the allocations and may be adjusted inseason as necessary. The proposed trip limits apply under all of the integrated alternatives.

Movements to the non-trawl RCA and reductions to trip limits are contemplated to keep spiny dogfish mortality within the spiny dogfish HG. The non-trawl RCA could be moved from 100 to 150 fm north of 45°46' N. latitude to reduce catches. In order to reduce landings of spiny dogfish, three trip limits for the limited entry and open access fixed gears are under consideration: 300, 2,500, and 18,000 pounds/2 months for fixed gear.

Reductions to trip limits are contemplated to keep longnose skate mortality within the ACL. The range of longnose skate trip limits for limited entry and open access fixed gear is 200 lb/2 months to 4,000 lb/2 months.

A range of blackgill rockfish trip limits south of 40°10 N. latitude were explored to keep landings within the blackgill HG. The range of trip limits is from 1,200 to 1,375 lbs/2 months for the limited entry fixed gear fleet south of 40°10 N. latitude. For open access, the trip limits under consideration are 410 to 480 lb/2 months south of 40°10 N. latitude.

Table 2-17. 2013 Sablefish trip limits for all alternatives other than No Action.

Area	Fishery	Jan-Feb	Mar-Apr	May-Jun	July-Aug	Sept-Oct	Nov-Dec
North of 36° N. lat. (U.S./Canada Border to 36° N. lat.)	LE N.	1,100 lb. per week, not to exceed 4,200 lb. per 2 mo.					
	OA N.	300 lb. per day, or 1 landing per week of up to 610 lb., not to exceed 1,220 lb. per 2 mo.					
South of 36° N. lat.	LE S.	1,880 lb. per week					
	OA S.	300 lb. per day, or 1 landing per week of up to 1,460 lb., not to exceed 2,920 lb. per 2 mo.					

Table 2-18. 2014 Sablefish trip limits for all alternatives other than No Action.

Area	Fishery	Jan-Feb	Mar-Apr	May-Jun	July-Aug	Sept-Oct	Nov-Dec
North of 36° N. lat. (U.S./Canada Border to 36° N. lat.)	LE N	1,100 lb. per week, not to exceed 4,400 lb. per 2 mo.					
	OA N	300 lb. per day, or 1 landing per week of up to 675 lb., not to exceed 1,350 lb. per 2 mo.					
South of 36° N. lat.	LE S	1,930 lb. per week					
	OA S	300 lb. per day, or 1 landing per week of up to 1,525 lb., not to exceed 3,050 lb. per 2 mo.					

<u>Nearshore</u>

Under Alterative 1, the nearshore fishery would operate under the management measures described under No Action. The same range of trip limits adjustments for sablefish (some are caught shoreward of the non-trawl RCA), spiny dogfish, and longnose skate as discussed under the non-nearshore sector would apply to the nearshore sector.

Under Alternative 1, the allocations of canary and yelloweye rockfish to the nearshore fishery are higher (Table 2-16) than the No Action Alternative (Table 2-10). Although both California and Oregon would have some increased opportunity compared to the No Action Alternative, management measures and projected landings are lower than years prior to 2009 (XXX2009-2010 FEIS).

Similar to the No Action alternative, the PPA is modeled assuming the bycatch rates, weather, and market conditions experienced in 2011 would be the same in 2013 and 2014, and assumes no variation in landings. If catches are higher than projected, few management measures are available to further reduce yelloweye catch in this fishery (if needed). Further reductions in yelloweye catch would require substantial reductions to landed catch or total fishery closure between 43° N. latitude and 40° 10' N. latitude, the area with the highest yelloweye bycatch rates. Depth restrictions shallower than 10 fm are not advised because of vessel safety concerns.

Alternative 1 was analyzed with status quo catch sharing between Oregon and California for canary (OR = 26.7 percent; CA = 73.3 percent) and yelloweye rockfish (OR = 72.7 percent; CA = 27.3 percent). Under this alternative, the tradeoffs between more restrictive depth restrictions and higher reductions in landed catch were explored (Alternatives 1a and 1b). In Oregon, mortality of overfished species is modeled assuming the same non-trawl RCA under No Action (20 fm depth restriction between 42° N. latitude to 43° N. latitude, 30 fm from 43° to 46°16 N. latitude) (Alternative 1a) and a 30 fm depth restriction statewide (Alternative 1b). In California, mortality of overfished species is modeled assuming the same non-trawl RCA under No Action for both alternatives (20 fm between 42° N. latitude and 40° 10' N. latitude; 30 fm between 40° 10' N latitude and 34° 27' N. latitude; 60 fm south of 34° 27' N. latitude).

North of 42° N. latitude – under Alternative 1a, the non-trawl RCA configuration would be the same as No Action and landings would be increased 12 to 33 percent (species specific) relative to No Action to reflect state landing caps. Lingcod would also be increased by 40 percent relative to the No Action. The overall increase in landings under Alternative 1a would be 25 percent compared to No Action. Under Alternative 1b, a 30 fm non-trawl RCA configuration would be implemented statewide and landings increased 8 percent (overall) relative to No Action.

Under Alternative 1a, current state landing caps could be reached, assuming bycatch rates, weather, and other unforeseen circumstances are similar to 2011. However, the shoreward non-trawl RCA in southern Oregon would still be restricted to 20 fm in the area between 42° N. latitude to 43° N. latitude; the same configuration as under No Action.

Pre-2009 fishing grounds would be reopened under alternative 1b, where the non-trawl RCA would be returned to 30 fm statewide. However, under alternative 1b, landings would be restricted to levels well below historical landing caps for the state of Oregon.

South of 42° N. latitude – under Alternatives 1a and 1b, the non-trawl RCA configuration and landings would be the same as No Action, except for greenling and lingcod. Landings of greenling would be increased statewide to maintain consistency with state regulations and are within the greenling contribution to the Other Fish complex. A small increase in lingcod landings could also be afforded statewide while staying within overfished species allocations.

Alternative Allocations for the Nearshore Fixed Gear Fishery

In addition to the status quo allocation percentages for yelloweye and canary, two alternate catch sharing relationships between Oregon and California were analyzed to demonstrate the tradeoffs (Table 2-19). The allocation schemes include an equal catch sharing (50:50) and a reverse status quo (i.e., reverse the percentages to each state for both species) to bracket the upper and lower ranges of landings and corresponding management measures. Table 2-20 details the proposed management measures under each scenario, which is summarized below.

Under the equal sharing scenario, Oregon would receive more canary and less yelloweye compared to the status quo catch sharing (Table 2-19). Since less catch has historically originated from depths deeper than 20 fm, few reductions to yelloweye rockfish mortality is afforded by changing the RCA from 30 fm to 20 fm from 43° to 46°16 N. latitude. As a result, landed catch would need to be reduced by 14 percent relative to No Action Alternative to stay within overfished species allocations under this scenario. Under this same scenario, California would be allocated less canary rockfish compared to status quo, but more yelloweye rockfish. The current 20 fm RCA between 42° N. latitude and 40° 10' N. latitude could be changed to 30 fm, yet a 35 percent reduction in landed catch of nearshore species would be needed to stay within overfished species allocations. Changing the shoreward non-trawl RCA from 20 to 30 fm would reduce gear conflicts, reduce the potential for localized depletion, and increase opportunities to fish in productive areas that have been closed for four years. It would also reduce competition for space when the recreational fishery is open. For the area south of 40° 10' N. latitude, the non-trawl RCA configuration and landings under No Action could be afforded (including an increase for lingcod and greenling) and stay within overfished species allocations.

Under the reverse status quo, Oregon would be allocated more canary rockfish, yet substantially less yelloweye rockfish, compared to status quo (Table 2-19). As described above, few reductions to yelloweye rockfish mortality is afforded by restricting the fishery to 20 fm statewide in Oregon, therefore, reductions in landed catch of up to 53 percent would be necessary to stay within the yelloweye allocation. Under this scenario, mortality of canary rockfish is well within the allocation and not the limiting factor that restricts access to target species.

Under the reverse status quo, California would receive substantially more yelloweye rockfish and less canary rockfish compared to status quo. The small allocation of canary rockfish under this scenario would require substantial reductions to target species. Generally, canary bycatch is common in all areas of the state, except for south of 34º 27' N. latitude. As a result, a 20 fm depth restriction would need to be implemented for all areas, except south of 34º 27' N. latitude to stay within the canary allocation in addition to a 10 percent reduction in landed catch.

In summary, access to target species in the nearshore fishery is primarily limited by yelloweye rockfish. An additional increase in the yelloweye rockfish allocation to the nearshore fishery may allow for a modification of the non-trawl RCA back to 30 fm for the area between 42º N. latitude and 40º 10' N. latitude and may allow landings that are closer or equal to historic state landing caps.

Table 2-19. Alternative 1: Allocations of canary and yelloweye rockfish for 2013-14 under alternate nearshore catch sharing scenarios.

		Status Quo	Equal Sharing	Reverse Status Quo
OR	Canary	1.7	3.1/3.2	4.5/4.7
	Yelloweye	0.87	0.6	0.33
CA	Canary	4.5/4.7	3.1/3.2	1.7
	Yelloweye	0.33	0.6	0.87

Table 2-20. Alternative 1: Description of management measures under alternate nearshore catch sharing scenarios.

		Catch Sharing		
	AREA	**Status Quo**	**Equal Sharing**	**Reverse Status Quo**
OR	north of 43º	(Alt a): RCA=30 fm; Landings=12%-40% increase (Alt b): RCA = 30 fm; Landings=8% increase	RCA=30fm; Landings=14% reduction	RCA=30 fm; Landings=53% reduction
OR	42º-43º	(Alt a): RCA=20 fm; Landings=12%-40% increase (Alt b): RCA = 30 fm; Landings=8% increase	RCA=20 fm; Landings=14% reduction	RCA=20 fm; Landings=53% reduction
CA	42º - 40º10'	(Alt a): RCA=20 fm; Landings=status quo with higher greenling and lingcod (Alt b): same as Alt a	RCA=30 fm; Landings=35% reduction	RCA=20 fm; Landings=10% reduction
CA	40º10' to 34º27'	(Alt a): RCA=30 fm; Landings=status quo with higher greenling and lingcod (Alt b): same as Alt a	RCA=30 fm; Landings=status quo with higher greenling and lingcod	RCA=20 fm; Landings=10% reduction
CA	south of 34º27'	(Alt a) RCA=60 fm; Landings=status quo with higher greenling and lingcod (Alt b) same as Alt a	RCA=60 fm; Landings=status quo with higher greenling and lingcod	RCA=60 fm; Landings=10% reduction

2.4.2.3 Recreational (California)

The California recreational fishery would operate under the management measures described below. Additionally, new measures described below and in Section 2.3 and analyzed in Appendix C would be available. The Alternative 1 allocations to the California recreational fishery are higher (Table 2-16) than the No Action Alternative (Table 2-10). Although there would be some increased opportunity compared to No Action, management measures would still have to be more restrictive than previous years (XXXPFMC. 2003).

Groundfish Seasons and Area Restrictions:
Under Alternative 1, the season structure would be similar to the No Action Alternative except for an increase in the season length for the Mendocino Management Area (Figure 2-9). All divers and shore-based anglers are exempt from the seasonal closures for rockfish, cabezon, greenlings, lingcod, and California scorpionfish.

Similar to No Action, yelloweye rockfish conservation areas (YRCA) would be available under this alternative and could be implemented inseason if catches are projected to exceed harvest guidelines.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed				May 15 – Oct 31 <20fm						Closed	
Mendocino	Closed				May 15 – Sept 2 <20fm				Closed			
San Francisco	Closed					Jun 1 – Dec 31 <30fm						
Central	Closed				May 1 – Dec 31 <40fm							
Southern	Closed		Mar 1 – Dec 31 <60fm									

Figure 2-9. Alternative 1: California recreational groundfish season structure and depth constraints for 2013-2014.

Groundfish Bag Limits and Size Limits:

The Alternative 1 groundfish bag limits and size limits are the same as No Action, except for the following:

Bocaccio – The No Action sub-bag limit for bocaccio is two fish, with a minimum size limit of 10 inches. CDFG is proposing to increase the sub-bag limit from two fish to three fish. The increase in the sub-bag limit is expected to increase total California recreational mortality of bocaccio by 11.5 percent. CDFG is also proposing to remove the minimum size limit of ten inches. Removing the size limit is expected to increase total bocaccio mortality by 1.0 percent. The proposed changes are not mutually exclusive and the projections are additive. Currently bocaccio is the only rockfish species in the recreational sector that has a size limit. Removing the size limit would reduce regulatory complexity. Catch of other overfished species, as a result of these management measures, is not expected to increase.

Greenlings – The No Action status quo sub-bag limit for greenlings is two fish. CDFG is proposing to increase the sub-bag limit to 10 fish to maintain consistency with state regulations and stay within the greenling contribution to the Other Fish complex. By increasing the sub-bag limit, the estimated take would be approximately 23.8 mt. The Department is not proposing any changes to the minimum size restriction. There are no expected changes to catch of overfished species as a result of this increase.

Additional Management Measures Analyzed:

Shelf Rockfish Retention in Cowcod Conservation Area (CCA)

Under the Alternative 1, CDFG is requesting a modification to existing regulations governing recreational groundfish fishing within the CCA to allow retention of shelf rockfish taken during the open season for groundfish within the existing depth constraint of 20 fm. No changes to non-groundfish recreational fisheries or corresponding management measures are being proposed. Under this proposal, if the season for groundfish is open, anglers could retain shelf rockfish, including bocaccio. Removing the prohibition on shelf rockfish retention, including bocaccio, in depths of 20 fm or less in the CCA when fishing for rockfish is open, is intended to reduce bycatch that currently occurs when shelf rockfish are caught while in pursuit of other species within the 10 fish rockfish, cabezon, and greenling (RCG) bag limit. Under the proposed action, recreational anglers would be expected to meet their RCG bag limit sooner which would reduce bycatch of shelf rockfish and may reduce encounters with overfished species. Also, this change would make regulations more consistent with retention regulations outside the CCA.

Increased mortality of shelf rockfish is expected to be minimal and can be accommodated within the recreational harvest guideline with a minimal risk of exceeding the ACLs. No ACLs for target or overfished species are expected to be exceeded as a result of this action.

Inseason Management Response:

Similar to the No Action alternative, inseason management response would include closing one or more recreational groundfish management areas for boat based anglers, restricting recreational fishery seasons, and/or modifying depth restrictions.

2.4.3 Alternative 2

Alternative 2 incorporates the best available scientific information and stock assessment projections described in Section 2.1. The non-overfished species ACLs and allocations under the Alternative 2 are detailed in Section 2.2.

Under Alternative 2 the target rebuilding year for canary rockfish is changed by 2 years (from 2027 to 2029), which is 1 year longer than the minimum feasible time to rebuild ($T_{F=0}$). The canary rockfish ACL under Alternative 2 is most similar to the No Action ACL and would require both the harvest control rule (SPR) and the T_{TARGET} in the current rebuilding plan to be revised. All other ACLs are the same as under Alternative 1. Table 2-21 summarizes the key rebuilding plan parameters under this alternative, compared to a $T_{F=0}$ scenario and the Council preferred alternative, Alternative 1.

This alternative demonstrates the tradeoffs between reducing the ACL for canary rockfish and the benefits of reducing the rebuilding time for the stock. Historically, canary rockfish has limited access to target species in many fisheries, because its distribution results in bycatch across a range of habitats and depth ranges.

Table 2-21. Alternative 2. Key rebuilding features of Alternative 2 compared to a $T_{F=0}$ scenario and Alternative 1, the Council's preferred alternative.

Stock	Current Ttarget	Current SPR or Harvest Control Rule	PPA Ttarget	Alt.	ACLs (mt)		SPR or Harvest Control Rule	Median Time to Rebuild	Rebuilding Duration Beyond T@F=0 (yrs.)	Prob. of Rebuilding by Ttarget	Prob. of Rebuilding by Tmax	Current Tmax	Re-est. Tmax
					2013	2014							
Canary	2027	88.7%	2030		0	0	100%	2028	0	48.2%	75.0%	2046	2050
				2	101	104	90.0%	2029	1	36.4%	75.0%		
				1	116	119	88.7%	2030	2	34.4%	75.0%		
POP	2020	86.4%	2051		0	0	100%	2043	0	25.0%	85.5%	2045	2071
				1,2	150	153	86.4%	2051	8	25.0%	73.0%		

2.4.3.1 Alternative 2 Allocation Scheme

The non-overfished species ACLs and allocations under Alternative 2 are detailed in Section 2.2. Table 2-22 summarizes the canary and POP ACLs and allocations that influence the projected amount of target species attained and the recommended management measures under this alternative. The remaining overfished species ACLs and allocations are the same as in Table 2-16. Table 2-21

Table 2-22. Alternative 2. Overfished species ACLs and allocations for 2013-2014.

Alternative 2. 2013		
Sector	**Canary**	**POP**
ACL	101	150
Total Set-Asides	16.8	12.9
Fishery Harvest Guideline	84.2	137.1
Trawl Allocation	45	130.4
Shorebased IFQ	34.2	113
At-Sea Whiting	10.8	17.4
Catcher Processor	6.3	10.2
Mothership	4.5	7.2
Non-Trawl Allocation	39.4	7.0
Non-Nearshore	3	
Nearshore Fixed Gear	5.3	
Washington Recreational [a/]	2.6	
Oregon Recreational [a/]	9.3	
California Recreational [a/]	19.2	
a/ Values represent HGs.		

Alternative 2. 2014		
Sector	**Canary**	**POP**
ACL	104	153
Total Set-Asides	16.8	12.9
Fishery Harvest Guideline	87.2	140.1
Trawl Allocation	46.70	133.4
Shorebased IFQ	35.5	116
At-Sea Whiting	11.2	17.4
Catcher Processor	6.6	10.2
Mothership	4.6	7.2
Non-Trawl Allocation	40.8	7
Non-Nearshore	3.1	
Nearshore Fixed Gear	5.5	
Washington Recreational [a/]	2.7	
Oregon Recreational [a/]	9.6	
California Recreational [a/]	19.9	
a/ Values represent HGs.		

2.4.3.2 Alternative 2 Management Measures

The following bullet points summarize management measure by sector under Alternative 2. If adopted by the Council, new management measures discussed under Alternative 1 and in Section 2.3, would be implemented.

- The shorebased IFQ fishery would operate under the same measures described under Alternative 1.
- At-sea whiting co-ops would operate under the same measures described under Alternative 1.
- Tribal fisheries would operate under the same management measures as No Action.
- The non-nearshore fixed gear fishery would operate under the same management measures described under Alternative 1.
- The nearshore fixed gear fishery could operate under the management measures described under Alternatives 1a or 1b.
- Washington and Oregon recreational fisheries would operate under the same management measures as No Action.
- California recreational fisheries would operate under the same measures described under Alternative 1.

2.4.4 Alternative 3

Alternative 3 incorporates the best available scientific information from stock assessment projections described in Section 2.1. The non-overfished species ACLs and allocations under the Alternative 3 are detailed in XXXSection 2.2.

Under Alternative 3 the target year for POP is adjusted to 2046, 3 years beyond the re-estimated TF=0 (no harvest scenario). All other ACLs are the same as under Alternative 1. (As noted above, the target year for POP and canary rockfish must be adjusted from their current values because they are unlikely to be met even with zero harvest.) This alternative represents the tradeoffs involved in pursuing a more aggressive rebuilding schedule for POP and would require both the harvest control rule (SPR) and the T_{TARGET} in the current rebuilding plan to be revised. Table 2-23 summarizes the key features of the rebuilding plans under this alternative, compared to a $T_{F=0}$ scenario and the Council preferred alternative, Alternative 1.

This alternative is intended to explore the tradeoffs between the benefits of rebuilding POP 5 years sooner than under Alternative 1 and the effects of the lower POP ACL.

Table 2-23. Alternative 3. Key rebuilding features of Alternative 3 compared to a $T_{F=0}$ scenario and Alternative 1, the Council's preferred alternative.

Stock	Current Ttarget	Current SPR or Harvest Control Rule	PPA Ttarget	ACL Alt.	ACLs (mt)		SPR or Harvest Control Rule	Median Time to Rebuild	Rebuilding Duration Beyond T@F=0 (yrs.)	Prob. of Rebuilding by Ttarget	Prob. of Rebuilding by Tmax	Current Tmax	Re-est. Tmax
					2013	2014							
Canary	2027	88.7%	2030		0	0	100%	2028	0	48.2%	75.0%	2046	2050
				1,3	116	119	88.7%	2030	2	34.4%	75.0%		
POP	2020	86.4%	2051		0	0	100%	2043	0	25.0%	85.5%	2045	2071
				3	74	76	92.9%	2046	3	25.0%	79.0%		
				1	150	153	86.4%	2051	8	25.0%	73.0%		

2.4.4.1 Alternative 3 Allocation Scheme

Table 2-24 summarizes the canary and POP ACLs and allocations that influence the projected amount of target species attained and the recommended management measures under this alternative. The remaining overfished species ACLs and allocations are the same as in Table 2-16. The non-overfished species ACLs and allocations under Alternative 3 are detailed in XXXSection 2.2.

Table 2-24. Alternative 3. Overfished species ACLs and allocations for 2013-2014.

Alternative 3. 2013		
Sector	**Canary**	**POP**
ACL	116	74
Total Set-Asides	16.8	12.9
Fishery Harvest Guideline	99.2	61.1
Trawl Allocation	53.1	58.4
Shorebased IFQ	40.3	41
At-Sea Whiting	12.8	17.4
Catcher Processor	7.5	10.2
Mothership	5.3	7.2
Non-Trawl Allocation	46.4	3.0
Non-Nearshore	3.6	
Nearshore Fixed Gear	6.2	
Washington Recreational [a/]	3.1	
Oregon Recreational [a/]	10.9	
California Recreational [a/]	22.6	
a/ Values represent HGs.		

Alternative 3. 2014		
Sector	**Canary**	**POP**
ACL	119	76
Total Set-Asides	16.8	12.9
Fishery Harvest Guideline	102.2	63.1
Trawl Allocation	54.30	60.4
Shorebased IFQ	41.5	43
At-Sea Whiting	12.8	17.4
Catcher Processor	7.5	10.2
Mothership	5.3	7.2
Non-Trawl Allocation	47.8	3
Non-Nearshore	3.7	
Nearshore Fixed Gear	6.4	
Washington Recreational [a/]	3.2	
Oregon Recreational [a/]	11.2	
California Recreational [a/]	23.3	
a/ Values represent HGs.		

2.4.4.2 Alternative 3 Management Measures

The following bullet points summarize management measures by sector under Alternative 3. If adopted by the Council, new management measures discussed under Alternative 1 and in Section 2.3, would be implemented.

- The shorebased IFQ fishery would operate under the same measures described under Alternative 1.
- At-sea whiting co-ops would operate under the same measures described under Alternative 1.
- Tribal fisheries would operate under the same management measures as No Action.
- The non-nearshore fixed gear fishery would operate under the same management measures described under Alternative 1.
- The nearshore fixed gear fishery could operate under the management measures described under Alternatives 1a or 1b.
- Washington and Oregon recreational fisheries would operate under the same management measures as No Action.
- California recreational fisheries would operate under the same measures described under Alternative 1.

2.4.5 Alternative 4

Alternative 4 incorporates the best available scientific information from stock assessment projections described in Section 2.1. The non-overfished species ACLs and allocations under the Alternative 4 are detailed in Section 2.2.

Under Alternative 4 the target year for canary rockfish would be changed from 2027 to 2028, which is the same year as $T_{F=0}$. The target year for POP would be changed from 2020 to 2060, 17 years beyond the re-estimated TF=0. (As noted above, the target year for POP and canary rockfish must be adjusted from their current values because they are unlikely to be met even with zero harvest.) These policies would result in a lower ACL for canary rockfish compared to No Action (49 mt versus 102 mt) and a comparatively higher ACL for POP (247 mt compared to a 157 ACT under No Action). This alternative would require both the harvest control rule and the Ttarget in the current rebuilding plan to be revised for canary and POP. Table 2-25 summarizes the key features of the rebuilding plans under this alternative, compared to a $T_{F=0}$ scenario and the Council preferred alternative, Alternative 1.

Alternative 4 is intended to highlight the differential effects of the ACLs on fishery participants and communities compared to the intermediate values contained in Alternative 1.

Table 2-25. Alternative 4. Key rebuilding features of Alternative 4 compared to a $T_{F=0}$ scenario and Alternative 1, the Council's preferred alternative.

Stock	Current Ttarget	Current SPR or Harvest Control Rule	PPA Ttarget	ACL Alt.	ACLs (mt) 2013	ACLs (mt) 2014	SPR or Harvest Control Rule	Median Time to Rebuild	Rebuilding Duration Beyond T@F=0 (yrs.)	Prob. of Rebuilding by Ttarget	Prob. of Rebuilding by Tmax	Current Tmax	Re-est. Tmax
Canary	2027	88.7%	2030		0	0	100%	2028	0	48.2%	75.0%	2046	2050
				4	48	49	95.1%	2028	0	41.2%	75.0%		
				1	116	119	88.7%	2030	2	34.4%	75.0%		
POP	2020	86.4%	2051		0	0	100%	2043	0	25.0%	85.5%	2045	2071
				1	150	153	86.4%	2051	8	25.0%	73.0%		
				4	247	251	79.2%	2060	17	25.0%	62.0%		

2.4.5.1 Alternative 4 Allocation Scheme

Table 2-26 summarizes the canary and POP ACLs and allocations that influence the projected amount of target species attained and the recommended management measures under this alternative. The remaining overfished species ACLs and allocations are the same as in Table 2-16.

Table 2-26. Alternative 4. Overfished species ACLs and allocations for 2013-2014.

Alternative 4. 2013		
Sector	**Canary**	**POP**
ACL	48	247
Total Set-Asides	16.8	12.9
Fishery Harvest Guideline	31.2	234.1
Trawl Allocation	16.8	222
Shorebased IFQ	12.8	200
At-Sea Whiting	4	22
Catcher Processor	2.3	12.9
Mothership	1.7	9.1
Non-Trawl Allocation	14.7	12.0
Non-Nearshore	1.1	
Nearshore Fixed Gear	2	
Washington Recreational [a/]	1	
Oregon Recreational [a/]	3.5	
California Recreational [a/]	7.1	
a/ Values represent HGs.		

Alternative 4. 2014		
Sector	**Canary**	**POP**
ACL	49	251
Total Set-Asides	16.8	12.9
Fishery Harvest Guideline	32.2	238.1
Trawl Allocation	17.40	226.3
Shorebased IFQ	13.2	204
At-Sea Whiting	4.2	22.3
Catcher Processor	2.5	13.1
Mothership	1.7	9.2
Non-Trawl Allocations	15.2	12
Non-Nearshore	1.2	
Nearshore Fixed Gear	2	
Washington Recreational [a/]	1	
Oregon Recreational [a/]	3.6	
California Recreational [a/]	7.4	
a/ Values represent HGs.		

2.4.5.2 Alternative 4 Management Measures

The following bullet points summarize management measures by sector under Alternative 4. If adopted by the Council, new management measures discussed under Alternative 1 and in Section 2.3, would be implemented.

- The shorebased IFQ fishery operates under the same management measures as Alternative 1. The seaward boundary of the non-trawl RCA, which applies to vessels harvesting IFQ with fixed gears, would be modified from 100 to 150 fm north of 40°10' N. latitude to address canary bycatch in the non-nearshore fixed gear fisheries (see 4th bullet below).
- At-sea whiting co-ops continue to be managed under the co-op program and the same management measures as Alternative 1.
- Tribal fisheries continue to be managed under the same management measures as No Action.
- The non-nearshore fixed gear fishery operates under the same management measures as Alternative 1, except modifications to the seaward boundary of the non-trawl RCA would be necessary based on the lower canary rockfish allocation (Table 2-26). The seaward boundary of the non-trawl RCA would be moved from 100 to 150 fm north of 40°10' N. latitude, affecting both the limited entry and open access fixed gear sectors.
- XXX Dan XXX Two sub-alternatives (Alternative 4a and 4b) explore depth restrictions and changes to trip limits in the nearshore fishery as a result of the lower canary rockfish allocation (Table 2-26). In the area north of 42° N. latitude, Alternatives 4a and 4b include a 20 fm non-trawl RCA configuration and trip limits that are projected to decrease landings relative to No Action (there is no difference between the sub-alternatives in this area). South of 42° N. latitude under Alternative 4a, the non-trawl RCA configuration would be 20 fm and trip limit reductions are needed to stay within the overfished species allocations. Under Alternative 4b the No Action non-trawl RCA configuration can be maintained and greater trip limit reductions are proposed, compared to Alternative 4a, south of 42° N. latitude.
- The Washington recreational fishery operates under the same management measures as No Action.
- There two sub-alternatives (Alternative 4a and 4b) for Oregon recreational that explore depth restrictions and changes to the Pacific halibut season as a result of the lower proposed canary rockfish allocation (Table 2-26). Alternative 4a would maintain the Pacific halibut seasons as described under No Action and would restrict the Oregon recreational bottomfish fishery to 20 fm year-round. Alternative 4b would eliminate the all depth Pacific halibut fishery and would restrict the Oregon recreational bottomfish fishery to 30 fm year-round.
- There two sub-alternatives (Alternative 4a and 4b) for California recreational that explore season and depth restrictions (Table 2-26). Under Alternative 4a, longer seasons and more restrictive depth constraints are proposed; whereas Alternative 4b explored shorter seasons and less restrictive depths.

Non-Nearshore

Under this alternative, the proposed two year allocation of canary rockfish—1.1 mt in 2013 and 1.2 mt in 2014—would require an adjustment to the seaward boundary of the non-trawl RCA. The non-nearshore fixed gear sectors would need a two year canary allocation of at least 1.5 mt in 2013 and 1.6 mt in 2014 to maintain the No Action RCA configuration. As under all other alternatives, the two-year allocation of yelloweye rockfish to the non-nearshore sectors is 1.1 mt in both 2013 and 2014.

To reduce canary impacts to the two year allocations proposed under this alternative, the seaward boundary would have to be moved from 100 to 150 fathoms in all areas north of 40° 10' N. latitude, which would be deeper than has implemented since the inception of RCAs.

Nearshore Limited Entry and Open Access Fixed Gear

Under Alternative 4, while the allocation of yelloweye rockfish is higher compared to No Action, the allocation of canary rockfish is 50 percent lower (Table 2-10 and Table 2-26). Fishing activity in both states is severely restricted due to the low amount of canary rockfish; therefore, nearshore landings would have to be reduced between 20 and 45 percent compared to No Action depending on the area and non-trawl RCA configuration. The same range of trip limits adjustments for sablefish (some are caught shoreward of the non-trawl RCA), spiny dogfish, and longnose skate as discussed under Alternative 1 for the non-nearshore sector would apply to the nearshore sector.

The analysis incorporated the status quo state sharing for canary (OR = 26.7%; CA = 73.3%) and yelloweye rockfish (OR = 72.7%; CA = 27.3%). Tradeoffs were also analyzed between greater depth restrictions and higher reductions in landed catch (Alternatives 4a and 4b). In Oregon, mortality of overfished species is modeled assuming a 20 fm depth restriction statewide for both alternatives. In California, mortality of overfished species is modeled assuming a 20 fm depth restriction statewide (Alternative 4a) and the same non-trawl RCA under No Action (20 fm between 42° N. latitude and 40° 10' N. latitude; 30 fm between 40° 10' N. latitude and 34° 27' N. latitude; 60 fm south of 34° 27' N. latitude) (Alternative 4b).

North of 42° N. latitude – under Alternative 4a and 4b, a 20 fm depth restriction would be implemented statewide and landings would have to be reduced by 39 percent relative to the No Action Alternative. Furthermore, not only would landings be drastically reduced, but fishing area would be reduced; the RCA north of 43° N. latitude may have to be moved from 30 fm to 20 fm. (There is no difference between the 4a and 4b sub-alternatives north of 42°)

South of 42° N. latitude – under Alternative 4a, a 20 fm depth restriction would be implemented statewide in addition to a 20 percent reduction in landed catch for all species compared to No Action. The restrictive RCA statewide is necessary to reduce canary catch that occur south of 40° 10' N latitude.

Although few canary catches have been documented south of 34° 27' N. latitude, the overfished species impact projection model for the nearshore fishery is unable to differentiate canary rockfish mortality occurring north and south of 34° 27' N. latitude. As a result, the entire RCA south of 40° 10' N. latitude would have to be restricted to 20 fm. Since the fishery south of 34° 27' N. latitude is allowed to operate out to depths of 60 fm, this would represent a tremendous loss of fishing grounds and could effectively eliminate the fishery in this area because many of the species tend to be found at the deeper depths in this area.

Under Alternative 4b, maintaining the No Action RCA configuration would require reductions in landed catch of 45 percent and would effectively eliminate this fishery because the operational costs would be greater than any potential profits.

Two alternative catch sharing relationships analyzed the tradeoffs of varying overfished species allocations compared to No Action (Table 2-27). An equal catch sharing (50:50) and a reverse status quo (i.e., reverse the percentages for each species) were used to bracket the upper and lower ranges of landings and corresponding management measures. Table 2-28 summarizes the proposed management measures under the range of allocations.

Under the equal sharing scenario, Oregon would receive more canary and less yelloweye compared to status quo catch sharing. The RCA configuration and landings under the equal sharing would be the same as discussed under Alternative 1a (i.e., 20 fm and a 14 percent reduction in landing relative to No Action). Under this same scenario, California would be afforded less canary rockfish compared to status quo, but more yelloweye rockfish. The RCA configuration and landings under this scenario would be the same as discussed under Alternative 1 (there is no difference in the non-trawl RCA configurations for California under the Alternative 1 sub-alternatives).

Under the reverse status quo, Oregon would receive more canary rockfish, yet substantially less yelloweye rockfish, compared to status quo and California would receive substantially more yelloweye rockfish and less canary rockfish. The RCA configuration and landings for Oregon would be the same as Alternative 1a (i.e., 20 fm and a 14 percent reduction in landing relative to No Action).

Under this same scenario, California would receive substantially more yelloweye rockfish and less canary rockfish compared to status quo. The RCA configuration would be similar to No Action, except that the area between 40º 10' N. latitude to 34º 27' N. latitude would be modified to 20 fm. In addition, a 70 percent reduction in landed catch would be necessary to stay within the canary allocation.

Table 2-27. Alternative 4: Allocations of canary and yelloweye rockfish for 2013-14 under alternate nearshore catch sharing scenarios.

		Status Quo	Equal Sharing	Reverse Status Quo
OR	Canary	0.5	1.0	1.5
	Yelloweye	0.87	0.6	0.33
CA	Canary	1.5	1.0	0.5
	Yelloweye	0.33	0.6	0.87

Table 2-28. Alternative 4: Description of management measures by area under alternate catch sharing scenarios.

		Catch Sharing		
	AREA	**Status Quo**	**Equal Sharing**	**Reverse Status Quo**
OR	north of 43º	(Alt a): RCA=20 fm; Landings=40% reduction (Alt b): same as Alt a	same as Alt 1	same as Alt 1
	42º-43º			
CA	42º - 40º10'	(Alt a): Landings=45% reduction (Alt b): Landings=20% reduction	RCA=20 fm; Landings=50% reduction	RCA=20 fm; Landings=70% reduction
	40º10' to 34º27'	(Alt a): Landings=45% reduction (Alt b): RCA=20 fm; Landings=20% reduction	RCA=20 fm; Landings=50% reduction	RCA=20 fm; Landings=70% reduction
	south of 34º27'	(Alt a): Landings=45% reduction (Alt b): RCA=20 fm; Landings=20% reduction	RCA=60 fm; Landings=50% reduction	RCA=60 fm; Landings=70% reduction

Recreational

Oregon

Several modifications to Oregon recreational management measures under Alterative 4 are proposed to stay within the lower canary rockfish ACL and allocations (Table 2-26).

Groundfish Seasons and Area Restrictions

Under Alternative 4, the Oregon recreational groundfish fishery should be able to operate a year round fishery with further depth restrictions (25 or 20 fathoms) than are proposed under the No Action Alternative. The Oregon recreational groundfish fishery could be somewhat less restricted (30 fathoms instead of 25 or 20 fathoms) if the recreational Pacific halibut fishery were cancelled.

Depth management is the main tool used for controlling canary and yelloweye rockfish catch in the Oregon recreational fishery. Two options are shown under Integrated Alternative 4: a year round recreational groundfish fishery restricted to inside of 20 fm for the entire year and a year round recreational groundfish fishery restricted to inside of 30 fm year round but with the Pacific halibut fishery cancelled (Figure 2-10). Both alternatives (4A and 4B) are more restrictive than the 2011-2012 Oregon recreational groundfish season under the No Action alternative. The options in the figure below may be refined in the Final EIS based on public comment or Council action, if modifications to the season and area restrictions presented below are available that would control canary and yelloweye mortality in a similar manner.

Alt.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SQ	All depth			40 fm						All depth		
4A	20 fm											
4B	30 fm --No Halibut											

Figure 2-10. Alternatives for the Oregon recreational fishery season in 2013-14 under Integrated Alternative 4.

Area Restriction Alternatives

No changes to the boundary of the Stonewall Bank YRCA would occur from those listed in the No-Action Alternative under Integrated Alternative 4, as the YRCA is a yelloweye rockfish savings area and has little effect on canary rockfish catch.

Groundfish Bag Limits and Size Limits

Under Integrated Alternative 4, the No-Action alternative bag limits for marine fish, lingcod, and flatfish would remain in place (Figure 2-11) including no retention of yelloweye or canary rockfish at any time or depth. These daily-bag-limits provide the flexibility to make necessary adjustments through the yearly state process, reflecting the progression of the current year's fishery. The state process would likely start off each season with reduced marine and lingcod daily bag limits and may increase or further reduced them inseason depending on the progression of the fishery relative to the impact on species with harvest targets/guidelines and state landing caps.

The Oregon shorebased recreational fishery would be managed for a year round season within the canary and yelloweye rockfish HGs. Also, fishing for, take, retention and possession of sanddabs and "other flatfishes", excluding Pacific halibut could be legal year round and open shoreward of 40 fathoms during any period the groundfish fishery has any depth restrictions. The flatfish fishery would not have any depth restrictions when the groundfish fishery has no depth restrictions (i.e., 40, 30, 25 and 20 fm lines).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Marine Bag Limit [1]	Ten (10)			1 Fish Cabezon Sub-Bag [2]						Ten (10)		
Lingcod Bag Limit	Three (3)											
Flatfish Bag Limit [3]	Twenty Five (25)											

1 Marine bag limit includes all species other than lingcod, salmon, steelhead, Pacific halibut, flatfish, surfperch, sturgeon, striped bass, pelagic tuna and mackerel species, and bait fish such as herring, anchovy, sardine, and smelt

2 From April 1 through September 30, the marine bag limit is Ten (10) fish per day, of which no more than one (1) may be cabezon

3 Flounders, soles, sanddabs, turbots and halibuts except Pacific halibut

Figure 2-11. Oregon recreational groundfish season in 2013-14 under Integrate Alternative 4.

Pacific Halibut Seasons

Under Alternative 4A, the Pacific halibut fishery would be able to proceed as under the No-Action alternative, however the groundfish fishery would have further depth restrictions than the No-Action Alternative. Under Alternative 4B, the groundfish fishery would be somewhat less restricted than under Alternative 4A; however the Pacific halibut fishery would not be allowed. Since 2009, only sablefish and Pacific cod may be retained in the Pacific halibut fishery at any depth in the area north of Humbug Mountain, Oregon. It is expected that groundfish retention in the all-depth Pacific halibut fishery would be similarly limited in 2013 and 2014, if the halibut fishery were allowed to proceed.

Additional Management Measures Analyzed

No additional management measures were analyzed for the Oregon recreational fisheries. Status quo management measures (bag limits, depth restrictions, etc.) would provide the basis for keeping recreational mortality of overfished species within sector specific harvest guidelines for 2013-2014.

Inseason Management Tools

The same inseason management tools detailed under No Action would be available under Alternative 4.

California

Under Alternative 4, the allocations to the California recreational fishery are the same or higher than the No Action alternative except for canary rockfish, which is lower (Table 2-10 and Table 2-26). Management measures under this alternative are summarized below. The proposed groundfish season structure and depth constraints listed out by recreational management area can be seen in Figure 2-12, Figure 2-13, Figure 2-14, and Figure 2-15.

Groundfish Seasons and Area Restrictions:

Under this alternative, the tradeoffs between different season lengths and depth restrictions were explored (Alternatives 4a and 4b). Under Alternative 4a, longer seasons and more restrictive depth constraints were examined; whereas Alternative b explored shorter seasons and less restrictive depths.

Under Alternative 4a, the depth restrictions would be more constraining in most management areas compared to the No Action alternative, except for the northern management areas (Figure 2-12, Figure 2-13). Due to the low canary rockfish encounter rates, the season length in the Northern and Mendocino Management Areas could be extended under this alternative; the depth restrictions would decrease as well. The San Francisco and Central Management Areas would see a decrease in season length and a significant increase in the depth restriction compared to the No Action Alternative. The San Francisco and Central Management Areas have historically seen the highest canary rockfish encounters. The Southern Management would see an increase in the depth restriction.

2013												
Management Area	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Northern	Closed				May 1 – Oct 30 < 20fm						Closed	
Mendocino	Closed				May 1 – Oct 30 < 20fm						Closed	
San Francisco	Closed					June 1 – Nov 30 < 20fm						C
Central	Closed					June 1 – Nov 30 < 20fm						C
Southern	Closed		Mar 1 – Dec 31 <40fm									

Figure 2-12. Alternative 4 (Alternative a): California recreational groundfish season structure and depth constraints for 2013.

2014												
Management Area	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Northern	Closed				May 1 – Nov 30 <20fm							C
Mendocino	Closed				May 1 – Nov 30 <20fm							C
San Francisco	Closed					June 1 – Nov 30 < 20fm						C
Central	Closed					June 1 – Dec 31 < 20fm						
Southern	Closed		March 1 – Dec 31 < 40fm									

Figure 2-13. Alternative 4 (Alternative a): California recreational groundfish season structure and depth constraints for 2014.

Under Alternative 4b, the season lengths would be shorter in most management areas compared to the No Action alternative, except for the Southern Management Area (Figure 2-14; Figure 2-15). In addition to season length, the Southern and Central Management Areas would see an increase in the depth restrictions as well. Due to the low canary encounter rates, the depth restrictions would decrease in the Northern and Mendocino Management Areas under this alternative. The San Francisco and Central Management Areas would see a significant decrease in season length compared to the No Action Alternative. The San Francisco and Central Management Areas have historically seen the highest canary rockfish encounters. The Southern Management would see an increase in the depth restriction.

2013												
Management Area	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Northern	Closed					Jun 1-Aug 31 <30fm			Closed			
Mendocino	Closed					Jun 1-Aug 31 <30fm			Closed			
San Francisco	Closed				May 15 - Aug 31 <30fm				Closed			
Central	Closed				May 15 - Aug 31 <30fm				Closed			
Southern	Closed		Mar 1 – Dec 31 < 40fm									

Figure 2-14. Alternative 4 (Alternative b): California recreational groundfish season structure and depth constraints for 2013.

2014												
Management Area	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Northern	Closed					Jun 1-Aug 31<30fm			Closed			
Mendocino	Closed					Jun 1-Aug 31<30fm			Closed			
San Francisco	Closed				May 1-Aug 31<30fm				Closed			
Central	Closed				May 1-Aug 31<30fm				Closed			
Southern	Closed		March 1 – Dec 31 <40fm									

Figure 2-15. Alternative 4 (Alternative b): California recreational groundfish season structure and depth constraints for 2014.

Similar to No Action alternative, the YRCAs would be available under this alternative and could be implemented inseason if catches are projected to exceed harvest guidelines.

Groundfish Bag Limits and Size Limits:
Under Alternative 4, there are no changes to the groundfish bag limits or size limits except for the following:

Bocaccio – Under Alternatives a and b, the status quo sub-bag limit for bocaccio is two fish, with a minimum size of ten inches. CDFG is proposing to increase the sub-bag limit from two fish to three fish. The increase in the sub-bag limit is expected to increase bocaccio mortality in the California recreational fishery by 11.5 percent. CDFG is also proposing to remove the minimum size limit of ten inches. Removing the size limit is expected to increase bocaccio mortality by 1.0 percent. The proposed changes are not mutually exclusive, and the mortality estimates are additive. Currently bocaccio is the only rockfish species in the recreational sector that has a size limit and removing the size limit would reduce regulatory complexity. Mortality of other overfished species, as a result of these management measures, is not expected to increase.

Greenlings – Under Alternatives 4a and 4b, the status quo sub-bag limit for greenlings is two fish. CDFG is proposing to increase the sub-bag limit to 10 fish to maintain consistency with state regulations, which were modified to reflect the increased contribution to the Other Fish complex analyzed in the 2011-12 FEIS. By increasing the sub-bag limit, the estimated take would be approximately 52,500 pounds. The Department is not proposing any changes to the minimum size restriction. Mortality of other overfished species, as a result of these management measures, is not expected to increase.

Additional Management Measures Analyzed:

Shelf Rockfish Retention in Cowcod Conservation Area (CCA)
Under the Alternative 4a and 4b, CDFG is requesting a modification to existing regulations governing recreational groundfish fishing within the CCA to allow retention of shelf rockfish taken during the open season for groundfish within the existing depth constraint of 20 fm. No changes to non-groundfish recreational fisheries or corresponding management measures are being proposed. Under this proposal, if the season for groundfish is open, anglers could retain shelf rockfish, including bocaccio. Removing the prohibition on shelf rockfish retention, including bocaccio, in depths of 20 fm or less in the CCA when fishing for rockfish is open, is intended to reduce bycatch that currently occurs when shelf rockfish are caught while in pursuit of other species within the 10 fish rockfish, cabezon, and greenling (RCG) bag limit. Under the proposed action, recreational anglers would be expected to meet their RCG bag limit sooner which would reduce bycatch of shelf rockfish and may reduce encounters with overfished species. Also, this change would make regulations more consistent with retention regulations outside the CCA.

Increased mortality of shelf rockfish is expected to be minimal and can be accommodated within the recreational harvest guideline with a minimal risk of exceeding the ACLs. No ACLs for target or overfished species are expected to be exceeded as a result of this action.

Inseason Management Response:
Similar to the No Action alternative, inseason management response would include closing one or more recreational groundfish management areas for boat based anglers, restricting recreational fishery seasons, and/or modifying depth restrictions.

2.4.6 Alternative 5

Alternative 5 incorporates the best available scientific information from stock assessment projections described in Section 2.1. The non-overfished species ACLs and allocations under Alternative 5 are detailed in Section 2.2.

Under Alternative 5 the target year for canary rockfish would be changed from 2027 to 2032, 5 years beyond the re-estimated $T_{F=0}$. The target year for POP would be changed to 2046, the same as under Alternative 3, and 3 years beyond $T_{F=0}$. (As noted above, the target year for POP and canary rockfish must be adjusted from their current values because they are unlikely to be met even with zero harvest.) This alternative contrasts with Alternative 4, which has the earliest target year considered for canary (and lowest ACL) and the latest target year considered for POP (and highest ACL). This alternative would require both the harvest control rule and the Ttarget in the current rebuilding plan to be revised for canary and POP. Table 2-29 summarizes the key features of the rebuilding plans under this alternative, compared to a $T_{F=0}$ scenario and the Council preferred alternative, Alternative 1.

Taken together, Alternatives 4 and 5 contrast the differential effects of alternative rebuilding strategies for these two species, because their distribution, habitat preferences, and vulnerability to fishing gear mean that bycatch levels vary across fishery sectors or participants.

Table 2-29. Alternative 5. Key rebuilding features of Alternative 5 compared to a $T_{F=0}$ scenario and Alternative 1, the Council's preferred alternative.

Stock	Current Ttarget	Current SPR or Harvest Control Rule	PPA Ttarget	ACL Alt.	ACLs (mt) 2013	ACLs (mt) 2014	SPR or Harvest Control Rule	Median Time to Rebuild	Rebuilding Duration Beyond T@F=0 (yrs.)	Prob. of Rebuilding by Ttarget	Prob. of Rebuilding by Tmax	Current Tmax	Re-est. Tmax
Canary	2027	88.7%	2030		0	0	100%	2028	0	48.2%	75.0%	2046	2050
				1	116	119	88.7%	2030	2	34.4%	75.0%		
				5	216	220	80.3%	2032	4	27.9%	74.9%		
POP	2020	86.4%	2051		0	0	100%	2043	0	25.0%	85.5%	2045	2071
				5	74	76	92.9%	2046	3	25.0%	79.0%		
				1	150	153	86.4%	2051	8	25.0%	73.0%		

2.4.6.1 Alternative 5 Allocation Scheme

Table 2-30 summarizes the canary and POP ACLs and allocations that influence the projected amount of target species attained and the recommended management measures under this alternative. The remaining overfished species ACLs and allocations are the same as in Table 2-16

Table 2-30. Alternative 5. Overfished species ACLs and allocations for 2013-2014.

Alternative 5. 2013		
Sector	**Canary**	**POP**
ACL	216	74
Total Set-Asides	16.8	12.9
Fishery Harvest Guideline	199.2	61.1
Trawl Allocation	106.5	58.4
Shorebased IFQ	80.9	41
At-Sea Whiting	25.6	17.4
Catcher Processor	15.0	10.2
Mothership	10.6	7.2
Non-Trawl Allocation	93.1	3.0
Non-Nearshore	7.2	
Nearshore Fixed Gear	12.5	
Washington Recreational [a/]	6.2	
Oregon Recreational [a/]	21.9	
California Recreational [a/]	45.3	
a/ Values represent HGs.		

Alternative 5. 2014		
Sector	**Canary**	**POP**
ACL	220	76
Total Set-Asides	16.8	12.9
Fishery Harvest Guideline	203.2	63.1
Trawl Allocation	108.60	60.4
Shorebased IFQ	82.5	43
At-Sea Whiting	26.1	17.4
Catcher Processor	15.3	10.2
Mothership	10.8	7.2
Non-Trawl Allocation	94.9	3
Non-Nearshore	7.3	
Nearshore Fixed Gear	12.7	
Washington Recreational [a/]	6.4	
Oregon Recreational [a/]	22.3	
California Recreational [a/]	46.2	
a/ Values represent HGs.		

2.4.6.2 Alternative 5 Management Measures

The following bullet points summarize management measures by sector under Alternative 5. If adopted by the Council, new management measures discussed under Alternative 1 and in Section 2.3, would be implemented.

- The shorebased IFQ fishery would operate under the same measures described under Alternative 1.
- At-sea whiting co-ops would operate under the same measures described under Alternative 1.
- Tribal fisheries would operate under the same management measures as No Action.
- The non-nearshore fixed gear fishery operates under the same management measures described under Alternative 1.
- The nearshore fixed gear fishery could operate under the management measures described under Alternatives 1a or 1b.
- Washington and Oregon recreational fisheries would operate under the same management measures as No Action.
- California recreational fisheries would operate under the same measures described under Alternative 1.

2.4.7 Alternative 6

Alternative 6 incorporates the best available scientific information from stock assessment projections described in Section 2.1. The non-overfished species ACLs and allocations under the Alternative 6 are detailed in Section 2.2.

Under Alternative 6 the canary rockfish target year is adjusted to the same year as under Alternative 2, 2029, or 1 year after the re-estimated $T_{F=0}$ (and 2 years later than the current target year). The target year for POP is adjusted from the current (No Action) value of 2020 to 2057, 14 years later than the re-estimated $T_{F=0}$. (As noted above, the target year for POP and canary rockfish must be adjusted from their current values because they are unlikely to be met even with zero harvest.) This alternative would require both the harvest control rule and the Ttarget in the current rebuilding plan to be revised for canary and POP. Table 2-32 summarizes the key features of the rebuilding plans under this alternative, compared to a $T_{F=0}$ scenario and the Council preferred alternative, Alternative 1.

Alternative 6 demonstrates the tradeoffs of combining a relatively high ACL for POP (although less than Alternative 4, the highest) with an ACL for canary that is similar to No Action.

2.4.7.1 Alternative 6 Allocation Scheme

Table 2-31 summarizes the canary and POP ACLs and allocations that influence the projected amount of target species attained and the recommended management measures under this alternative. The remaining overfished species ACLs and allocations are the same as in Table 2-16.

Table 2-31. Alternative 6. Overfished species ACLs and allocations for 2013-2014.

Alternative 6. 2013		
Sector	**Canary**	**POP**
ACL	101	222
Total Set-Asides	16.8	12.9
Fishery Harvest Guideline	84.2	209.1
Trawl Allocation	45	198.6
Shorebased IFQ	34.2	179
At-Sea Whiting	10.8	19.6
Catcher Processor	6.3	11.5
Mothership	4.5	8.1
Non-Trawl Allocation	39.4	10.0
Non-Nearshore	3	
Nearshore Fixed Gear	5.3	
Washington Recreational [a/]	2.6	
Oregon Recreational [a/]	9.3	
California Recreational [a/]	19.2	
a/ Values represent HGs.		

Alternative 6. 2014		
Sector	**Canary**	**POP**
ACL	104	226
Total Set-Asides	16.8	12.9
Fishery Harvest Guideline	87.2	213.1
Trawl Allocation	46.70	202
Shorebased IFQ	35.5	182
At-Sea Whiting	11.2	20
Catcher Processor	6.6	11.7
Mothership	4.6	8.3
Non-Trawl Allocation	40.8	11
Non-Nearshore	3.1	
Nearshore Fixed Gear	5.5	
Washington Recreational [a/]	2.7	
Oregon Recreational [a/]	9.6	
California Recreational [a/]	19.9	
a/ Values represent HGs.		

Table 2-32. Alternative 6. Key rebuilding features of Alternative 6 compared to a $T_{F=0}$ scenario and Alternative 1, the Council's preferred alternative.

Stock	Current Ttarget	Current SPR or Harvest Control Rule	PPA Ttarget	ACL Alt.	ACLs (mt)		SPR or Harvest Control Rule	Median Time to Rebuild	Rebuilding Duration Beyond T@F=0 (yrs.)	Prob. of Rebuilding by Ttarget	Prob. of Rebuilding by Tmax	Current Tmax	Re-est. Tmax
					2013	2014							
Canary	2027	88.7%	2030		0	0	100%	2028	0	48.2%	75.0%	2046	2050
				6	101	104	90.0%	2029	1	36.4%	75.0%		
				1	116	119	88.7%	2030	2	34.4%	75.0%		
POP	2020	86.4%	2051		0	0	100%	2043	0	25.0%	85.5%	2045	2071
				1	150	153	86.4%	2051	8	25.0%	73.0%		
				6	222	226	80.9%	2057	14	25.0%	NA		

2.4.7.2 Alternative 6 Management Measures

The following bullet points summarize management measures by sector under Alternative 6. If adopted by the Council, new management measures discussed under Alternative 1, would be implemented.

- The shorebased IFQ fishery would operate under the same measures described under Alternative 1.
- At-sea whiting co-ops would operate under the same measures described under Alternative 1.
- Tribal fisheries would operate under the same management measures as No Action.
- The non-nearshore fixed gear fishery operates under the same management measures described under Alternative 1.
- The nearshore fixed gear fishery could operate under the management measures described under Alternatives 1a or 1b.
- Washington and Oregon recreational fisheries would operate under the same management measures as No Action.
- California recreational fisheries would operate under the same measures described under Alternative 1.

2.4.8 Alternative 7

Alternative 7 incorporates the best available scientific information from stock assessment projections described in Section 2.1. The non-overfished species ACLs and allocations under Alternative 6 are detailed in Section 2.2.

Under Alternative 7 the canary rockfish target year would be changed by 3 years (2027 to 2030), 2 years after TF=0. The POP target year is the same as under Alternative 6 (2057). (As noted above, the target year for POP and canary rockfish must be adjusted from their current values because they are unlikely to be met even with zero harvest.) This alternative would require both the harvest control rule and the Ttarget in the current rebuilding plan to be revised for canary and POP. Table 2-33 summarizes the key features of the rebuilding plans under this alternative, compared to a $T_{F=0}$ scenario and the Council preferred alternative, Alternative 1.

Table 2-33. Alternative 7. Key rebuilding features of Alternative 7 compared to a $T_{F=0}$ scenario and Alternative 1, the Council's preferred alternative.

Stock	Current Ttarget	Current SPR or Harvest Control Rule	PPA Ttarget	Int. Alt.	ACLs (mt)		SPR or Harvest Control Rule	Median Time to Rebuild	Rebuilding Duration Beyond T@F=0 (yrs.)	Prob. of Rebuilding by Ttarget	Prob. of Rebuilding by Tmax	Current Tmax	Re-est. Tmax
					2013	2014							
Canary	2027	88.7%	2030		0	0	100%	2028	0	48.2%	75.0%	2046	2050
				1	116	119	88.7%	2030	2	34.4%	75.0%		
				7	147	151	85.9%	2030	2	31.7%	75.0%		
POP	2020	86.4%	2051		0	0	100%	2043	0	25.0%	85.5%	2045	2071
				1	150	153	86.4%	2051	8	25.0%	73.0%		
				7	222	226	80.9%	2057	14	25.0%	NA		

2.4.8.1 Alternative 7 Allocation Scheme

Table 2-34 summarizes the canary and POP ACLs and allocations that influence the projected amount of target species attained and the recommended management measures under this alternative. The remaining overfished species ACLs and allocations are the same as in Table 2-16.

Table 2-34. Alternative 7. Overfished species ACLs and allocations for 2013-2014.

Alternative 7. 2013		
Sector	**Canary**	**POP**
ACL	147	222
Total Set-Asides	16.8	12.9
Fishery Harvest Guideline	130.2	209.1
Trawl Allocation	69.6	198.6
Shorebased IFQ	52.9	179
At-Sea Whiting	16.7	19.6
Catcher Processor	9.8	11.5
Mothership	6.9	8.1
Non-Trawl Allocation	60.9	10.0
Non-Nearshore	4.7	
Nearshore Fixed Gear	8.2	
Washington Recreational [a/]	4.1	
Oregon Recreational [a/]	14.3	
California Recreational [a/]	29.6	
a/ Values represent HGs.		

Alternative 7. 2014		
Sector	**Canary**	**POP**
ACL	151	226
Total Set-Asides	16.8	12.9
Fishery Harvest Guideline	134.2	213.1
Trawl Allocation	71.80	202
Shorebased IFQ	54.5	182
At-Sea Whiting	17.3	20
Catcher Processor	10.1	11.7
Mothership	7.2	8.3
Non-Trawl Allocation	62.6	11
Non-Nearshore	4.8	
Nearshore Fixed Gear	8.4	
Washington Recreational [a/]	4.2	
Oregon Recreational [a/]	14.7	
California Recreational [a/]	30.5	
a/ Values represent HGs which may be adjusted within the non-trawl allocation.		

2.4.8.2 Alternative 7 Management Measures

The following bullet points summarize management measures by sector under Alternative 7. If adopted by the Council, new management measures discussed under Alternative 1, would be implemented.

- The shorebased IFQ fishery would operate under the same measures described under Alternative 1.
- At-sea whiting co-ops would operate under the same measures described under Alternative 1.
- Tribal fisheries would operate under the same management measures as No Action.
- The non-nearshore fixed gear fishery operates under the same management measures described under Alternative 1.
- The nearshore fixed gear fishery could operate under the management measures described under Alternatives 1a or 1b.
- Washington and Oregon recreational fisheries would operate under the same management measures as No Action.
- California recreational fisheries would operate under the same measures described under Alternative 1.

CHAPTER 4 IMPACTS OF THE ALTERNATIVES

Chapter 4 examines the environmental and economic consequences that are expected to result from adoption of each of the alternatives. Section 4.1 addresses the biological consequences of ACL alternatives, Section 4.2 addresses the biological consequences of the integrated alternatives, and Section 4.3 addresses the socioeconomic consequences. The effects of each alternative are compared to the environmental baseline (No Action) in order to assess the effects of each alternative. Broader issues such as the cumulative effects of the Pacific Coast groundfish fishery are addressed in Section 4.4.

4.1 Biological Consequences

Section 4.1 first considers the consequences of the alternatives on the biological environment. Section 4.1.1 considers the biological effects on all the groundfish stocks. The OFLs and ABCs for all groundfish stocks and stock complexes are addressed in Section 4.1.1.1. The productivity and susceptibility assessment of stocks to overfishing is discussed in Section 4.1.1.2. The biological consequences of ACLs and associated management measures as they affect overfished groundfish species are discussed Section 4.1.1.3. ACL alternatives considered for non-overfished species managed with stock-specific harvest specifications are described in Section 4.1.1.4. Effects of the alternatives on groundfish species managed in stock complexes are discussed in Section 4.1.1.5. The effects of the integrated alternatives on non-groundfish species, protected species, essential fish habitat, and the fishery ecosystem are discussed in Section 4.1.2 through Section 4.1.5.

4.1.1 Effects on Groundfish Species

As discussed in Chapter 2, a holistic or integrated approach was taken in the development of seven alternatives in this EIS. Each alternative includes harvest specifications for all stocks managed under the Pacific Coast groundfish FMP plus a suite of management measures that are intended to keep the fishing mortality of all groundfish stocks within the those specifications. Because the OFL and ABC specifications do not vary between the integrated alternatives, the biological consequences of these parameters are addressed first by assessing the risk of overfishing relative to the proposed OFLs and ABCs for all groundfish stocks and stock complexes using the best available scientific information (Section 4.1.1.1). Alternative P* and ABC values are discussed in relation to the risk of overfishing.

The ACLs for only two of the overfished species varies between the integrated alternatives, as do the management measures or AMs necessary to constrain the catch of all species, including overfished species to the specified ACLs. The differences in the biological effects between the integrated alternatives are primarily related to the different overfished species ACLs (detailed in Section 2.1.3.1). For most non-overfished groundfish stocks and stock complexes, a single ACL for each stock was carried forward into the integrated alternatives. However, alternative ACLs for two non-overfished species (i.e., longnose skate and widow rockfish) were considered. The biological consequences of the alternative ACLs for individual non-overfished species are further addressed in Section 4.1.1.4. The biological consequences of the alternative ACLs for non-overfished species that are included within a complex of stocks are discussed in Section 4.1.1.5. Relative to the integrated alternatives, this EIS considers the effect of the groundfish harvest on the groundfish species in the FMP with respect to two biological indicators of resource health (stock productivity and fishing mortality). The effects associated with two other biological indicators, genetic structure and prey availability, are not differentiated between ACL alternatives; such effects are considered cumulative. In the case where these indicators are important attributes in deciding a stock's ACL, they are directly discussed (e.g., prey availability as a consideration in deciding the shortbelly rockfish ACL).

Stock Productivity

- Are fishing practices likely to change the reproductive success of groundfish stocks?
- Are fishing operations likely to interfere with or disturb spawning and reproductive behavior or juvenile survival rates such that it raises concern about a stocks ability to maintain its biomass at or above B_{MSY}?

Fishing Mortality

- Are harvest levels likely to result in overfishing?
- For healthy and precautionary zone stocks, are harvest levels likely to remove a portion of the spawning population from the stock such that the stock is likely to become overfished?
- For overfished stocks, are harvest levels likely to rebuild the stock in as short as time possible?

Genetic structure

- Are changes in the time and location of fishing likely to result in changes to the genetic structure of the groundfish populations?
- Will fishing on particular substocks or targeting fish with certain characteristics (e.g., large size) alter the genetic structure of the population over time?

Prey availability

- Is harvesting likely to change the availability of groundfish that are prey species such that it could affect the survival of species that prey on them?

4.1.1.1 OFLs and ABCs for All Groundfish Stocks and Stock Complexes

A primary goal of the groundfish FMP is to rebuild to or maintain spawning stock biomass of each groundfish stock and stock complex at or above B_{MSY}. For the non-overfished groundfish stocks, this EIS considers the projected fishing mortality relative to vulnerability to overfishing and becoming overfished. For overfished stocks, this EIS considered the projected fishing mortality relative to the time necessary to rebuild the stock to B_{MSY}.

The OFLs define the point above which overfishing occurs on a stock. The ABC is a reduction from the OFL to account for scientific uncertainty in the estimate of OFL. The ACL which is set at the ABC level or lower defines the upper limits on allowable total catch (retained plus discarded catch) for a fishing year. The ACLs are set for each species or species complex in the fishery, including overfished species, non-overfished target species, and non-target species. The management measures developed for each integrated alternative are structured such that the projected total catch, based on the best available data, do not exceed the ACLs for any stock or stock complex.

Overfishing occurs whenever a stock or stock complex is subjected to a rate or level of fishing mortality that is above the stock's capacity to produce MSY (an estimate of the largest average annual catch or yield that can be taken over a significant period of time under prevailing ecological and environmental conditions). This level is also referred to as MFMT in the FMP. Under FMP provisions, OFLs for all species will be set based on the MFMT. None of the 2013 or 2014 OFLs would be set higher than the MFMT or its proxy applied to a stock's abundance. The corresponding ABCs will be set below the OFLs, and the ACLs will be set at or below the ABCs. The groundfish management measures, including those in the proposed rule, are designed to keep harvest levels within specified ACLs.

The OFLs projected from older stock assessments are biased low (i.e., underestimated) since the projections assume annual removals of the entire projected OFL when actual removals are often much less. For some stocks, such as overfished species and those that reside almost entirely on the continental shelf within the core of the RCAs, these biased OFLs have little impact on fisheries since ACLs are usually much lower (e.g., overfished rockfish) or the ACL cannot be effectively attained (e.g., shelf species). However, this bias can effectively limit ACL options and directly affect fisheries for some species. For example, OFLs for arrowtooth flounder and English sole are projected from older assessments and the biased OFLs are significantly lower than the No Action 2012 OFLs for these species. This is due to the fact that a significant portion of the assessed spawning biomass for both stocks is comprised of a strong 1999 year class which has a diminished influence on the projected 2013 biomass since these are fast growing stocks with high natural mortality rates. Assuming the entire OFL is removed each year when projecting 2013 and 2014 OFLs therefore has a significant effect on these two stocks in particular in that the calculated OFLs, ABCs, and ACLs are less than they would be if actual total mortalities updated through 2010[1] were used in the projections. The SSC has noted this bias and intends to develop new OFL projection methodologies in time for the next assessment and management cycle. The effect of this bias on 2013 and 2014 OFLs is discussed below for those stocks where there is a higher potential of directly affecting ACLs and fisheries.

As discussed in Chapter 2, the amount by which OFL was reduced to get the ABC for each stock was determined based on the SSC's recommended sigma value and the Council's choice of overfishing risk policy, or P*. Alternative P* values and the associated reduction values for the SSC's recommended sigma values are described in Section 2.1.2. Lower P* values are associated with larger reductions from OFL and correspondingly smaller ABC values, and thus a lower risk of the catch of a stock exceeding the "true" OFL, or the OFL which would be determined but for scientific uncertainty regarding that value. However, as will be described in subsequent sections, the projected impacts of the integrated alternatives on the non-overfished stocks are in general significantly lower than the ABCs or the ACLs for these stocks, because of the management measures necessary to keep the catch of the overfished species below their rebuilding ACLs. Therefore, in general, the practical impact of the integrated alternatives with respect to the non-overfished species involves a very low risk of overfishing, and this would be the case even if the ABCs or ACLs for the non-overfished species were higher or lower. An exception to this is the Minor Nearshore Rockfish north complex, which as is discussed later in this document has historically been harvested at levels near its OY.

4.1.1.2 Productivity and Susceptibility Assessment of Stocks to Overfishing

The vulnerability to potential overfishing of a stock to the fishery for each groundfish stock in the FMP was defined as a first step in assisting with two specific tasks set forth in the FMP: 1) to define species

[1] Total mortality estimates of landings plus dead discards (in most cases) are provided by the NWFSC approximately one year after the end of a fishing season. Therefore, total mortality estimates through the 2010 fishing season are available for analysis for most sectors (the exception are the 2011 total mortality estimates for the at-sea whiting and shoreside IFQ sectors are available for analysis).

as either "in the fishery" or as an "ecosystem component" and 2) identify stock complexes. In addition, the vulnerability scores were considered when prioritizing stock assessments, and determining data collection needs.

The Productivity-Susceptibility Assessment (PSA) approach of Patrick et al. (2009) was used to characterize vulnerability and has two components 1) productivity as defined by life histories traits and 2) susceptibility to current fishing practices. Each vulnerability component is comprised of several attributes (10 productivity and 12 susceptibility attributes) and the weighted mean score of all attributes defines the overall productivity and susceptibility score. Table 4-1 includes the vulnerability scores for all species in the FMP relative to the current fishery. Table 4-2 shows the vulnerability scores for currently overfished rockfish species relative to the fishery circa 1998. Scores are presented in two-dimensions, with productivity on the x-axis and susceptibility on the y-axis (Figure 4-1).

- $V \geq 2.2$ indicate species of major concern.
- $2.0 \leq V < 2.2$ indicate species of high concern.
- $1.8 \leq V < 2.0$ indicate species of medium concern.
- $V < 1.8$ indicate species of low concern.

Rockfish and elasmobranches showed the highest vulnerabilities (>2.0), with the deepest-residing members of those groups often the most vulnerable, though there were several species of nearshore rockfish (China, quillback, and copper rockfish) with some of the highest scored vulnerabilities. Flatfishes in general showed the lowest vulnerabilities.

In addition to scoring each productivity and susceptibility attribute, the quality of the data used for each score was also recorded (Table 4-1, Table 4-2, and Figure 4-2). Data quality is scored for each productivity and susceptibility attribute, with the overall data quality score calculated as the weighed mean of all attributes. A scoring scale of 1-5 was used, with the best data score being 5.

Recording the data quality can highlight vulnerability scores that can be improved with additional data or that should be interpreted with caution because of questionable data contribution. Data quality scores can also be used to justify future data collection on particular attributes.

In general, susceptibility was harder to score (lower data quality) than productivity. Flatfishes as a group had the least informed species, but elasmobranches and several rockfish species also showed low quality data informing vulnerability scores (Table 4-1).

PSA analyses are anticipated to be re-done every biennial specifications cycle. Productivity scores are not expected to vary much over time since they are based on life history traits. However, susceptibility scores may vary based on changes in fishing practices and/or management, and an updated understanding of the stock's interaction with the fishery. As susceptibility scores change, so do the vulnerability scores.

Table 4-1. Overall scores and results of the Productivity and Susceptibility Assessment (PSA) ranked from most to least vulnerable to overfishing relative to the current west coast fishery based on the GMT's scoring.

Stock ID	Stock Name	Productivity	Susceptibility	Vulnerability
21	Copper rockfish	1.95	1.60	2.27
67	Rougheye rockfish	1.17	2.33	2.27
72	Shortraker rockfish	1.22	2.38	2.25
20	China rockfish	1.33	2.29	2.23

Stock ID	Stock Name	Productivity	Susceptibility	Vulnerability
58	Quillback rockfish	1.31	2.43	2.22
61	Redstripe rockfish	1.31	2.33	2.16
22	Cowcod	1.25	2.00	2.13
77	Spiny dogfish	1.11	1.98	2.13
10	Bronzespotted rockfish	1.37	2.14	2.12
16	California skate	1.33	2.00	2.12
35	Greenblotched rockfish	1.28	2.24	2.12
2	Aurora rockfish	1.89	2.29	2.10
76	Speckled rockfish	1.33	2.29	2.10
65	Rosethorn rockfish	1.19	2.05	2.09
81	Starry rockfish	1.25	2.14	2.09
7	Blackgill rockfish	1.22	2.08	2.08
84	Tiger rockfish	1.25	2.10	2.06
70	Sharpchin rockfish	1.36	2.24	2.05
86	Vermilion rockfish	1.22	2.02	2.05
87	Widow rockfish	1.31	2.16	2.05
18	Chameleon rockfish	1.39	2.20	2.03
3	Bank rockfish	1.28	1.88	2.02
55	Pink rockfish	1.33	2.14	2.02
60	Redbanded rockfish	1.28	2.05	2.02
74	Silvergray rockfish	1.22	1.95	2.02
75	Soupfin shark	1.11	1.71	2.02
8	Blue rockfish	1.22	2.16	2.01
17	Canary rockfish	1.61	2.43	2.01
43	Leopard shark	1.26	2.00	2.00
88	Yelloweye rockfish	1.22	1.92	2.00
4	Big skate	2.45	2.05	1.99
11	Brown rockfish	1.72	2.08	1.99
26	Dusky rockfish	1.75	1.76	1.99
36	Greenspotted rockfish	1.39	2.14	1.98
30	Flag rockfish	1.83	1.80	1.97
40	Honeycomb rockfish	1.36	2.10	1.97
89	Yellowmouth rockfish	1.61	2.38	1.96
5	Black rockfish	1.21	2.14	1.94
39	Harlequin rockfish	1.31	1.95	1.94
54	Petrale sole	1.70	2.44	1.94
83	Swordspine rockfish	1.33	2.00	1.94
9	Bocaccio	1.28	2.04	1.93
24	Darkblotched rockfish	1.39	2.24	1.92
34	Grass rockfish	1.61	2.29	1.89
66	Rosy rockfish	1.61	2.29	1.89
37	Greenstriped rockfish	1.28	1.76	1.88
90	Yellowtail rockfish	1.33	1.88	1.88
48	Olive rockfish	1.69	2.33	1.87

Stock ID	Stock Name	Productivity	Susceptibility	Vulnerability
79	Squarespot rockfish	1.61	2.24	1.86
51	Pacific grenadier	1.44	1.95	1.82
56	Pinkrose rockfish	1.31	1.67	1.82
78	Splitnose rockfish	1.28	1.60	1.82
47	Mexican rockfish	1.50	2.00	1.80
73	Shortspine thornyhead	1.33	1.68	1.80
82	Stripetail rockfish	1.39	1.81	1.80
63	Rock greenling	1.78	2.29	1.77
33	Gopher rockfish	1.56	2.00	1.76
85	Treefish	1.67	2.10	1.73
59	Ratfish	1.63	2.05	1.72
6	Black-and-yellow rockfish	1.83	1.68	1.70
50	Pacific ocean perch	1.44	1.67	1.69
53	Pacific whiting	2.00	2.36	1.69
13	Cabezon	1.33	2.48	1.68
45	Longnose skate	1.53	1.80	1.68
68	Sablefish	1.61	1.88	1.64
42	Kelp rockfish	1.83	2.12	1.62
41	Kelp greenling	1.83	2.04	1.56
44	Lingcod	1.75	1.92	1.55
25	Dover sole	1.36	2.57	1.54
27	Dwarf-red rockfish	1.06	1.88	1.54
46	Longspine thornyhead	1.47	1.16	1.54
29	Finescale codling	2.45	2.10	1.48
14	Calico rockfish	1.39	2.04	1.46
32	Freckled rockfish	1.80	1.96	1.44
57	Pygmy rockfish	1.78	1.71	1.42
64	Rock sole	1.95	1.95	1.42
15	California scorpionfish	1.28	0.00	1.41
19	Chilipepper	1.83	0.00	1.35
49	Pacific cod	2.11	2.00	1.34
62	Rex sole	2.05	1.86	1.28
31	Flathead sole	2.25	1.92	1.26
38	Halfbanded rockfish	2.00	1.76	1.26
52	Pacific sanddab	2.40	2.10	1.25
23	Curlfin sole	1.72	1.75	1.23
69	Sand sole	2.35	2.05	1.23
1	Arrowtooth flounder	1.33	2.05	1.21
28	English sole	2.30	2.05	1.19
12	Butter sole	1.78	1.76	1.18
71	Shortbelly rockfish	1.94	1.40	1.13
80	Starry flounder	2.15	1.60	1.04

Table 4-2. Retrospective Productivity and Susceptibility Assessment (PSA) vulnerability scores of currently overfished rockfish species ranked from most to least vulnerable to overfishing relative to stock status and the fishery circa 1998 based on the GMT's scoring.

Stock Name	Stock ID	Susceptibility	Vulnerability
Bocaccio	25_H	2.72	2.43
Canary	23_H	2.84	2.52
Cowcod	10_H	2.68	2.57
Darkblotched	51_H	2.76	2.39
POP	92_H	2.32	2.08
Yelloweye	18_H	2.80	2.53

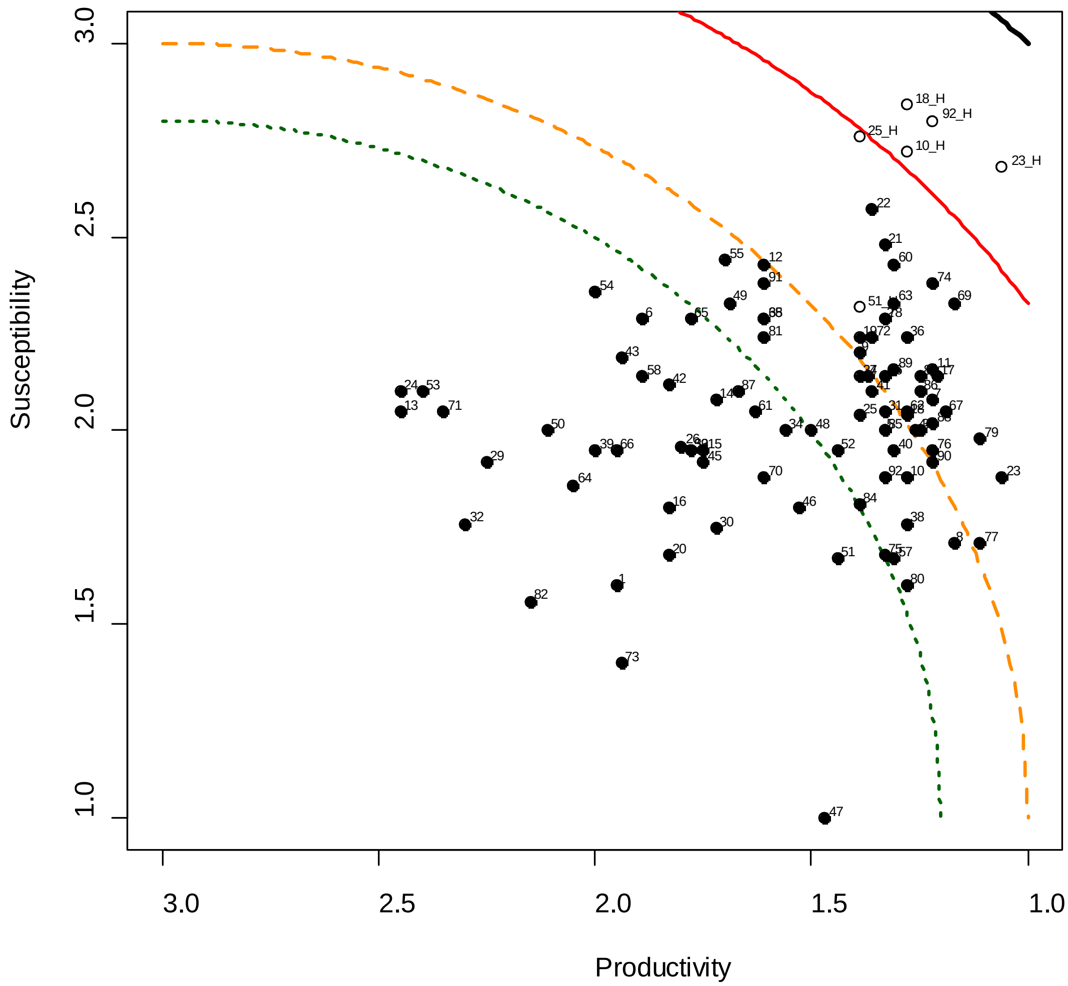


Figure 4-1. Productivity and Susceptibility Analysis (PSA) plot for species in the west coast groundfish FMP. Contours delineate areas of relative vulnerability (V, i.e. distance from the origin), with the highest vulnerability stocks above the solid red line (V = 2.2), high vulnerability above the orange broken line (V=2), medium vulnerability above the green dotted line (V=1.8) and the lowest vulnerability below the green dotted line. The maximum vulnerability (V=2.8) is indicated with the solid black line. Solid circles are based on current PSA scores. Open circles are based on PSA scores circa 1998. Numbers refer to the Stock ID in Table 4-1 and Table 4-2.

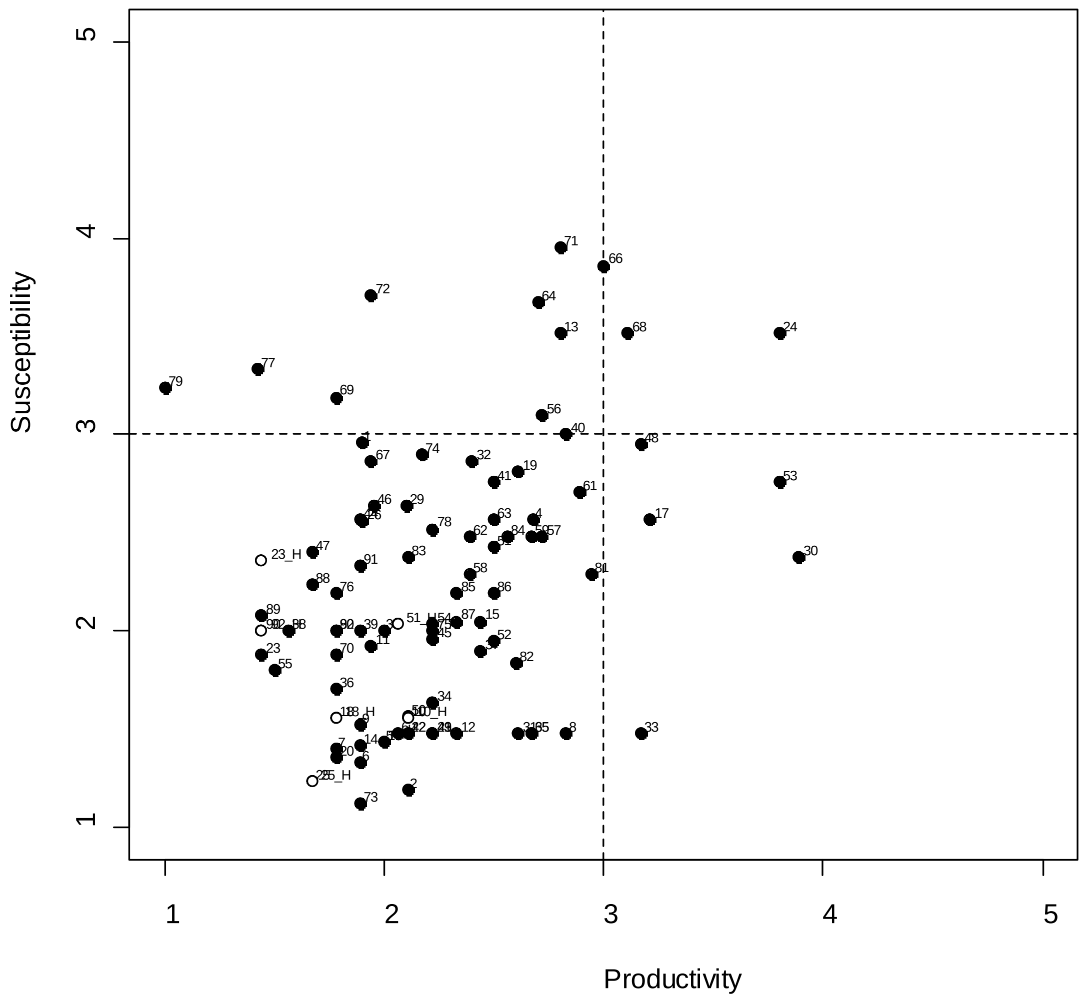


Figure 4-2. Data quality plots for the productivity and susceptibility scores in the PSA for each species (represented numerically in Table 4-1 and Table 4-2) in the west coast groundfish FMP. Higher scores indicate less data quality. Vertical and horizontal lines provide a general guide to relative data quality with values above 3 on either axis considered data poor.

4.1.1.3 Effects on Overfished Species ACL Alternatives and Integrated Alternatives

The following groundfish species have been declared overfished and are currently being managed under rebuilding plans: bocaccio south of 40º10’ N. latitude; canary rockfish; cowcod south of 40º10’ N. latitude; darkblotched rockfish, Pacific ocean perch (POP), petrale sole, and yelloweye rockfish. Widow rockfish was overfished and managed under a rebuilding plan through 2012. However, based on the results of the 2011 assessment, the coastwide widow rockfish has been successfully rebuilt (see Section 4.1.1.4).

Changes to two rebuilding plans, those for canary rockfish and POP, are contemplated based on new assessments indicating the stocks will not likely rebuild in the time specified in their respective rebuilding plans. All rebuilding plans except for those for canary rockfish and POP are proposed to continue into the next management period. The following section provides the analysis and discussion of one ACL alternative for each of the species where rebuilding plan modifications are not proposed (e.g., bocaccio, cowcod, darkblotched, petrale sole, and yelloweye rockfish). Multiple ACL alternatives are analyzed and discussed for canary rockfish and POP since modifications to their respective rebuilding plans are necessary.

The analysis of the integrated alternatives focused on the tradeoffs to fishery sectors from the variation in canary and POP ACL alternatives assuming all other stocks and stock complexes are managed to stay within the preferred ACLs. A few results are evident in the analysis: 1) the analysis of the integrated alternatives only informs the ACL choice for canary rockfish and POP; 2) the allowable total mortality of canary rockfish affects all sectors of the groundfish fishery, while that for POP affects only the northern trawl fishery (both the at-sea whiting sectors and the Shoreside IFQ sector); there are within-trawl (both sector and fleet) effects of alternatively varying the canary and POP ACLs; and 3) differences in non-trawl sector impacts (both projected total mortality and socioeconomic impacts) are due solely to variation in the canary ACL across the integrated alternatives. Given that the information from the analysis of the integrated alternatives is limited, the following discussion of potential biological impacts of alternative ACLs for overfished species will talk about ACL Alternatives that are denoted alphabetically (see Table 2-7) and integrated alternatives that are denoted numerically. Projected landings and dead discards of overfished species under each Integrated Alternative are provided in Table 4-3.

Table 4-3. Projected landings and dead discards of overfished west coast groundfish stocks under the integrated alternatives.

Insert dead fish table here

The management measures developed for each integrated alternative are structured such that the projected total catch of each overfished stock does not exceed the ACLs. The performance of the management system to stay within specified annual OYs for overfished groundfish species in recent years (2005-2010) is discussed to better understand the ability to stay within 2013 and 2014 ACLs (Table 4-4). Total mortality estimates are not yet available for 2011; however, trawl catch data in the 2011 trawl IFQ fishery are available (Table 4-5). Therefore, 2011 catch data for two trawl-dominant overfished species, darkblotched and POP, are further discussed in the sections below.

Table 4-4. Specified annual OYs (mt), estimated annual total mortality (mt), and percent of OY attainment of overfished west coast groundfish species, 2005-2010.

Species	Specified OYs, Estimated Total Mortality, and Percent of OY Attainment					
	2005 OY (mt)	**2006 OY (mt)**	**2007 OY (mt)**	**2008 OY (mt)**	**2009 OY (mt)**	**2010 OY (mt)**
Bocaccio S						
OY (mt)	307	308	218	218	288	288
Est. Mort. (mt)	75.1	61.3	67.0	47.0	71.0	72.0
% OY	24.5%	19.9%	30.7%	21.6%	24.7%	25.0%
Canary						
OY (mt)	46.8	47.1	44	44	105	105
Est. Mort. (mt)	48.7	57.0	46.0	41.0	38.0	43.0
% OY	104.1%	121.0%	104.5%	93.2%	36.2%	41.0%
Cowcod S						
OY (mt)	4.2	4.2	4	4	4	4
Est. Mort. (mt)	2.0	1.1	3.0	1.0	1.0	1.0
% OY	47.6%	26.2%	75.0%	25.0%	25.0%	25.0%
Darkblotched						
OY (mt)	269	294	290	330	301	330
Est. Mort. (mt)	123.9	193.3	285.0	253.0	285.0	332.0
% OY	46.1%	65.7%	98.3%	76.7%	94.7%	100.6%
POP N						
OY (mt)	447	447	150	150	189	200
Est. Mort. (mt)	76.2	80.3	157.0	131.0	181.0	159.0
% OY	17.0%	18.0%	104.7%	87.3%	95.8%	79.5%
Petrale a/						
OY (mt)	2,762	2,762	2,499	2,499	2,433	1,200
Est. Mort. (mt)	2,766	2,723	2,340	2,260	1,978	936
% OY	100.1%	98.6%	93.6%	90.5%	81.3%	78.0%
Yelloweye						
OY (mt)	26	27	23	20	17	14
Est. Mort. (mt)	15.7	12.2	19.0	12.0	11.0	8.0
% OY	60.4%	45.2%	82.6%	60.0%	64.7%	57.1%

a/ Petrale sole were not managed under a rebuilding plan during 2005-2010. Interim rebuilding measures (reduced OY and more restrictive management measures) were implemented in 2010 under emergency regulations.

Table 4-5. Allocations, total catch, and percent attainment of allocations of overfished IFQ species in the 2011 shoreside trawl fishery, ranked by percent attainment of allocations.

Species	Allocation (lbs)	Total catch (lbs)	Attainment
Petrale sole	1,920,226	1,788,031	93%
Pacific ocean perch N of 40°10' N. lat.	263,148	101,294	38%
Darkblotched rockfish	552,997	199,917	36%
Canary rockfish	57,100	8,125	14%
Yelloweye rockfish	1,323	128	10%
Bocaccio rockfish S of 40°10' N. lat.	132,277	11,715	9%
Cowcod S of 40°10' N. lat.	3,968	38	1%

Criteria for Evaluating Alternative ACLs for Overfished Species

The following discussion of ACL alternatives considers the effect on the individual overfished species as well as the projected impacts within the full mix of overfished stocks because of the interrelated nature of the groundfish fisheries. The biological impacts associated with alternative ACLs and under the integrated alternatives analyzed for overfished species are evaluated using the following criteria: stock productivity, fishing mortality, rebuilding duration (median time to rebuild), and the estimated probabilities of successfully rebuilding these stocks over time. Additionally, we discuss cumulative impacts associated with two biological indicators (genetic diversity and prey availability) that cannot be quantitatively assessed relative to alternative ACLs and integrated alternatives.

Stock Productivity Relative to Rebuilding Success

The predicted median times to rebuild overfished species (with 50 percent probability) relative to the amount of allowable harvest are determined in new rebuilding analyses recommended by the SSC and adopted by the Council in 2011. These rebuilding analyses evaluate allowable harvest vs. rebuilding duration relative to T_{MAX} and the target year to rebuild the stock (T_{TARGET}) in adopted rebuilding plans.

A mandate in the MSA is stock rebuilding cannot exceed ten years, except in cases where the biology of the stock of fish, other environmental conditions, or management measures under an international agreement in which the United States participates dictate otherwise. Therefore, T_{MAX} is 10 years if T_{MIN} is less than or equal to 10 years. If T_{MIN} is greater than 10 years, T_{MAX} is equal to T_{MIN} plus one mean generation. Defining T_{MAX} with one mean generation is a relative biological index of stock productivity. Therefore, the range of allowable rebuilding periods is bounded by the biological limit of T_{MIN} or $T_{F=0}$, where all stock mortality is natural mortality. Stocks exhibiting low productivity will necessarily have longer predicted rebuilding periods due to longer mean generation times. Projections of different $T_{TARGETs}$ are determined from the productivity of the stock, its current status, and the allowable harvest (ACL).

Depending on the productivity of a particular species, fishing mortality or harvest rate will mean different things for different stocks. For fast growing species (those with individuals that mature quickly and produce many young that survive to an age where they are caught in the fishery) a higher fishing mortality rate may be used. Fishing mortality rate policies must account for several complicating factors, including the capacity of mature individuals to produce young over time and the optimal stock size necessary for the highest level of productivity within that stock. The overfished species' ACL alternatives analyzed in this EIS, based on harvest rates estimated from the rebuilding simulation program, are calculated using an instantaneous rate of fishing mortality (F), which may be converted to a spawning potential ratio (SPR = spawner per recruit at the current population level relative to that at the stock's unfished condition). For ease of comparison among stocks and to standardize the basis of rebuilding calculations, it is useful to express any specific fishing mortality rate in terms of its effect on SPR. Given fishery selectivity patterns and basic life history parameters, there is a direct inverse relationship between F and SPR (Figure 4-3). When there is no fishing, each new female recruit is expected to achieve 100 percent of its spawning potential. As fishing intensity increases, expected lifetime reproduction declines due to this added source of mortality. Conversion of F into the equivalent SPR has the benefit of standardizing for differences in growth, maturity, fecundity, natural mortality, and fishery selectivity patterns and, as a consequence, the Council's SSC recommends that it be used routinely.

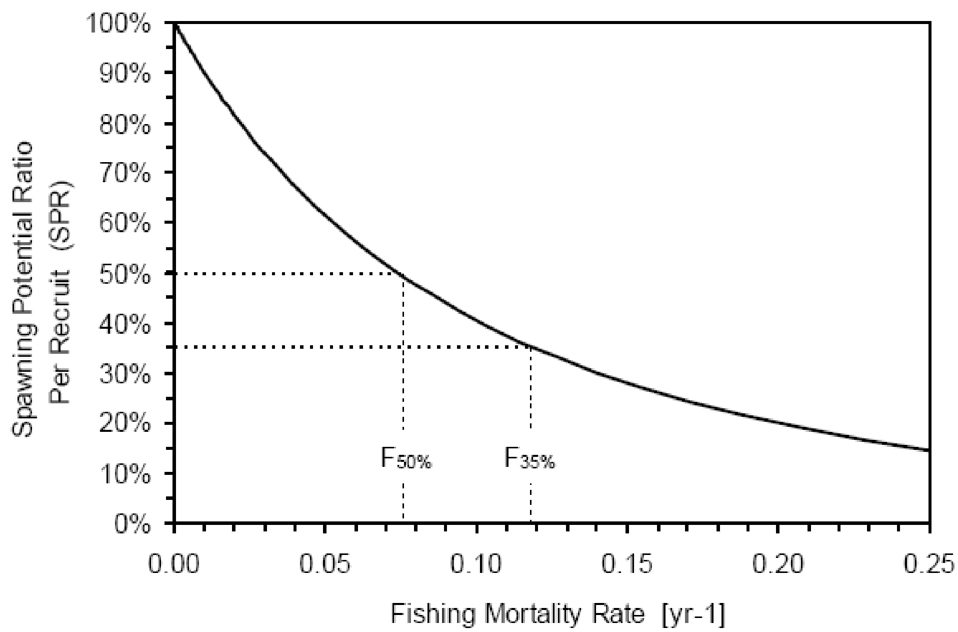


Figure 4-3. Relationship between spawning potential ratio (SPR) and instantaneous fishing mortality rate (F) for a hypothetical rockfish.

Based on the most recent round of assessments, each overfished species is estimated to be at a different level of spawning stock biomass relative to its unfished spawning stock biomass (relative level of depletion). The relative level of depletion, combined with other biological characteristics of the stock, influences the sensitivity of a stock's rebuilding time to changes in ACLs. The lower the relative depletion of a stock's spawning biomass, the more risk there is in deciding higher ACLs. Therefore, stocks below the MSST at the start of 2011; such as canary, cowcod, and yelloweye rockfish, are considered to have a higher sensitivity to higher fishing mortality rates.

Risks associated with increased ACLs are higher for stocks with greater uncertainty in fishing mortality estimates (catch and/or discard mortality). Stocks for which recreational fisheries account for a large percentage of total mortality are generally more susceptible to catch uncertainty than commercially targeted species, and this uncertainty increases for stocks that are rarely observed by sampling programs.

Fishing Mortality

Systems for monitoring groundfish mortalities (landings plus discard mortalities) on the west coast vary in their effectiveness depending on whether the species is primarily caught in commercial or recreational fisheries and how well at-sea discards are monitored. In general, fishing-related mortalities of commercially caught species are better known than those for stocks primarily caught by recreational fisheries since commercial landings and discards are tracked much more closely. Commercial landings are recorded on fish receiving tickets, which are used to document the weight and ex-vessel value of landed catch, while recreational catches are mostly monitored using a random, stratified census of anglers. The degree of at-sea monitoring of discards also varies by fishing sector with commercial discards estimated in directed groundfish fisheries estimated in the west coast Groundfish Observer Program (WCGOP). Recreational discards are estimated in the same recreational census programs used to monitor recreational landings. Sampling rates in these discard estimation programs vary by sector, with the limited entry trawl sector observed at the highest at-sea observer rates (100 percent of trips); limited entry fixed gear sablefish (~20-25 percent of trips observed); directed open access (~5 percent of trips observed); California commercial passenger fishing vessels (CPFV or California recreational charter); and California (non-CPFV), Oregon, and Washington recreational. The Makah Tribe, the most active tribe targeting groundfish on the west coast, observed their fisheries at a high rate because their groundfish fishery regulations require full retention of rockfish species. The Quileute and Quinault tribes have plans to target whiting in 2013 and 2014. NMFS will require a bycatch monitoring plan for these new fisheries; the elements of these plans are not currently known.

A provision in the trawl rationalization program is that 10 percent of a permitee's quota surpluses and deficits can be carried over to the following year. The carryover amount is proportionally scaled to the ACL or allocation if those limits change from one year to the next. One question that needs to be addressed is will application of the carryover provision result in ACL overages and biological impacts to any of the stocks managed using trawl IFQs. In short, there are no significant impacts associated with application of the carryover provision. While some stocks with a particularly high ACL attainment percentage in the fishery (e.g., petrale sole) may experience an occasional ACL overage, these overages are mitigated in the long run by the provision that all IFQ deficits need to be covered with quota in the following year. Therefore, over the course of a number of years, the trawl allocation will not be exceeded on average. As long as allocations are within sustainable harvest limits, the long term average removals of the stock should result in stocks being maintained close to their respective B_{MSY} targets as envisioned in the management system. Occasional overages and underages of ACLs matter little for long-lived stocks like most of the overfished groundfish stocks on the west coast as long as the long term exploitation rates are within sustainable limits.

Rebuilding Duration

The MSA §304(e) requires overfished stocks to be rebuilt to the MSY biomass in a time period that is as short as possible, taking into account the status and biology of the overfished stocks, the needs of fishing communities, and the interaction of the overfished stock within the marine ecosystem. One criterion used to evaluate the rebuilding duration for an overfished species is $T_{F=0}$, which is the shortest time possible estimated to rebuild a stock. The needs of fishing communities are considered by allowing limited harvest of an overfished species. In general, allowing the harvest of an overfished species increases the rebuilding period relative to $T_{F=0}$.

A new rebuilding analysis was prepared for each overfished stock in 2011, except for cowcod, which is informed by the 2009 rebuilding analysis. The rebuilding analysis is used to project the status of the overfished resource into the future under a variety of alternative harvest strategies and to estimate the number of years it will take for the stock to reach B_{MSY} (or its proxy). Minimum requirements for rebuilding analyses in routine situations have been established by the SSC and are applied with a computer package developed by Dr. André Punt (University of Washington). The SSC encourages analysts to explore alternative calculations and projections that may more accurately capture uncertainties in stock rebuilding and which may better represent stock-specific concerns. In the event of a discrepancy between the calculations resulting from Dr. Punt's program, the SSC groundfish subcommittee reviews the issue and recommends which results to use. The SSC also encourages explicit consideration of uncertainty in projections of stock rebuilding, including comparisons of alternative states of nature using decision tables to quantify the impact of model uncertainty.

The rebuilding analyses include an estimation of B_0 (the unfished biomass); B_{MSY} or its proxy; the selection of a method to generate future recruitment; the specification of the mean generation time, or the number of years predicted for a spawning female to replace herself in the population; a calculation of the minimum possible rebuilding time from the first year rebuilding measures were implemented (T_{MIN}); and the identification and analysis of alternative harvest strategies and rebuilding times. Rebuilding analyses also estimate the median number of years needed to rebuild to the target stock size if all future fishing mortality is eliminated from the first year for which the Council is making a decision in the biennial specifications process ($T_{F=0}$), which in this proposed action is all harvest beginning in 2013. This will typically differ from T_{MIN}. T_{MIN} is defined as the median time for a stock to recover to the target stock size, starting from the time when a rebuilding plan was first implemented (usually the year after the stock was declared overfished) to when the target level is first achieved assuming no fishing-related mortality. Although no longer used directly in Council decision-making for overfished stocks, rebuilding analyses also report the maximum time to recovery recommended in National Standard 1 guidelines (T_{MAX}), which is T_{MIN} plus one mean generation time.

Rebuilding Probabilities

Rebuilding analyses estimate the probability of successfully rebuilding the stock to the B_{MSY} target by T_{MAX} and by the target year specified in adopted rebuilding plans (T_{TARGET}). As stated above, T_{MAX} is defined as the minimum time a stock can rebuild biologically if no fishing-related mortality is allowed (T_{MIN}) plus one mean generation time. Mean generation time, or the predicted time it takes a spawning female to replace herself in the population, is a measure of relative stock productivity. The probability of rebuilding by T_{MAX} (P_{MAX}) is therefore one of the criteria used to evaluate risk of alternative harvest levels for overfished species since it is a metric that relates management risk (i.e., risk of not meeting the rebuilding target by T_{MAX}) to a stock's relative productivity. Likewise, the probability of rebuilding by T_{TARGET} (P_{TARGET}) is an important criterion since it probabilistically measures the performance of management under the rebuilding plan to meet the goal of rebuilding the stock in the specified time. T_{TARGET} is typically chosen as the median time to rebuild the stock under a preferred rebuilding strategy, which at the outset is a 50 percent probability of successfully rebuilding by the target year. The SSC has stated it is important to increase the probability of rebuilding by T_{TARGET} above 50 percent especially as one approaches the target year to better ensure rebuilding goals are met in a timely fashion. When a new assessment indicates an overfished stock has less than a 50 percent probability of rebuilding by T_{TARGET}, it compels consideration for modifying the rebuilding plan by changing T_{TARGET}.

Genetic Diversity

Frequently, a fish stock is a collection of somewhat genetically differentiated sub-stocks, with relatively low exchange rates of individuals and genes between the sub-stocks; fishing activity can have greater adverse impacts on some sub-stocks than on others. Geographic and temporal changes in harvest that lead to a detectable reduction in genetic diversity could jeopardize the ability of an overfished stock to rebuild to B_{MSY}. Localized depletion may be a concern if genetically important sub-populations are depleted within a distinct local region. This may be more of a concern for rockfish species that have a stock structure distributed within a relatively small region. In the long term, targeting fish with certain characteristics (such as large size) can also lead to selection for fish with certain characteristics (such as faster or slower growth rates), often not being the preferred characteristics for the species. In general, if fishing mortality is maintained below the OFL, the likelihood of adverse effects on genetic structure and reproductive success are reduced. The effects of ACL alternatives on genetic diversity and stock structure cannot be directly differentiated and is therefore not used as a criterion in evaluating ACL alternatives. Such effects are considered cumulative (see Section 4.4 for more discussion relative to cumulative effects). Discussion of what is known regarding the genetic diversity of overfished west coast groundfish species is summarized in the 2011 and 2012 Harvest Specifications and Management Measures FEIS (PFMC 2010).

Prey Availability

Harvesting activity may change the availability of a species as prey for other groundfish and non-groundfish species. However, there is relatively little information available on the prey relationships, particularly those involving larval or post-larval rockfish. Part of the reason is that it is hard to distinguish larval rockfish. Genetic methods of identifying individual species are available in some cases, but are expensive and visual identification is not possible in most cases. Moreover, the predator-prey relationships are complex in that, for example, the same species may be a predator on and prey of another species at different life stages. The overall result is that fishing can increase or decrease the prey availability for both the fished species and others. The effects of ACL alternatives on prey availability cannot be directly differentiated and is therefore not used as a criterion in evaluating ACL alternatives. Such effects are considered cumulative (see Section 4.4 for more discussion relative to cumulative effects). Discussion of what is known regarding the prey availability and such ecological interactions regarding overfished west coast groundfish species is summarized in the 2011 and 2012 Harvest Specifications and Management Measures FEIS (PFMC 2010).

Bocaccio South of 40º10’ N. Latitude

The new 2011 stock assessment indicates that the overfished bocaccio stock south of 40º10’ N. latitude is showing steady progress towards rebuilding under the current rebuilding plan. The primary sources of data, parameter estimates, and relative abundance trends from the 2011 stock assessment were consistent with those from earlier assessments. Estimates of historical depletion and productivity changed moderately in the most recent model, which assumed less severe depletion in the recent historical period and greater productivity (steepness) in the base model. The bocaccio spawning stock depletion of 26 percent at the start of 2011 is above the MSST and 65 percent of the B_{MSY} target. Bocaccio spawning output in 2011 is estimated to be 41 percent of that in 1980, but 191 percent of the minimum in 1998.

One of the issues in the new bocaccio assessment was it was originally scheduled to be an update assessment where input data are updated from the previous assessment, but no change to the model structure is allowed. This enables an expedited review by the SSC since a more formal STAR panel review is not needed to vet alternative model structures and assumptions. The 2011 bocaccio update assessment indicated an extraordinarily large 2010 year class based on length composition data from the 2010 NWFSC trawl survey. If true, this would be the largest recruitment observed for the stock in over 50 years. The bocaccio STAT thought the result was improbable and recommended an alternative model structure for the assessment that did not comply with the rules of an update. Specifically, the STAT recommended the inclusion of a recruitment index of juvenile bocaccio power plant impingement rates in southern California, which was used in past assessments but not in the last full assessment in 2009. Further, the STAT recommended exclusion of the 2010 trawl survey length composition data which drove the result of such a strong 2010 recruitment event. After another review by the SSC at the

September mop-up panel and at their November meeting, the SSC recommended the revised bocaccio assessment recommended by the STAT. The major axis of uncertainty in the revised 2011 assessment is the strength of the 2010 year class. If the 2010 year class is truly as large as the original update suggested, then it will become evident in southern California fisheries in the next couple of years. The SSC recommended the next bocaccio assessment done in 2013 be a full assessment to more thoroughly consider alternative model structures.

Stock Productivity Relative to Rebuilding Success

Bocaccio recruitment is highly variable with rare large year classes. Adult abundance is highly variable even in the absence of fishing (MacCall and He 2002). The new bocaccio stock assessment indicates that larval production, as a function of spawning output, has been increasing since a 1999 recruitment event and several subsequent year classes of moderate magnitude (i.e., 2003 and 2005 year classes) (Figure 4-4). Currently there is strong evidence for a relatively strong 2009 year class and a strong to very strong 2010 year class, which should accelerate the rate of rebuilding. The new assessment indicates the combination of the 2009 and 2010 year classes in the base model equate roughly (slightly less than) the net recruitment realized from the 1999 year class (the largest observed year class since 1989). By contrast, the 2010 year class estimated in the more optimistic model was nearly 10 times the recruitment of the 1999 year class. Although such optimism may be overly exuberant, there is some possibility that the magnitude of this recruitment could be significantly greater than currently estimated.

According to the decision table in the 2011 assessment, the bocaccio stock could rebuild as early as 2016 under the more optimistic scenario for recruitment of the 2010 year class and under an assumption the entire annual ACLs (calculated using the 77.7 percent SPR harvest rate) are attained. Under the base case and the more pessimistic recruitment scenarios, the stock should rebuild earlier than 2022 as evidenced by a higher than 50 percent probability of rebuilding by the 2022 target year. Although poorly understood, the stock assessment suggests that recovery may be taking place more rapidly in the south, and recovery in the central/northern California region may be dependent on an influx of fish from the southern area.

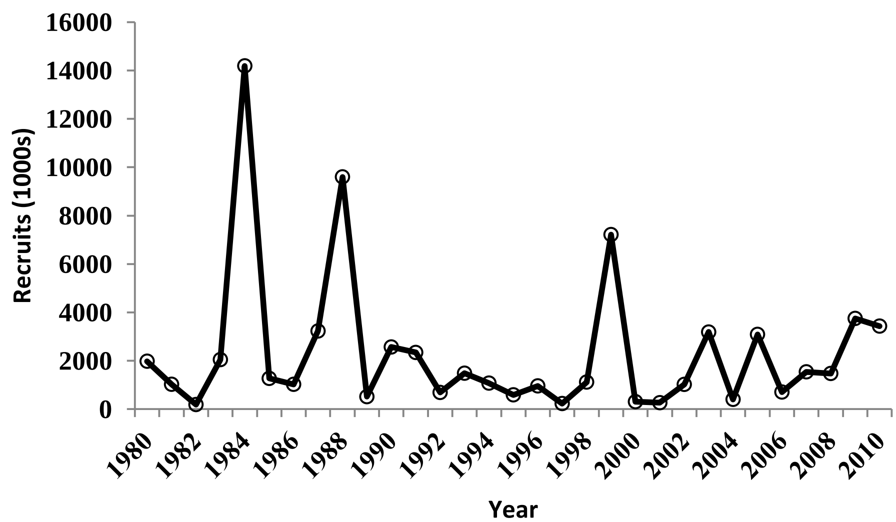


Figure 4-4. Estimated bocaccio recruitments, 1980-2010 (from Field 2011).

Fishing Mortality

The potential of a banner 2010 year class in the bocaccio stock is not entirely unexpected. Bocaccio stock production is characterized by high episodic recruitment and relatively rapid juvenile growth rates (Field et al. 2009; Field et al. 2010). Juvenile bocaccio also recruit to shallow waters and are consequently caught in nearshore recreational fisheries as evidenced by dramatic spikes in both catch rates and the percentage of the total southern California rockfish catch that is bocaccio following strong recruitment events. Unlike most rockfish species where recruitment to fisheries usually takes several years due to low growth rates, juvenile bocaccio can recruit to nearshore fisheries in California within a year or two of parturition. Recruitment of the strong 1999 year class complicated management of California fisheries in 2000 and 2001 as this unpredictable event could not be reacted to in time given the lag in reconciling recreational catch estimates. Most species' rebuilding analyses are able to project recruitment into affected fisheries in time to decide and implement responsive management measures that will not compromise rebuilding plans. However, the fast growth and unpredictable recruitment of bocaccio poses the unique problem of having to react to a large recruitment event in real time. This experience has led the Council to a strategy of adopting higher bocaccio OYs/ACLs and more conservative management measures that are predicted to result in catches much lower than these harvest limits. The rebuilding strategy has been formalized by deciding OYs/ACLs to determine rebuilding objectives and more stringent harvest guidelines for California. The buffer between the ACL (formerly the OY) and the HG accommodates the management uncertainty of an unforeseen recruitment event disrupting fisheries. Unlike an ACL, fisheries do not need to close upon attainment of an HG. The difference between the projected catch and the HG or ACL provides managers time to react to a strong recruitment to minimize mortality on bocaccio while minimizing disruptions to ongoing fisheries. This strategy has worked well to enhance bocaccio rebuilding and may prove to also minimize harm to California fishing communities if the 2010 year class is indeed as strong as the more optimistic assessment model indicated.

Given that the current understanding is that the stock is rebuilding consistent with the rebuilding trajectories from the existing rebuilding plan, a single preferred ACL that maintains the current rebuilding plan was considered for the integrated alternatives in 2013 and 2014 (except the No Action alternative). The 2013 and 2014 ACLs of 320 mt and 337 mt, respectively are X percent of the predicted total mortalities of bocaccio under the integrated alternatives (Table 4-3). The variation in bocaccio total mortality projections under the integrated alternatives is due solely to the effect of the variation in the canary allocation south of 40º10' N. latitude from alternative canary ACLs. These results do not inform the potential total mortality impacts associated with a strong bocaccio recruitment event since canary rockfish are much rarer south of Pt. Conception where bocaccio recruitment appears to occur. It is hoped that the harvestable surplus under the preferred bocaccio ACL provides enough buffer to react to a large recruitment event if the 2010 year class is greater than the revised base model in the assessment indicates.

Catch monitoring uncertainty is relatively high given the fact that a significant amount of the total fishing mortality of bocaccio now occurs in the California recreational fishery, the sector with the largest bocaccio take in recent years. Recent recreational catch is estimated using the new CRFS program, which has been in existence since 2004. Prior to 2004, all recreational catch was estimated using the MRFSS program, a survey methodology designed to understand long-term national trends in marine recreational catch and participation.

The variation in total catch impact projections of bocaccio across the Integrated Alternatives is due to variations in the projected total mortality of canary rockfish given the canary ACL alternative used to inform the Integrated Alternative and the ACLs for stocks other than canary and POP and sector allocations under the Preferred Alternative. The estimated variation in projected bocaccio total mortality across the integrated alternatives only reflects that portion of the stock between Pt. Conception and 40º10' N. latitude. Since the bulk of the biomass and recruitment occurs south of Pt. Conception, the predicted biological impacts of bocaccio in the analysis of the integrated alternatives provides little to inform the potential need for any available surplus of bocaccio.

The preferred bocaccio ACL alternative maintains the strategy and policies of the adopted rebuilding plan. The strategy of adopting higher ACLs than the average total mortalities projected in association with preferred management measures in the rebuilding plan (i.e., the projected total mortalities in the analysis of the integrated alternatives) is better able to avoid unanticipated disruptions of ongoing fisheries, especially those south of Pt. Conception if there is a large recruitment event. A recruitment event as large as the 1999 year class recruitment to the fishery, which caused disruption of southern California recreational and commercial nearshore/shelf fisheries in 2002 and 2003, could create similar problems in the 2013-2014 management period if the ACL was significantly lower (and the SPR harvest rate significantly higher) than under the preferred ACL.

The option of increasing the bocaccio bag limit in the California recreational fishery will increase projected total moralities to the extent that there is increased targeting of bocaccio. There is anecdotal evidence of some southern California fishermen targeting bocaccio in one area to fill the bocaccio bag limit and then moving to other areas to target other species under the combined species' daily bag limit. Removing the bocaccio size limit is likely to have less of an effect on total mortality. Filling a bocaccio bag limit with smaller bocaccio will likely reduce total mortality in the recreational fishery relative to status quo given the natural mortality rate for released bocaccio under a size limit restriction.

Rebuilding Duration

The 2013 and 2014 bocaccio ACL alternative is predicted to rebuild the stock by 2021, which is two years longer than the shortest time possible ($T_{F=0}$ = 2019) and one year earlier than T_{TARGET}.

Rebuilding Probabilities

Biomass projections and probabilities are based on the rebuilding analysis and the current understanding of productivity applied forward in time. Bocaccio rebuilding probabilities under the proposed ACL alternative are relatively high with a P_{MAX} of 90 percent and a 60 percent probability of rebuilding by the T_{TARGET} of 2022.

Canary Rockfish

The canary rockfish spawning stock depletion of 23.2 percent at the start of 2011 is below the MSST and 58 percent of the B_{MSY} target. This is a low level of depletion across the spectrum of overfished west coast rockfish species, higher only than estimated depletion rates for cowcod and yelloweye rockfish. Canary rockfish spawning biomass in 2011 is estimated to be 44.6 percent of that in 1980, but 213.4 percent of the minimum in 1999. Given the results of the new stock assessment, it is very unlikely (34.4%) that canary rockfish can rebuild by the T_{TARGET} specified in the No Action rebuilding plan.

The 2011 canary rockfish assessment was an update assessment. The last full assessment for canary was done in 2007 (Stewart 2007) and there was an update assessment done in 2009 (Stewart 2009). Besides the updated catch data and length and age composition data from fisheries and surveys, the main change in the 2011 assessment was the addition of reconstructed historical catch data from Oregon for the 1892-1986 period and revised recreational discard and total mortality estimates for 2002-2010. Comparison of the assessment update results with those in the 2009 assessment update indicates lower spawning biomass during 1950s-1980s, and slightly lower spawning biomass in recent years. Spawning depletion at the beginning of 2009 was lower in this update (21 percent) than that in the 2009 update (24 percent). Despite the lower depletion estimate for 2009, the stock is rebuilding slowly.

Stock Productivity Relative To Rebuilding Success

The deviation from T_{TARGET} is due primarily to changes in the understanding of stock productivity and depletion due to re-estimation of the time-series of historical catches in Oregon. The changes represent fundamental revisions to our understanding of the status of this species. The projected increase in the canary rockfish biomass is very sensitive to the value for steepness (state of nature), and is projected to slow as recent (and largely below-average) recruitments begin to contribute to the spawning biomass. For the period 2000-2011, the spawning biomass is estimated to have increased from 11.2 percent to 23.2 percent of the unfished biomass level.

Since retention of canary is prohibited for all gears except trawl, where small amounts of catch are regulated through the trawl rationalization program, no targeting is expected. Existing management measures for fixed gear (depth restrictions) and trawl (shelf gear and depth restrictions) protect the prime canary habitat from the directed groundfish fishery.

Fishing Mortality

Canary rockfish is caught coastwide in all sectors of the fishery. Canary rockfish mortality is managed using the following measures: prohibited retention in commercial fixed gear and recreational fisheries; small allocations to the limited entry trawl sectors to accommodate unavoidable bycatch; required use of selective flatfish trawl gear shoreward of the RCA north of 40º10' N. latitude; required use of small footrope trawls shoreward of the RCA south of 40º10' N. latitude, and RCA boundaries that limit fishing in areas of higher canary rockfish density.

The canary ACL alternatives decided for detailed analysis are depicted in Table 4-6. Higher ACLs than the No Action 2012 ACL would allow more recreational fishing opportunity and more shelf fishing opportunity in the limited entry trawl IFQ fishery. There was very low attainment of trawl allocations of healthy shelf species in 2011 largely due to the limited allocation of canary rockfish, but also due to a limited allocation of yelloweye rockfish and a limited individual bycatch quota (IBQ) of Pacific halibut. Now that widow rockfish is rebuilt, the trawl fishery may also need a higher canary allocation to resume target fishing for widow and yellowtail rockfish.

Table 4-6. Alternative 2013 and 2014 canary rockfish ACLs relative to the ACL evaluation criteria.

Evaluation Criteria	**No Action 2012 ACL (mt)**	**Alternative 2013 and 2014 ACLs (mt)**					
		Alt. a	**Alt. b; Int. Alt. 4**	**Alt. c; Int. Alts. 2 & 6**	**Alt. d; Int. Alts. 1 & 3 (PPA)**	**Alt. e; Int. Alt. 7**	**Alt. f; Int. Alt. 5**
ACLs	107	0	48, 49	101, 104	116, 119	147, 151	216, 220
SPR harvest rate	89.5%	100.0%	95.1%	90.0%	88.7%	85.9%	80.3%
Rebuilding duration beyond $T_{F=0}$ (yrs.)	2	0	0	1	2	2	4
Rebuilding probability by T_{MAX} (P_{MAX})	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	74.9%
Rebuilding probability by current T_{TARGET} (P_{TARGET})	35.5%	48.2%	41.2%	36.4%	34.4%	31.7%	27.9%

Figure 4-5 shows the catch per tow of canary rockfish in the NMFS bottom trawl survey, which has been used as an index of the stock's depth and latitudinal distribution. While there are instances of canary rockfish occurring south of Pt. Conception at 34º27' N. latitude, they are largely distributed north of Pt. Conception with the greatest density in northern waters off Washington. They are most often found in depths from 50-100 fm, but they can occur in the 27-460 fm depth range (although they infrequently occur deeper than 250 fm).

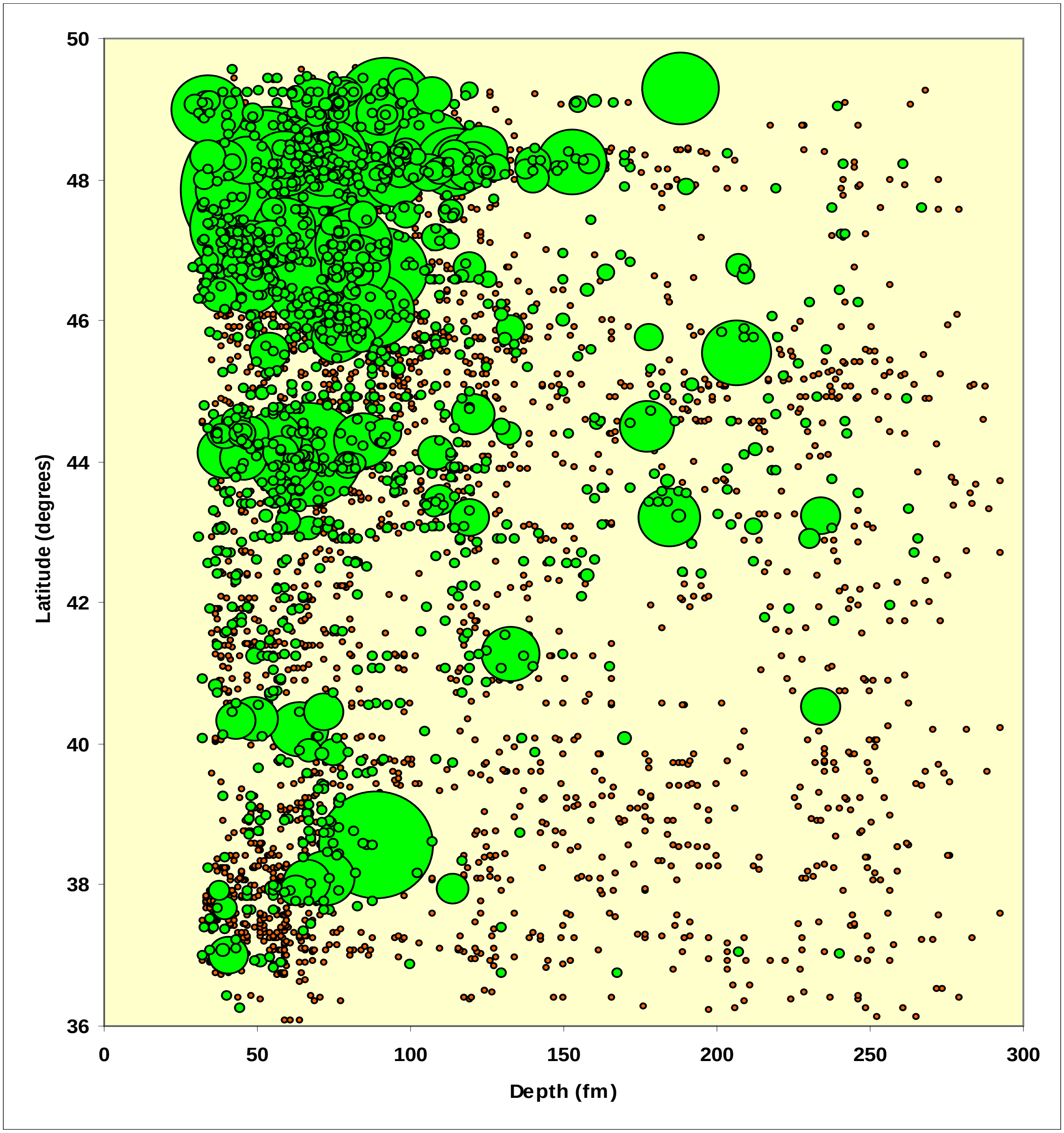


Figure 4-5. Catch per tow of canary rockfish in the NMFS triennial bottom trawl survey by latitude and depth (shaded circles are positive tows with their size proportional to CPUE, empty circles are negative tows).

In recent years, the total fishing mortality has been slightly above the OY, but well below the ABC. Catch overages were more frequent when the OY was less than 50 mt but, starting in 2009 when the OY was increased to above 100 mt, catch overages were no longer occurring (Table 4-4). Catch monitoring uncertainty in non-trawl fisheries is high given that retention of canary is prohibited which requires estimation of bycatch to assess total fishing mortality and that a significant amount of the total fishing mortality of canary occurs in recreational fisheries. The other source of high catch monitoring uncertainty was estimation of canary discard mortalities in the trawl fishery prior to implementation of the trawl rationalization program in 2011. Of all the overfished species caught incidentally in trawls, impact projections of canary rockfish were the most uncertain. However, with mandatory 100 percent observer coverage in the rationalized trawl fishery, management using IFQs in the shoreside trawl sector, and total catch limits in the at-sea whiting sectors, catch monitoring uncertainty and accountability of canary rockfish catch in trawl fisheries has vastly improved.

Rebuilding Duration

The 2013 and 2014 canary rockfish ACL alternatives are all predicted to rebuild within four years of the shortest time possible ($T_{F=0}$ = 2028). Rebuilding is extended by two years from $T_{F=0}$ under the status quo SPR harvest rate (88.7%) used to determine the preferred ACL alternative (ACL Alternative d). It is noted that ACL alternative e provides 2013 and 2014 ACLs approximately 30 mt higher than the PPA ACL alternative d yet rebuilds in the same year as the preliminary preferred ACL alternative d (Table 4-6). Some of the canary allocation concerns and socioeconomic impacts associated with constraints under the preliminary preferred rebuilding plan could be partially mitigated by the increased yields under ACL alternative e.

Rebuilding Probabilities

The canary rebuilding probability (P_{MAX}) under all the ACL alternatives is 75 percent (74.9% for ACL alternative f) (Table 4-6). All the ACL alternatives have a probability of rebuilding by the current T_{TARGET} of 2027 of less than 50 percent, including the zero-harvest alternative (ACL alternative a) which has a 48.2 percent probability of rebuilding by then. This result has compelled consideration for modifying the current rebuilding plan and exploring a relatively wide range of ACL alternatives and associated rebuilding strategies.

Cowcod South of 40º10' N. latitude

The most recent cowcod assessment was done in 2009 (Dick *et al*. 2009) and it indicated spawning biomass depletion was estimated to be 4.5 percent of the unfished level. Estimated spawning biomass depletion rates of cowcod under the range of alternative low- and high-productivity models in 2009 was between 3.8 percent and 21.0 percent of the unfished level. The poor precision of this estimate was due to a lack of data to inform estimates of stock productivity and conflicting information from fishery-dependent and fishery–independent data. The SSC did not recommend a new cowcod assessment until new data become available that would inform a new assessment and rebuilding analysis. Instead, the SSC recommended a cowcod status report be prepared in 2011 to evaluate management performance in keeping impacts within the specified rebuilding ACLs. The 2011 cowcod status report indicated that annual total mortalities since the 2009 assessment has been within the specified harvest limits mandated by the rebuilding plan (Dick 2011).

Scientific uncertainty is high for cowcod. The SSC categorized cowcod as a category 2 stock in the Conception area, where the assessment informs the OFL contribution, and as a category 3 stock in the Monterey area, where a catch-based approach (DBSRA) informs the OFL contribution. The cowcod assessment is considered one of the more data-poor assessments done for any west coast groundfish stock. Fishery-independent information is sparse for the cowcod assessment. The trawl survey cannot fish the high relief habitats where cowcod occur and trawl survey incursions into the CCAs are not allowed. Recent fishery-dependent information for cowcod is also lacking in the assessment since they are a prohibited species and they are rare in the observed or reported discard events, indicating cowcod bycatch occurs infrequently. The rebuilding plan strategy to avoid cowcod by prohibiting retention and closing critical habitats (i.e., the CCAs) where they are known to occur has effectively ended any signal or index of biomass for this stock. New non-extractive survey technologies are being explored to attempt to better monitor species like cowcod. Such technologies are needed to assess cowcod to avoid even the minimum mortality associated with research activities that extract and kill fish (e.g., the NWFSC trawl survey if it was conducted in the CCAs).

Stock Productivity Relative to Rebuilding Success

Cowcod stock productivity is assumed to be relatively low given the slow growth, late maturation, and longevity of the species. The mean generation time of 38 years for cowcod is estimated from the net maternity function. Key productivity parameters (e.g., stock-recruitment steepness, recruitment variability) are unknown for cowcod (Dick and Ralston, 2009). Data in the assessment are insufficient to estimate these quantities for cowcod, so values used in the rebuilding analysis are based on meta-analysis of related species, adding to uncertainty in rebuilding progress. Assumed steepness in the assessment is 0.6.

Fishing Mortality

Because cowcod are significantly depleted and the stock's productivity is extremely low, an extremely low incidental harvest rate is necessary to achieve rebuilding progress. Tenets of the cowcod rebuilding plan are to prohibit harvest in all fisheries and to close the primary habitats where adult cowcod are known to occur. Closure of the CCAs in the southern California Bight in 2001 effectively reduced harvest to very low levels; a strategy anticipated to work well for reducing adult cowcod mortality given their sedentary nature.

Cowcod are primarily encountered in depths greater than 50 fm (Butler et. al., 2003). Though cowcod do occur from 20 fm to 267 fm (Love et. al., 2003), submersible surveys at the northern end of the Southern California Bight, indicate that juvenile cowcod were most common from 49 fm to 82 fm and adults were most common at depths of 66 fm to 115 fm (Butler et al., 2003). These trends in the depth distribution were also observed in the proportion of catch by depth from the trawl fishery in the Southern California Bight where cowcod were predominantly encountered in depths deeper than 65 fm (Butler et al., 1999). Recent submersible surveys indicate that juvenile cowcod occur over a wide range of habitat types, at depths between 28 and 180 fm; they typically avoid soft sediment substrate, favoring hard substrate such as cobble and boulder fields or rock ridges (Love and Yoklavich, 2008).

Catch monitoring uncertainty is high for cowcod. Retention of cowcod is prohibited which requires estimation of bycatch to assess total mortality, and few cowcod have been observed by the WCGOP. Without observer data, the estimates of commercial discard are highly uncertain. This changed in 2011 for the limited entry trawl fishery upon implementation of the trawl rationalization program and mandatory 100 percent observer coverage. Recreational discard rates have not been thoroughly assessed. Recreational observer data are available for the CPFV fleets, but little is known about discard from private boats. In addition, a portion of the recreational rockfish catch has not been identified to species (the "rockfish genus" category in RecFIN) and is not included in current estimates of total fishing mortality for rockfish species. Cowcod are a small component of rockfish catch in recent years but given the low OYs/ACLs, even a small fraction of cowcod in the total unidentified catch may influence management decisions. Recent recreational catch is estimated using the new CRFS program, which has been in existence since 2004. Prior to 2004, all recreational catch was estimated using the MRFSS program, a survey methodology designed to understand long-term national trends in marine recreational catch and participation. Neither survey is designed to produce inseason catch nor effort estimates with the precision needed to manage to the low ACLs needed to rebuild cowcod.

Although current total fishing mortality estimates are highly uncertain, the CCAs appear to be effective at minimizing fishing mortality over offshore rocky habitat in the southern California bight. Available catch estimates and mortality reports suggest that landings have not exceeded the OY limits in recent years (Table 4-4). In most recent years the total estimated take of cowcod has been well below 4 mt. However, estimated take in 2007 was very close to 4 mt.

Rebuilding Duration

The 2013 and 2014 cowcod ACL alternative is predicted to rebuild within 8 years of the shortest time possible ($T_{F=0}$ = 2060).

Rebuilding Probabilities

Cowcod rebuilding probabilities under the one ACL alternative analyzed are relatively low with a P_{MAX} of 66.2 percent and a P_{TARGET} of 50 percent.

Darkblotched Rockfish

The darkblotched rockfish spawning stock depletion of 30.2 percent at the start of 2011 is above the MSST, 270 percent of the minimum estimated depletion in 2001 (11.2 percent), and 75.5 percent of the B_{MSY} target. The 2011 rebuilding analysis indicates the darkblotched stock is rebuilding 8 years ahead of schedule.

The 2011 darkblotched assessment was originally scheduled to be an update of the 2007 full assessment (Hamel 2008) (a 2009 update assessment by Hamel and Wallace (2008) informed the 2011-2012 biennial harvest specifications process). The updated darkblotched assessment presented to the SSC in June 2011 estimated depletion at the start of 2009 was 15.1 percent, whereas the comparable estimate from the 2009 update was 27.5 percent. Such a large change in stock status was unexpected. Further, the cause of the change could not be determined during the limited time available for review of the update. The Council therefore decided that the update should receive additional exploration and review at the September 2011 "mop-up" panel based on a limited set of analyses developed by the SSC.

Although the revised update conducted a thorough step-wise evaluation of the new and modified data used in the assessment, the analyses were not able to pinpoint the new data elements that fully accounted for the large drop in estimated depletion. An analysis of the influence of the stock-recruit steepness parameter indicated that the revised update model would have estimated steepness at an implausibly high value (1). The 2007 full assessment and the 2009 update fixed the steepness parameter at 0.6. For the revised 2011 update the SSC and the STAT agreed to fix the steepness at 0.76, the mean value of the most recent prior probability distribution from the meta-analysis of rockfish productivity conducted by Dr. Martin Dorn (Figure 4-6). Also, the SSC recommended that the decision table be structured with stock-recruitment steepness rather than natural mortality as the major axis of uncertainty. Results from the revised update assessment are reasonably consistent with results from the 2009 update. The estimate of depletion at the start of 2009 is 25.9 percent from the revised update whereas it is 27.5 percent from the 2009 update. The revised update assessment estimates that depletion in spawning output was 30.2 percent at the start of 2011. The SSC endorsed the use of the 2011 darkblotched rockfish revised update assessment for status determination and management for 2013 and beyond.

Stock Productivity Relative to Rebuilding Success

As explained above, assumed steepness in the 2011 darkblotched assessment is 0.76 and, since it is fixed, very uncertain. Depletion of the stock and relative productivity are directly correlated with the assumed steepness. Lower steepness values would estimate more severe depletion and slower rebuilding and higher steepness would estimate less severe depletion faster rebuilding. When freely estimated with a prior, steepness was estimated at the implausibly high value of 1.0, which led to the recommendation to fix steepness at the mean value estimated for all assessed northeastern Pacific rockfish species (Figure 4-6).

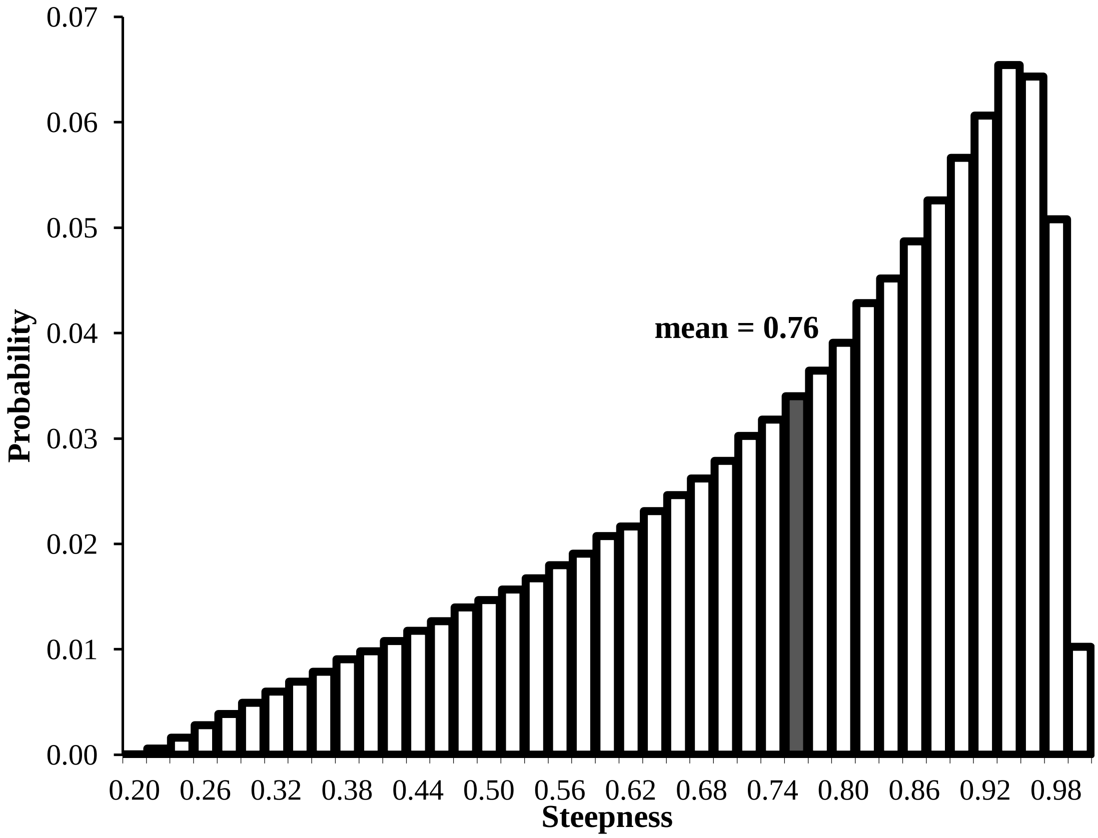


Figure 4-6. Distribution of rockfish stock-recruitment steepness parameters estimated from assessments in the Northeastern Pacific (from Dr. Martin Dorn, personal communication).

Fishing Mortality

Darkblotched rockfish are caught almost exclusively by groundfish trawl gear and predominantly bottom trawls operating on the outer continental shelf and slope north of 38º N. latitude between 100 and 200 fm. The two main strategies used to control darkblotched rockfish catch mortality prior to implementation of the trawl rationalization program in 2011 were limited entry trawl trip limits for the northern and southern Minor Slope Rockfish complexes in which darkblotched rockfish are managed, bycatch limits in the Pacific whiting fisheries, and trawl RCAs. Under trawl rationalization, darkblotched mortality is controlled using IFQ management and RCAs in the shoreside sector and sector-specific bycatch limits in the at-sea whiting sectors. None of the at-sea sector bycatch limits were exceeded in 2011 and the darkblotched impact in the 2011 shoreside trawl fishery was 199,917 lbs or 36 percent of the IFQ allocation (Table 4-5).

Figure 4-7 shows the catch per tow of darkblotched rockfish in the NMFS bottom trawl survey, which has been used as an index of the stock's depth and latitudinal distribution. While the clustered distribution of darkblotched in

Figure 4-7 is informative, the apparent distribution is also affected by the survey sampling regime in that not all of the combined survey data is shown, zero-catch hauls are not shown, and the depths and latitudes sampled by all surveys have been irregular over time. Darkblotched rockfish are found north of 33º N. latitude in depths of 16-300 fm, with the core distribution in depths from 96 fm to 220 fm. In 2004, observers noted two very large catches (8,000-15,000 lbs), which were partially discarded (Rogers 2006). They were both from an area that also had large survey catches at approximately 40.5º N. latitude in 200 fm. These large catches tended to contain larger than average fish (Rogers 2006). Closure of those areas might be used to further reduce darkblotched rockfish fishing mortality if needed.

Catch monitoring uncertainty is low for darkblotched since it a trawl-dominant species and the trawl fishery is subject to 100 percent observer coverage.

Rebuilding Duration

The 2013 and 2014 darkblotched ACL alternative is predicted to rebuild within 1 year of the shortest time possible ($T_{F=0}$ = 2016).

Rebuilding Probabilities

Darkblotched rockfish rebuilding probabilities, both P_{MAX} and P_{TARGET}, are high at 100 percent under the preferred and only ACL alternative analyzed.

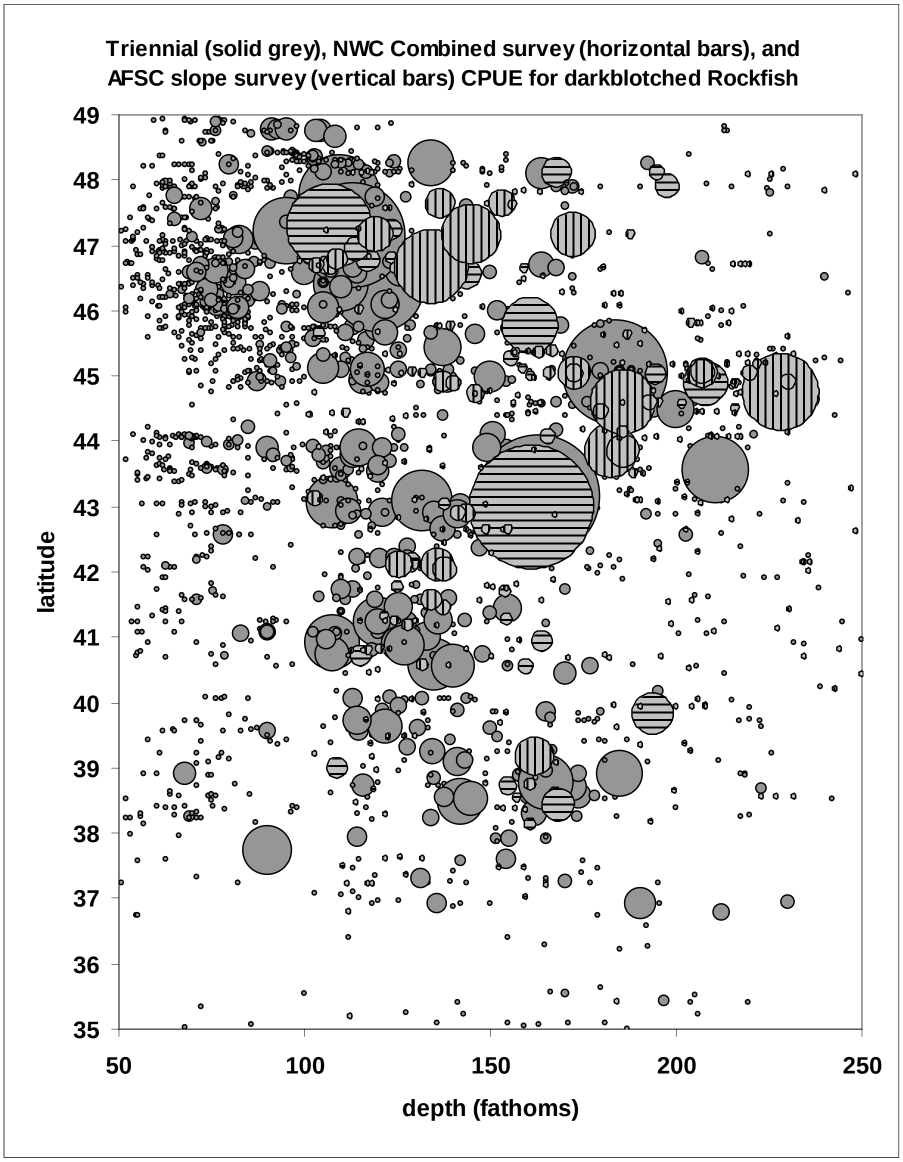


Figure 4-7. Index of west coast distribution of darkblotched rockfish by latitude and depth as determined by catch per tow in NMFS trawl surveys. Size of circle is proportional to darkblotched rockfish density at that location. Data from the NWFSC's West Coast Groundfish Survey Database and the AFSC Triennial Shelf and Slope Survey Database.

Pacific Ocean Perch North of 40º10' N. Latitude

The 2011 POP assessment applies to the U.S. west coast stock north of 40º10' N. latitude. POP are distributed north to the Bering Sea and west off of Japan with the center of distribution in the Gulf of Alaska. They have also been observed as far south as Baja California but are sparse south of Cape Blanco, Oregon and rare south of 40º10' N. latitude.

The POP spawning stock depletion of 19.1 percent at the start of 2011 is below the MSST, 136.7 percent of the minimum estimated depletion in 1999 (14.0 percent), and 47.8 percent of the B_{MSY} target. This is a low level of depletion across the spectrum of overfished west coast rockfish species, being the second most depleted west coast groundfish stock (only cowcod has a lower estimated depletion rate).

Summary (3+) biomass in 2011 is 25,482 mt, which is close to the estimate that a straight update of the old model would produce (26,839 mt). However, due to the much higher estimates of unfished summary biomass (119,914 mt) in the 2011 assessment, the 2011 depletion (19.1 percent) is much lower than the value would be (31.5 percent) in the update.

A major change in the outcome of the 2011 assessment is the change to the unfished equilibrium biomass (B_0) estimate. The very large recruitment estimate in the late 1950s seen in all previous assessments is not evident in the 2011 assessment. A major and unresolved problem in the assessment is that the stock became depleted in the mid- to late 1960s (due to a significantly large catch by foreign trawl fleets) before any survey data were available. Previous assessments assumed a large recruitment in the late 1950s provided the higher biomass to support the estimated removals by the foreign fleets without any data to support that assumption. The assumption in the 2011 assessment is that the large foreign fleet catch fished the biomass down to critical levels thus resulting in a significantly larger B_0 estimate. The 2011 assessment also estimated a longer sequence of higher recruitment based on fitting to the data available for early years of the assessment period.

<u>Stock Productivity Relative To Rebuilding Success</u>

Stock-recruitment steepness was estimated external to the 2011 POP stock synthesis assessment base model at 0.4 (and then fixed in the model), which is low compared to steepness estimates from POP assessments conducted off Canada and Alaska. The 2011 assessment assumes no connectivity with the other assessed POP stocks in Canada and Alaska. POP off of the US West Coast (mostly Washington and Oregon) are at the southern end of the range where there are enough POP to be commercially important, and the numbers seen are likely related to movement across the Canadian border as well as reproductive success (recruitment) and fishing mortality north of the border. Given there is no evidence of stock structure in the meta-population of POP in the northeast Pacific and larval distribution of slope rockfish tends to be geographically widespread, this assumption of no connectivity with northern stocks is questionable. It is plausible that steepness is higher than determined in the 2011 assessment, which would tend to estimate a less depleted and more productive stock. The major axis of uncertainty in the assessment is steepness, with states of nature ranging from a low steepness of 0.35 to a higher value of 0.55. If steepness was as high as 0.55, the POP stock would be on the verge of being rebuilt at the start of 2011 (depletion = 39.9%) and projected to be rebuilt at the start of 2012. Under the base case model with a steepness of 0.4 and continuing to manage POP using the 86.4 percent SPR harvest rate in the current rebuilding plan, the stock is projected to be rebuilt by 2051.

Recruitment trends estimated in the 2011 POP assessment indicate that, like most assessed rockfish, recruitment has been relatively lower in the last few decades compared to the 1950s and 1960s. However, the 1999 and 2000 year classes are estimated to be above average and the 2008 year class recruitment, while uncertain, appears to be the largest in at least the past 50 years (Figure 4-8).

Fishing practices are unlikely to have any effect on stock productivity given the low fishing mortality levels proposed. There is no indication that fishing operations are likely to substantially interfere with or disturb reproductive behavior or juvenile survival.

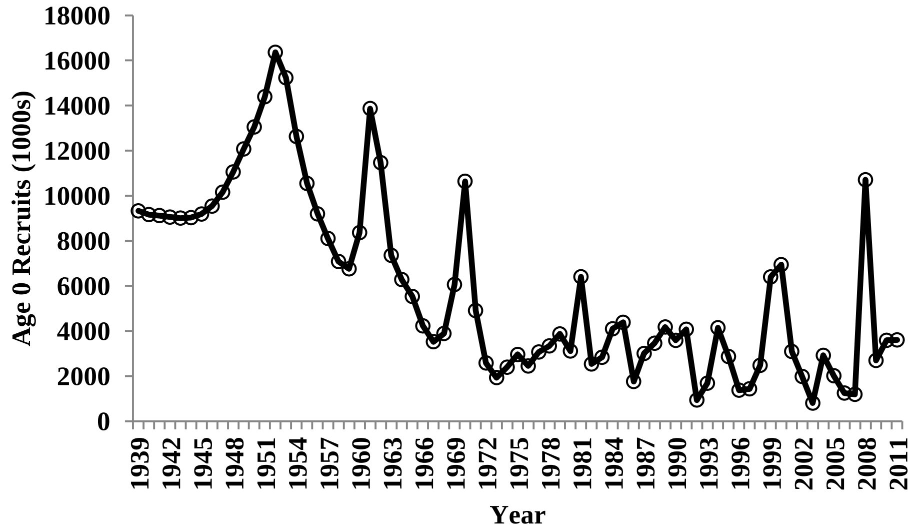


Figure 4-8. Time series of estimated (age 0) POP recruitments (from Hamel and Ono 2011).

Fishing Mortality

POP are caught almost exclusively by groundfish trawl gear and predominantly bottom trawls operating on the outer continental shelf and slope north of 43º N. latitude. POP are distributed from 30-350 fm, with the core distribution between 110-220 fm.

According to the base model in the 2011 assessment, the fishing level has been below the proxy $F_{50\%}$ F_{MSY} harvest rate for the past 12 years (Figure 4-9), during which period the stock has begun to rebuild (Figure 4-10). The point estimates of summary (age 3+) biomass also show an upward trend over the past decade, increasing approximately 50% in that time.

Given the new assessment results and the change in our understanding of depletion and stock productivity, POP stock rebuilding is significantly behind schedule. Therefore, the Council is recommending a change to T_{TARGET} in the rebuilding plan. Table 4-7 shows the ACL/rebuilding plan alternatives analyzed for 2013 and beyond. The Council's preliminary preferred alternative is to maintain the SPR harvest rate of 86.4 percent in the current rebuilding plan and change T_{TARGET} to 2051, which is the new median year to rebuild under that harvest rate. This harvest rate equates to 2013 and 2014 ACLs of 150 mt and 153 mt, respectively, which approximates the No Action 2012 ACT of 157 mt. This level of harvest should meet the needs of fishing communities. An ACT is not likely needed for POP in 2013 and 2014 given the low management uncertainty for this trawl-dominant stock. An ACT was specified in 2011 and 2012 because it was not certain the trawl rationalization program would be implemented on time and there was concern about the "lightning strike" bycatch event in the 2007 shoreside whiting fishery that caused the OY to be exceeded (

Table 4-4).

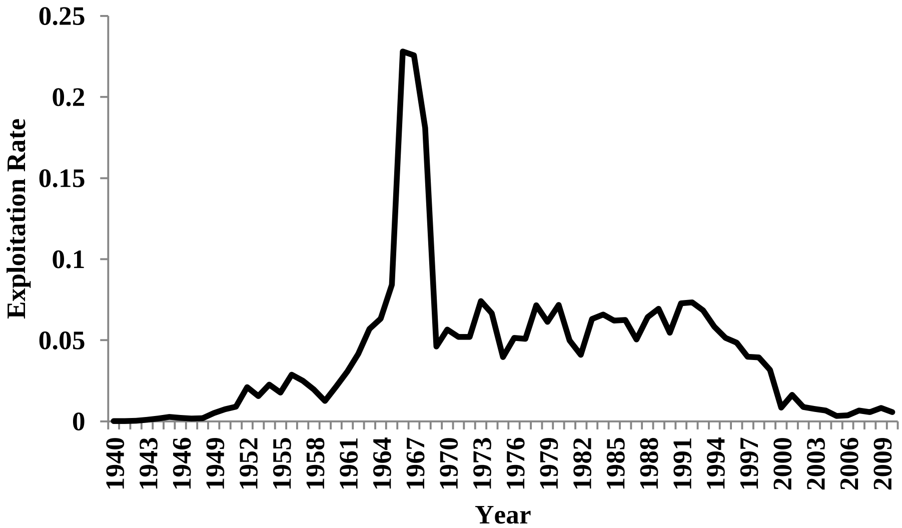


Figure 4-9. Time series of POP exploitation rates (catch/summary biomass) (from Hamel and Ono 2011).

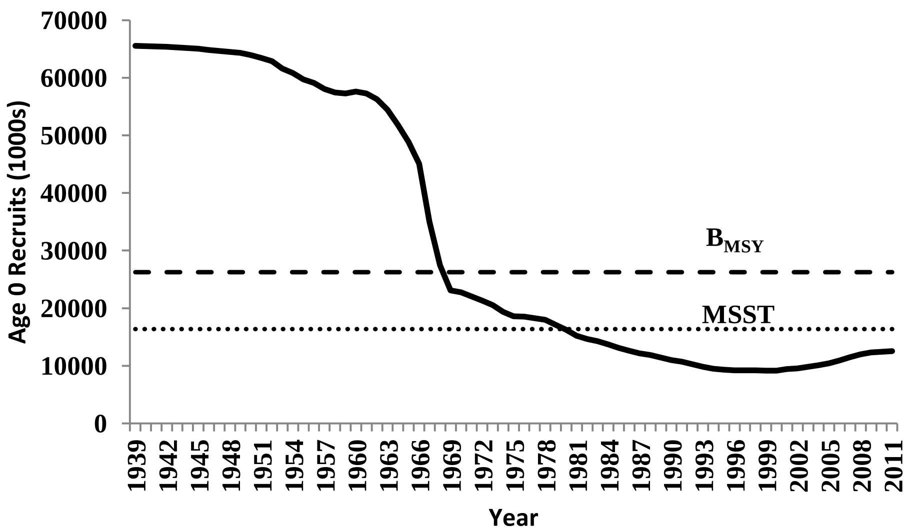


Figure 4-10. Time series of POP spawning biomass relative to the B_{MSY} target and the MSST, 1939-2011 (from Hamel and Ono 2011).

Table 4-7. Alternative 2013 and 2014 POP ACLs relative to the ACL evaluation criteria.

Evaluation Criteria	No Action 2012 ACL (mt)	Alternative 2013 and 2014 ACLs (mt)				
		Alt. a	Alt. b; Int. Alts. 3 & 5	Alt. c; Int. Alts. 1 & 2 (PPA)	Alt. d; Int. Alts. 6 & 7	Alt. e; Int. Alt. 4
ACLs	183	0	74, 76	150, 153	222, 236	247, 251
SPR harvest rate	83.9%	100.0%	92.9%	86.4%	80.9%	79.2%
Rebuilding duration beyond $T_{F=0}$ (yrs.)	11	0	3	8	14	17
Rebuilding probability by T_{MAX} (P_{MAX})	70.1%	85.5%	79.0%	73.0%	NA	62.0%
Rebuilding probability by current T_{TARGET} (P_{TARGET})	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%

Catch monitoring uncertainty is low for POP since it a trawl-dominant species and the trawl fishery is subject to 100 percent observer coverage.

Rebuilding Duration

The new 2011 POP rebuilding analysis estimates the shortest time to rebuild to the B_{MSY} target ($T_{F=0}$) to be 2043. The ACL alternatives other than ACL alternative a, which is the zero-harvest alternative, are predicted to rebuild 3-17 years beyond $T_{F=0}$ (Table 4-7). The preferred alternative (ACL alternative c) is predicted to rebuild 8 years beyond $T_{F=0}$.

Rebuilding Probabilities

All the ACL alternatives, including the zero-harvest alternative, have a 25 percent probability of rebuilding by the current T_{TARGET} of 2020 which is why a change to the rebuilding plan is contemplated (Table 4-7). The probabilities of rebuilding by T_{MAX} (P_{MAX}) vary between 62 percent and 85.5 percent across the range of ACL alternatives analyzed. The P_{MAX} under the Council's preferred alternative is 73 percent.

Petrale Sole

The petrale sole stock was declared overfished in 2010 based on the results of the 2009 assessment (Haltuch and Hicks 2009). A new full petrale sole assessment was done in 2011 (Haltuch et al. 2011), which indicated the spawning stock depletion was 18 percent at the start of 2011 and therefore above the flatfish MSST of 12.5 percent. This level of depletion is 71.8 percent of the B_{MSY} target of 25 percent and 282.1 percent of the minimum biomass estimated in 1993. The base model in the new assessment estimates that spawning output dropped below the MSST during 1980, reached a minimum of 6 percent during 1993 and has been rising more or less steadily since, crossing above the MSST by the start of 2003 (Figure 4-11). Compared to the 2009 assessment, which estimated that depletion was 11.6 percent in 2009, the new stock assessment indicates a more optimistic view (depletion of 15.7 percent in 2009).

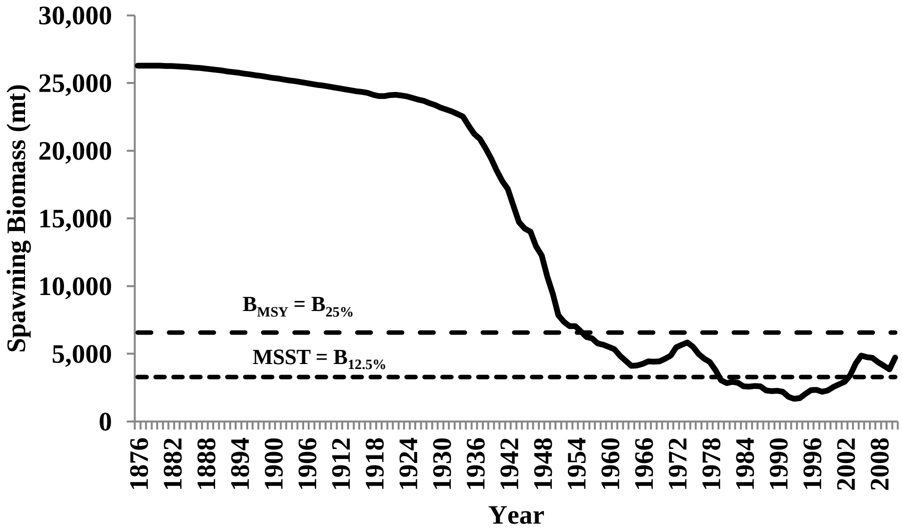


Figure 4-11. Petrale sole spawning biomass time series relative to the B_{MSY} target and MSST, 1876-2011 (from Haltuch et al. 2011).

As was the case for the 2009 assessment, the new assessment covers the stock of petrale sole off the entire US west coast. There were no major changes in the model structure of the new assessment compared to the 2009 assessment. However, there were important changes in some input information including: revised ageing-error vectors, an estimated value for steepness (0.86) based on the Myers meta-analysis for pleuronectids, and estimated annual sex-specific natural mortality rates (0.16 for females, 0.18 for males) based on a prior probability distribution developed by Dr. Owen Hamel.

Petrale sole was categorized as a category 1 stock and the assessment is considered a relatively robust and data-rich assessment. Petrale occur in trawlable areas and are readily caught in the NMFS trawl survey. Catch data is also relatively rich in the assessment, despite the effect the high historical catches before good record-keeping has had on the estimate of high unfished biomass and low current depletion. The base case model fits the survey and compositional data very well and the assessment was considered thorough and technically sound by the STAR Panel and the SSC. Scientific uncertainty in estimating 2013 and 2014 petrale OFLs is relatively low. However, scientific uncertainty is much greater in estimates of unfished biomass and current depletion rate.

Stock Productivity Relative To Rebuilding Success

Petrale sole spawn during the winter at several discrete deepwater sites (270-460 m) off the U.S. west coast, from November to April, with peak spawning taking place from December to February (Harry 1959; Best 1960; Gregory and Jow 1976; Castillo et al. 1993; Carison and Miller 1982; Reilly et al. 1994; Castillo 1995; Love 1996; Moser 1996a; Casillas et al. 1998). The petrale sole stock assessment and rebuilding plans are not spatially explicit. However, both analyses consider the seasonality of the catches by the fishery as the winter fishery focuses on spawning aggregations and the summer fishery exploits a mixed stock. Longer recovery times are expected when allowing the winter fishery to catch most of the fish as it focuses on spawning aggregations. No research has been done regarding spawning behavior and the impact of fishing on spawning aggregations.

Petrale have high stock productivity with an estimated stock-recruitment steepness of 0.86, which was based on a meta-analysis of flatfish species in the family *Pleuronectidae* (Myers et al. 1999) and not estimated directly in the SS model. The time series of estimated recruitments shows a relationship with the decline in spawning biomass, punctuated by larger recruitments (Figure 4-12). The four weakest recruitments since 1939 are estimated to be from 1962, 1986, 1987, and 1992, while the four strongest recruitments since 1939 are estimated to be from 1939, 1966, 1998, and 2007. Until 2007, the most recent large recruitment event is estimated to be in 2006, and was smaller than the 1998 recruitment event.

The high stock productivity and the large recent recruitments contribute to a predicted quick recovery of the petrale sole stock. The 2011 petrale rebuilding analysis predicts the stock will be successfully rebuilt by the start of 2013, with an estimated depletion of 28 percent.

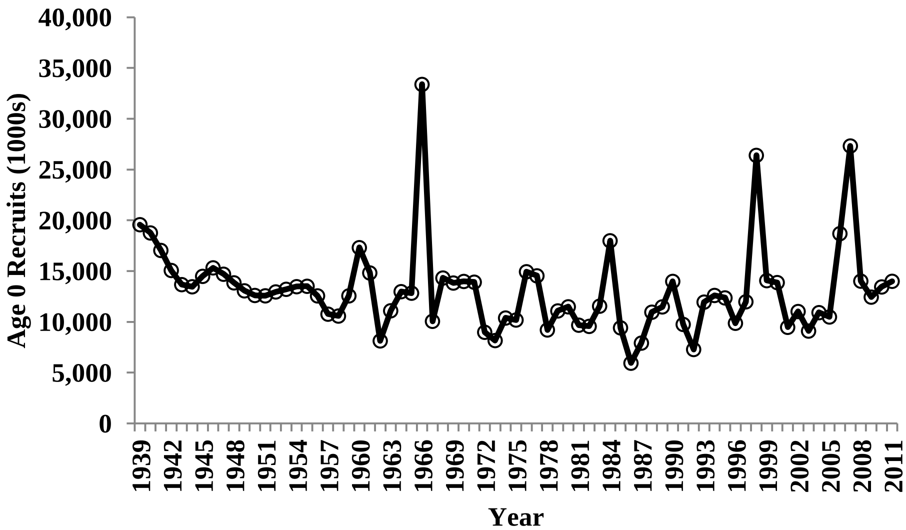


Figure 4-12. Time series of estimated (age 0) petrale sole recruitments, 1939-2011 (from Haltuch et al. 2011).

Fishing Mortality

Most of the petrale sole catch is made by deep-water demersal trawls at depths of 164-252 fm (PMFC 1996). Recent petrale sole catch statistics exhibit marked seasonal variation, with substantial portions of the annual harvest taken from the spawning grounds in December and January. From the inception of the fishery in 1876 through the mid-1940s, the vast majority of catches occurred between March and October (the summer fishery), when the stock is dispersed over the continental shelf. The post-World War II period witnessed a steady decline in the amount and proportion of annual catches occurring during the summer months (March-October). Conversely, petrale catch during the winter season (November–February), when the fishery targets spawning aggregations, has exhibited a steadily increasing trend since the 1940's. Since the mid-1980s, catches during the winter months have been roughly equivalent to or exceeded catches throughout the remainder of the year. In 2009 catches of petrale sole began to be restricted due to declining stock size.

Petrale sole begin to mature between 25-30 cm and the fishery generally selects fish of the same size or larger. Immature fish, generally those less than 25 cm in length, are not subject to high levels of fishery mortality.

Petrale sole exhibit distinct seasonal depth migrations with higher abundance on the shelf during summer months and higher abundance in distinct spawning areas during winter months. Hence, RCA structures for this species could vary seasonally if RCA management is needed to control fishing mortality. The general pattern for petrale sole is a shallower depth distribution during periods 3 and 4 and a deeper depth distribution during periods 1 and 6. Petrale sole are typically in transition as they migrate between shallow and deeper depths during periods 2 and 5.

Petrale sole is a trawl-dominant species. Therefore, the uncertainty in catch monitoring and accounting is low given the mandatory 100 percent observer coverage and near real-time reporting of total catches in the rationalized trawl fisheries.

Rebuilding Duration

The 2011 petrale rebuilding analysis predicts the stock will be rebuilt by 2013. Therefore, all the ACL alternatives considered, including the zero-harvest alternative, will rebuild in the same year as the shortest time possible.

Rebuilding Probabilities

The rebuilding probabilities (both P_{MAX} and P_{TARGET}) are high for the petrale sole ACL alternative analyzed (as well as the others ACL alternatives considered but not decided for detailed analysis) at 100 percent (Table 2-7). This is because the stock is predicted to be rebuilt by the start of 2013 regardless of 2013-2014 harvest specifications. The SSC is recommending a new assessment be done in 2013 to confirm that prediction.

Yelloweye Rockfish

The yelloweye rockfish spawning stock depletion was estimated at 21.4 percent of the unfished biomass at the start of 2011 and below the MSST of 25 percent. This is a low level of depletion across the spectrum of overfished west coast rockfish species, higher only than the estimated depletion rates for cowcod and POP. This level of depletion is 53.3 percent of the B_{MSY} target and 136 percent of the minimum biomass estimated in 2000.

Data for yelloweye rockfish are sparse and relatively uninformative, especially regarding current trends. Parameters that generally contribute significant model uncertainty to stock assessments, including those defining steepness, natural mortality, and growth are estimated, but may be poorly determined due to the short time series of available data. Currently available fishery-independent indices of abundance are imprecise and not highly informative. It is unclear whether increased rates of recovery (or lack thereof) will be detectable without more precise survey methods applied over broad portions of the coast. Fishery data are also unlikely to produce conclusive information about the stock for the foreseeable future, due to retention prohibitions and active avoidance of yelloweye among all fleets.

The new yelloweye assessment and rebuilding analysis is predicted to be rebuilding 7 years ahead of schedule. Therefore, the Council is not proposing a change to the rebuilding plan which specifies a T_{TARGET} of 2074 and an SPR harvest rate of 76 percent.

Stock Productivity Relative To Rebuilding Success

Yelloweye year class strength is modeled as a deterministic process in the 2011 assessment with no estimation of the size of individual year classes. Therefore, the decline in estimated recruitment tracks closely to that of the spawning output (Figure 4-13). The decline is especially pronounced given the low (and likely imprecise) estimate for steepness of the stock-recruit relationship in the base-case model

(0.441). The low estimated steepness in the assessment results in a prediction of very little surplus production and consequently estimates of low yields at B_{MSY} (MSY is estimated to be 58 mt under the F_{MSY} proxy SPR harvest rate of 50%). This relatively low stock productivity also predicts a long mean generation time of 46 years and a slow recovery rate under the very low harvest rate specified in the yelloweye rebuilding plan, as well the alternative harvest rates explored in the 2011 rebuilding analysis.

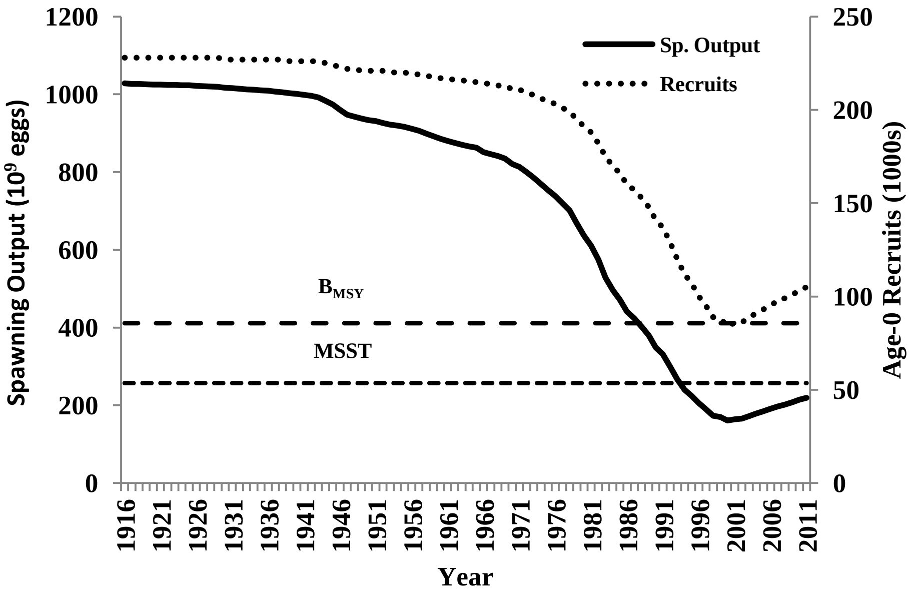


Figure 4-13. Time series of estimated yelloweye rockfish spawning output and recruitments for the base-case model in the 2011 assessment (from Taylor and Wetzel 2011).

Fishing Mortality

Yelloweye rockfish are caught coastwide in all sectors of the fishery. Yelloweye are particularly vulnerable to hook and line gears which are effective in the high relief habitats yelloweye reside. The current non-trawl RCA and the recreational depth closures are primarily configured based on yelloweye distribution and projected impacts in these hook and line fisheries. Small footrope trawls, including selective flatfish trawls, do not have the rollers and anti-chafing protection needed to fish in the high relief habitats yelloweye reside. Mandating these gears for trawl efforts on the shelf shoreward of the trawl RCA, the configuration of the trawl RCA, and a small IFQ allocation of yelloweye are the primary strategies currently used to minimize trawl impacts on yelloweye. Yelloweye are also a bycatch species in the Pacific halibut fishery (Love et al. 2002).

Yelloweye rockfish are mostly encountered north of 36º N. latitude. Yelloweye occur in depths from 25 to 475 m (Orr et al. 2000) and are most commonly found at depths from 91 to 180 m (Love et al. 2002). Figure 4-14 shows the catch per tow of yelloweye rockfish in the NMFS bottom trawl survey, which has been used as an index of the stock's depth and latitudinal distribution.

Fishing mortality rates are estimated in the 2011 assessment to have been in excess of the current F_{MSY} harvest rate for rockfish (SPR = 50%) from 1976 through 1999. Relative exploitation rates (catch/biomass of age-8 and older fish) are estimated to have peaked at 12.7 percent in 1992, but have been at or less than 1.1 percent after 2001 (Figure 4-15). The F_{MSY} exploitation rate assuming the proxy SPR of 50 percent is 2.2 percent. Annual yelloweye harvest rates in the 1976-1999 period averaged over five times the estimated F_{MSY} and spawning biomass declined rapidly during that period (Figure 4-13).

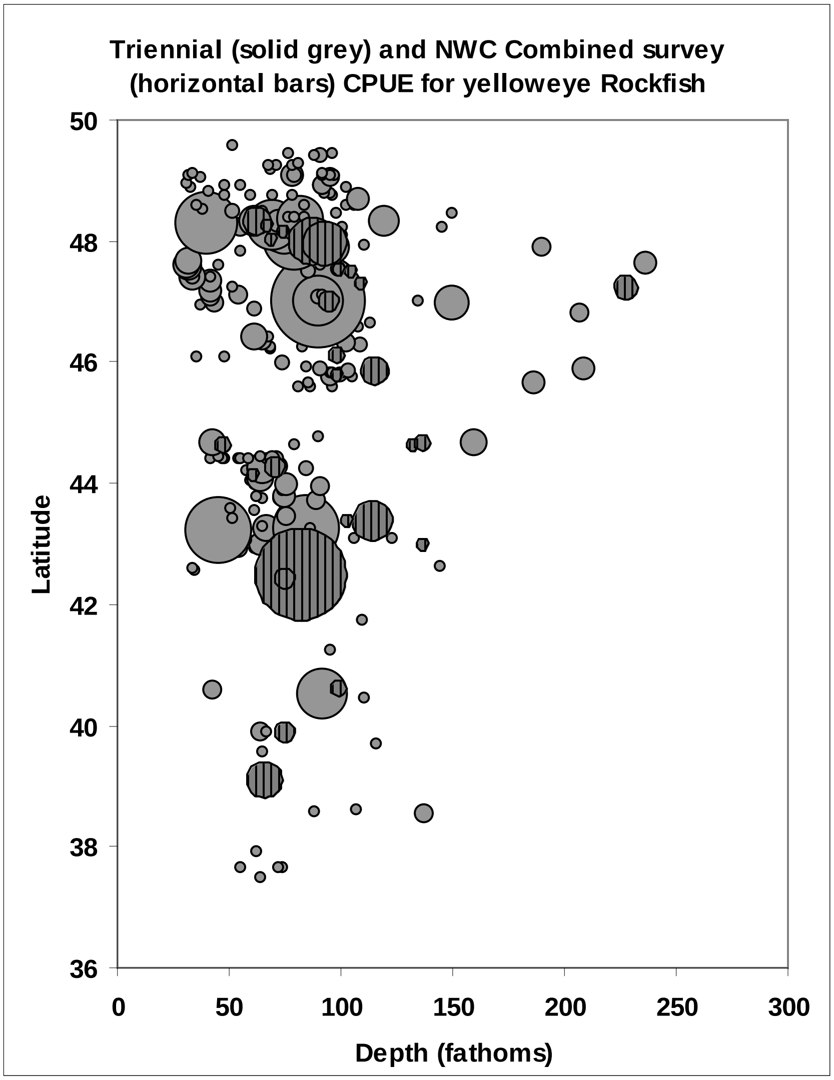


Figure 4-14. Index of west coast distribution of yelloweye rockfish by latitude and depth as determined by catch per tow in NMFS trawl surveys. Size of circle is proportional to yelloweye rockfish density at that location. Data from NWFSC's West Coast Groundfish Survey Database and the AFSC Triennial Shelf and Slope Survey Database.

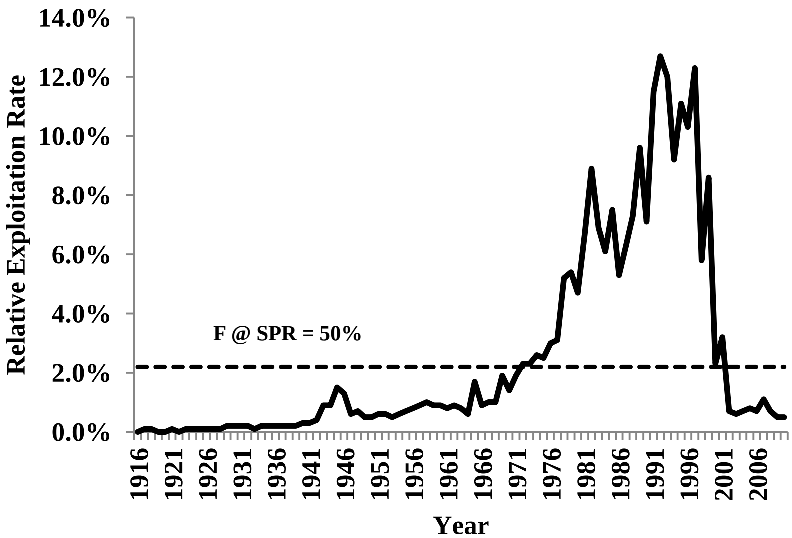


Figure 4-15. Time series of estimated relative exploitation rates (catch/biomass of age 8+ fish) of yelloweye rockfish, 1916-2010 (from Taylor and Wetzel 2011).

The commercial RCAs significantly reduce yelloweye impacts. North of 40º10’ N. latitude, the highest bycatch rates of yelloweye rockfish occur in waters less than 100 fm. Yelloweye rockfish have a patchy distribution and as such using fleetwide bycatch rates over a large area (north and south of 40º10’ N. latitude) may misrepresent actual catch rates. North of Cape Alava, yelloweye bycatch rates are lowest inside of the 60 fm line; bycatch rates would increase substantially if shoreward RCAs were moved from the 60 fm line to the 75 fm line. The seaward boundary of the non-trawl RCA extends out to 150 fm year round south of 40º10’ N. latitude. The seaward boundary of the non-trawl RCA north of 40º10’ N. latitude is at 100 fm year round with a few exceptions where the seaward boundary is at 125 fm. Between 45º03.83’ to 43º N. latitude the seaward is at 125 fm year round.

Area closures and a prohibition on retention are the main strategies used to minimized recreational yelloweye impacts. The California recreational fishery is subject to depth restrictions that are more restrictive in the northern management areas where yelloweye are more prevalent. CDFG evaluated and has available four potential YRCAs which include habitat in both state and Federal waters where high yelloweye encounter rates have been documented. If implemented, YRCAs are anticipated to reduce yelloweye impacts during the open fishing seasons in both the Northern Groundfish Management Area and the North-Central North of Pt. Arena Groundfish Management Area, possibly allowing for a longer fishing season. To date, these YRCAs have not been implemented but would remain available management measures that can be routinely implemented inseason if needed. Depth management is the main tool used for controlling yelloweye rockfish fishing mortality in the Washington and Oregon recreational fisheries.

Catch monitoring uncertainty is high given the relatively small contribution of yelloweye to rockfish market categories and the relatively large scale of recreational removals. In addition, since 2001, management restrictions have required nearly all yelloweye rockfish caught by recreational and commercial fishermen to be discarded at sea. Precisely tracking recreational catch inseason, especially in the California recreational fishery, has been a challenge.

Rebuilding Duration

The shortest time to rebuild the coastwide yelloweye stock under a zero-harvest strategy (i.e., $T_{F=0}$) predicted in the 2011 rebuilding analysis is 2045. The one ACL alternative analyzed is predicted to extend rebuilding 22 years beyond $T_{F=0}$ and 7 years sooner than the current T_{TARGET} of 2074.

Rebuilding Probabilities

The ACL alternative analyzed has a predicted P_{MAX} of 72.9 percent and a probability of rebuilding by the target year of 2074 of 62.1 percent.

4.1.1.4 Effects of ACL Alternatives for Non-Overfished Species Managed with Stock-Specific Harvest Specifications

For non-overfished species where there was new scientific information including stock assessments or harvest policy changes, the Council considered more than one ACL prior to the development of the integrated alternatives. However, with the exception of longnose skate and widow rockfish, only a single ACL was brought forward for the development of the integrated alternatives. A range of alternatives for Pacific whiting are analyzed to understand the bycatch needs of the trawl sectors that target whiting; however, deciding 2013 and 2014 ACLs for Pacific whiting is not contemplated in the proposed action. This section provides further information on the biological effects of the alternative ACLs considered for non-overfished species prior to the development of integrated alternatives. The biological effects in this section focus on the risk to the stock of becoming overfished.

Stock productivity and fishing mortality relative to projected biomass under the ACL alternatives are evaluated to under biological impacts. Genetic diversity and prey availability are cumulative effects that cannot be differentiated across the ACL alternatives and are therefore only discussed below when the attribute was a major consideration in the ACL selection (e.g., prey availability in relation to the preferred shortbelly rockfish ACL). Discussion of what is known regarding the genetic diversity or prey availability and such ecological interactions regarding non-overfished west coast groundfish species is summarized in the 2011 and 2012 Harvest Specifications and Management Measures FEIS (PFMC 2010).

The performance of the management system to stay within specified annual OYs for currently non-overfished groundfish species managed with stock-specific harvest specifications in recent years (2005-2010) is discussed to better understand the ability to stay within 2013 and 2014 ACLs (Table 4-8). Total mortality estimates are not yet available for 2011; however, trawl catch data in the 2011 trawl IFQ fishery are available (Table 4-9). Therefore, 2011 catch data for the trawl-dominant currently non-overfished species managed with stock-specific harvest specifications are further discussed in the sections below.

Table 4-8. Specified annual OYs (mt), estimated annual total mortality (mt), and percent of OY attainment of non-overfished west coast groundfish species managed with stock-specific harvest specifications, 2005-2010.

Species	Specified OYs, Estimated Total Mortality, and Percent of OY Attainment					
	2005	**2006**	**2007**	**2008**	**2009**	**2010**
Arrowtooth Flounder						
OY (mt)	5,800	5,800	5,800	5,800	11,267	10,112
Est. Mort. (mt)	3,706	3,105	3,099	3,409	5,443	4,090
% OY	63.9%	53.5%	53.4%	58.8%	48.3%	40.4%
Black RF (coastwide) a/						
OY (mt)	1,293	1,276	NA	NA	NA	NA
Est. Mort. (mt)	937	896	NA	NA	NA	NA
% OY	72.5%	70.2%	NA	NA	NA	NA
Black RF (CA & OR)						
OY (mt)	753	736	722	722	1,000	1,000
Est. Mort. (mt)	NA	NA	577	593	784	650
% OY	NA	NA	79.9%	82.1%	78.4%	65.0%
Black RF (WA)						
OY (mt)	540	540	540	540	490	464
Est. Mort. (mt)	NA	NA	260	156	207	199
% OY	NA	NA	48.1%	28.9%	42.2%	43.0%
Cabezon (CA)						
OY (mt)	69	69	69	69	69	79
Est. Mort. (mt)	80	106	42	39	51	47
% OY	116.4%	153.4%	61.4%	56.2%	73.9%	59.6%
CA scorpionfish b/						
OY (mt)	NA	NA	175	175	175	155
Est. Mort. (mt)	NA	NA	68	65	70	67
% OY	NA	NA	38.7%	37.0%	40.0%	43.0%
Chilipepper S						
OY (mt)	2,000	2,000	2,000	2,000	2,885	2,447
Est. Mort. (mt)	97	126	128	151	311	376
% OY	4.9%	6.3%	6.4%	7.6%	10.8%	15.3%
Dover sole						
OY (mt)	7,476	7,564	16,500	16,500	16,500	16,500
Est. Mort. (mt)	7,507	7,730	10,227	11,820	12,546	10,952
% OY	100.4%	102.2%	62.0%	71.6%	76.0%	66.4%

Species	Specified OYs, Estimated Total Mortality, and Percent of OY Attainment					
	2005	**2006**	**2007**	**2008**	**2009**	**2010**
English sole						
OY (mt)	3,100	3,100	6,237	6,237	14,326	9,745
Est. Mort. (mt)	1,222	1,336	914	436	501	311
% OY	39.4%	43.1%	14.7%	7.0%	3.5%	3.2%
Lingcod						
OY (mt)	2,414	2,414	6,170	6,170	5,278	4,829
Est. Mort. (mt)	890	952	706	574	581	450
% OY	36.9%	39.5%	11.4%	9.3%	11.0%	9.3%
Longnose skate c/						
OY (mt)	NA	NA	NA	NA	1,349	1,349
Est. Mort. (mt)	NA	NA	NA	NA	1,455	1,387
% OY	NA	NA	NA	NA	107.9%	102.8%
Longspine thornyhead (coastwide) d/						
OY (mt)	2,461	2,461	2,696	NA	NA	NA
Est. Mort. (mt)	750	854	928	NA	NA	NA
% OY	30.5%	34.7%	NA	NA	NA	NA
Longspine thornyhead N						
OY (mt)	NA	NA	2,220	2,220	2,231	2,175
Est. Mort. (mt)	NA	NA	NA	1,445	1,582	1,719
% OY	NA	NA	NA	65.1%	70.9%	79.0%
Longspine thornyhead S						
OY (mt)	NA	NA	476	476	395	385
Est. Mort. (mt)	NA	NA	NA	18	20	26
% OY	NA	NA	NA	3.7%	5.1%	6.7%
Pacific cod						
OY (mt)	1,600	1,600	1,600	1,600	1,600	1,600
Est. Mort. (mt)	864	385	101	39	248	346
% OY	54.0%	24.1%	6.3%	2.4%	15.5%	21.7%
Pacific whiting						
OY (mt)	269,069	269,545	242,591	269,545	135,939	193,935
Est. Mort. (mt)	261,212	267,707	215,340	250,205	122,165	165,717
% OY	97.1%	99.3%	88.8%	92.8%	89.9%	85.4%
Sablefish (coastwide) e/						
OY (mt)	7,761	7,634	5,933	5,933	*NA*	*NA*
Est. Mort. (mt)	6,543	6,470	5,545	6,078	*NA*	*NA*
% OY	84.3%	84.7%	93.5%	102.4%	*NA*	*NA*

Species	Specified OYs, Estimated Total Mortality, and Percent of OY Attainment					
	2005	2006	2007	2008	2009	2010
Sablefish N						
OY (mt)	7,486	7,363	5,723	5,723	7,052	6,471
Est. Mort. (mt)	NA	NA	NA	NA	6,625	6,167
% OY	NA	NA	NA	NA	93.9%	95.3%
Sablefish S						
OY (mt)	275	271	210	210	1,371	1,258
Est. Mort. (mt)	NA	NA	NA	NA	776	1,039
% OY	NA	NA	NA	NA	56.6%	82.6%
Shortbelly RF						
OY (mt)	13,900	13,900	13,900	13,900	6,950	6,950
Est. Mort. (mt)	NA	NA	1	9	9	7
% OY	NA	NA	0.0%	0.1%	0.1%	0.1%
Shortspine thornyhead (coastwide) d/						
OY (mt)	999	1,018	2,055	NA	NA	NA
Est. Mort. (mt)	796	853	1,194	NA	NA	NA
% OY	79.7%	83.8%	58.1%	NA	NA	NA
Shortspine thornyhead N						
OY (mt)	NA	NA	1,634	1,634	1,608	1,591
Est. Mort. (mt)	NA	NA	NA	1,313	1,557	1,308
% OY	NA	NA	NA	80.4%	96.8%	82.2%
Shortspine thornyhead S						
OY (mt)	NA	NA	421	421	414	410
Est. Mort. (mt)	NA	NA	NA	172	167	173
% OY	NA	NA	NA	40.9%	40.3%	42.1%
Splitnose S						
OY (mt)	461	461	461	461	461	461
Est. Mort. (mt)	237	162	143	177	203	140
% OY	51.5%	35.1%	31.1%	38.4%	44.0%	30.3%
Starry Flounder f/						
OY (mt)	NA	NA	890	890	1,004	1,077
Est. Mort. (mt)	NA	NA	30	21	28	38
% OY	NA	NA	3.3%	2.3%	2.8%	3.6%
Widow						
OY (mt)	285	289	368	368	522	509
Est. Mort. (mt)	199	214	259	238	195	173
% OY	69.8%	74.0%	70.4%	64.7%	37.4%	34.0%

Species	**Specified OYs, Estimated Total Mortality, and Percent of OY Attainment**					
	2005	**2006**	**2007**	**2008**	**2009**	**2010**
Yellowtail N						
OY (mt)	3,896	3,681	4,548	4,548	4,562	4,562
Est. Mort. (mt)	935	493	389	476	751	955
% OY	24.0%	13.4%	8.6%	10.5%	16.5%	20.9%

a/ Black rockfish have been managed with stock-specific harvest specifications north and south of the Columbia River through this period; however, only coastwide catches were reported in 2005 and 2006 NWFSC total mortality reports. Therefore, the OYs depicted in this table are the sum of north and south OYs specified in regulations.

b/ California scorpionfish was first managed with stock-specific harvest specifications in 2007. Prior to 2007 California scorpionfish was managed under the Minor Nearshore Rockfish South complex.

c/ Longnose skate was first managed with stock-specific harvest specifications in 2009. Prior to 2009 longnose skate was managed under the Other Fish complex.

d/ Shortspine and longspine thornyheads were managed with stock-specific harvest specifications north and south of 34º27’ N. latitude beginning in 2007 and coastwide prior to 2007. The 2007 NWFSC total mortality report only reported coastwide catches of thornyheads; the OYs in the table are the sum of the north and south OYs for both species in 2007.

e/ Sablefish have been managed with stock-specific harvest specifications north and south of 34º27’ N. latitude through this time period; however, only coastwide catches were reported in NWFSC total mortality reports through 2008. Thereafter, area-specific catches of sablefish have been reported. The 2005-2008 sablefish OYs depicted in this table are the sum of north and south OYs specified in regulations.

f/ Starry flounder was first managed with stock-specific harvest specifications in 2007. Prior to 2007 starry flounder was managed under the Other Flatfish complex.

Table 4-9. Allocations, total catch, and percent attainment of allocations of non-overfished IFQ species in the 2011 shoreside trawl fishery, ranked by percent attainment of allocations.

Species	Allocation (lbs)	Total catch (lbs)	Attainment
Pacific whiting	204,628,442	200,984,738	98%
Sablefish North of 36º N.	5,613,719	5,285,233	94%
Sablefish South of 36º N.	1,170,390	1,009,688	86%
Shortspine thornyheads North of 34º27' N.	3,156,138	1,572,543	50%
Longspine thornyheads North of 34º27' N.	4,334,839	2,116,811	49%
Widow rockfish	755,348	303,681	40%
Dover sole	49,018,682	17,252,397	35%
Pacific halibut (IBQ) North of 40º10' N.	257,524	65,349	25%
Yellowtail rockfish North of 40º10' N.	6,821,455	1,629,140	24%
Pacific cod	2,502,247	556,690	22%
Chilipepper rockfish South of 40º10' N.	3,252,370	685,026	21%
Arrowtooth flounder	27,406,105	5,476,847	20%
Shortspine thornyheads South of 34º27' N.	110,231	18,579	17%
Lingcod	4,107,873	627,839	15%
Splitnose rockfish South of 40º10' N.	3,045,245	60,905	2%
Starry flounder	1,471,586	25,924	2%
English sole	41,166,808	298,215	1%

Arrowtooth Flounder

The last full stock assessment of arrowtooth flounder (Kaplan and Helser 2008) estimated the spawning biomass to be at 79 percent of the estimated unfished spawning biomass at the start of 2007. Scientific uncertainty in the arrowtooth flounder assessment is relatively high. The SSC categorized the arrowtooth stock as a category 2 species since highly uncertain historical discards and estimates of natural mortality make this a less certain assessment than those for other assessed stocks.

<u>Stock Productivity</u>

Arrowtooth flounder are a very productive stock with high growth rates, high natural mortality rates, and a high stock-recruitment steepness. A mean flatfish steepness of 0.8 was determined in a 2010 meta-analysis conducted by the SSC and described in the 2011-2012 specifications FEIS (PFMC 2010). A steepness of 0.902 was assumed in the 2007 arrowtooth flounder assessment based on a flatfish meta-analysis conducted by Dr. Martin Dorn. Arrowtooth received a relatively high productivity score of 1.95 in the PSA analysis (Table 4-1).

The 2007 assessment estimated strong recruitments for most years between 1998 and 2007 with a particularly strong recruitment of the 1999 year class. That year class has dominated the population and fishery for the last ten years but is now diminished through high natural mortality. However, the 2007 assessment projects a very healthy stock through 2018 under catch streams much higher than has been realized since then.

<u>Fishing Mortality</u>

The target F_{MSY} SPR harvest rate for arrowtooth is 30 percent. The 2007 assessment estimated annual SPR harvest rates between 1997 and 2006 of 49-75 percent, significantly lower than the target. The arrowtooth ACL/OY has never been exceeded (Table 4-5 and Table 4-8).

Only one 2013 and 2014 arrowtooth flounder ACL alternative is considered, which sets ACLs equal to the specified ABCs. This is the same basis for deciding the No Action 2012 ACL. However, the 2013 and 2014 ACLs are significantly lower than the No Action ACL due to the OFL being biased low. The 1999 year class has been dominant in the population in the last ten years and is now a very minor component of the spawning biomass with the high natural mortality of the stock. The reason the OFL projected from the 2007 assessment is biased low is that the OFL projections assume the annual removal of the entire projected OFL rather than the average ACL/OY or average catch. Catch of arrowtooth has always been much lower than the OFL (Table 4-8); therefore, the current exploitable biomass upon which the OFL is based, is much higher than projected. The SSC and Council will explore better projection rules for future management cycles, but for now, the biased OFLs (and hence the lower ABCs/ACLs) are proposed for 2013-2014. The No Action ACL cannot be considered in 2013 and 2014 since it is considerably higher than the projected OFLs.

Arrowtooth flounder are a trawl-dominant species and are not particularly valuable. Given that arrowtooth are caught on the northern shelf where Pacific halibut, canary rockfish, and yelloweye rockfish are caught incidentally to arrowtooth, this is not a species with a high attainment since valuable quota for these highly constraining species would have to be invested to target arrowtooth. About 20 percent of the arrowtooth quota was attained in the 2011 fishery (Table 4-5). Management uncertainty is low with the 100 percent observer coverage for the trawl fleet under trawl rationalization. Given the low management uncertainty and the potential for under-attainment of quota, the preferred ACLs are not expected to result in any stock concerns. The PSA vulnerability score of 1.21 indicates a low concern of overfishing.

Black Rockfish off California and Oregon

Black rockfish off California and Oregon are a healthy stock with biomass above the target level of 40 percent. Spawning biomass depletion is projected to remain healthy through 2016 under the 1,000 mt constant catch strategy implemented since 2009 (Table 4-10). This is the only ACL alternative analyzed in this EIS and is the same as the No Action 2012 ACL.

<u>Stock Productivity</u>

The 2007 southern black rockfish assessment assumed a steepness of 0.6 based on the Dorn meta-analysis of rockfish steepness done at that time. The revised Dorn rockfish steepness meta-analysis now predicts a mean steepness of 0.76 (Figure 4-6). The PSA productivity score of 1.33 indicates a stock of moderate productivity.

The 2007 assessment estimated above average recruitments in the 1990s (with particularly strong recruitments in 1994 and 1999), 2000, 2001, and 2007; and below average recruitments during 2002-2006. These recruitments are projected to keep the stock healthy under the 1,000 mt constant catch strategy implemented in 2009 (Table 4-10).

<u>Fishing Mortality</u>

The nearshore commercial and recreational fisheries that take black rockfish are managed well in California and Oregon and ACLs/OYs have not been exceeded (Table 4-8). Stock depletion is likely higher than projected in Table 4-10 since the entire ACL has not been removed. The PSA vulnerability score of 1.94 indicates a stock of medium concern for overfishing.

Table 4-10. Projected spawning biomass and depletion of southern black rockfish assuming the base model in the 2007 assessment under the 1,000 mt constant catch strategy.

Year	Total Catch (mt)	Spawning Biomass (mt)	Depletion (%)
2007	696	3,227	70.5
2008	696	3,293	71.9
2009	1,000	3,284	71.7
2010	1,000	3,153	68.9
2011	1,000	2,972	64.9
2012	1,000	2,776	60.6
2013	1,000	2,601	56.8
2014	1,000	2,469	53.9
2015	1,000	2,384	52.1
2016	1,000	2,338	51.1

Black Rockfish off Washington

The black rockfish stock off Washington is healthy and is projected to remain healthy under the level of harvest proposed for 2013 and 2014. Only one ACL alternative is proposed that sets the 2013 and 2014 ACLs equal to the ABCs. This is the same basis used to decide the No Action 2012 ACL. The preferred ACLs are slightly less than the No Action ACL since the OFL is trending down slightly in projections due to the average recruitment assumption posited in the 2007 assessment.

Stock Productivity

The 2007 assessment assumed a steepness 0.6 in the stock-recruitment relationship of the northern black rockfish stock based on the Dorn prior (as was done in the southern black rockfish assessment). Steepness may be even higher based on the revised Dorn prior (Figure 4-6). The PSA productivity score of 1.33 indicates a stock of moderate productivity.

The assessment estimates strong recruitments in the 1990s (including strong recruitments in 1994 and 1999 as also estimated in the southern assessment) and above average recruitments from 2002-2006.

Fishing Mortality

Total mortality of black rockfish off Washington has consistently been well below established ACLs/OYs (Table 4-8). The stock is targeted in the Washington recreational fishery; however, that fishery is tightly regulated to minimize canary and yelloweye rockfish impacts. There is also a relatively low tribal take of black rockfish off Washington. There are no commercial nearshore fisheries off Washington. The PSA vulnerability score of 1.94 indicates a stock of medium concern for overfishing.

Cabezon off California

The most recent cabezon assessment was done in 2009. The 2009 assessment modeled two California sub-stocks, and also evaluated the population as a coastwide California stock. The SSC recommended combining the results of the area models for the two California sub-stocks of cabezon for use in deciding statewide harvest specifications. The assessment estimates a healthy spawning biomass of cabezon off California at the start of 2009 of 48.3 percent of unfished biomass.

Stock Productivity

The 2009 cabezon assessment assumed a steepness of 0.7 for all models. The PSA productivity score of 1.72 indicates a stock of relatively high productivity.

Recruitment deviations were estimated from 1970-2006 for both of the assessed substocks. Recruitment patterns are distinctly different for the substocks occurring north and south of Pt. Conception at 34º27' N. latitude. Large recruitment events in the 19703 and 1990s in the north and the south have increased spawning biomass to healthy levels. Interannual variation in recruitment is greater in the north. The large increase in biomass in the south was driven by a large 1999 recruitment, the largest seen in the time series. Large recruitments in the southern substock are estimated immediately after significant El Niño events (e.g., 1984 and 1994 recruitments). Recruitment events for the northern substock appear to lag large recruitments in the south by a year.

Fishing Mortality

Exploitation of the southern cabezon substock began in the 1960s and caused a significant decline in stock biomass. The large recruitments discussed above and a reduction in exploitation rates in the late 1990s and 2000s caused the substock to rebound to healthy levels. Exploitation in the north also increased in the 1960s although fishing pressure was not as great. The spawning biomass of the northern substock declined although not as dramatically as in the south. The stock rebounded with good recruitment and a reduction in fishing pressure. The depletion of the two substocks was estimated to be 45 and 60 percent in the northern and southern substocks, respectively at the start of 2009.

The cabezon stock(s) off California were first assessed in 2003 and OYs were first specified in 2004. Specified OYs were exceeded in each year through 2006 but a reduction in cumulative landing limits adequately reduced fishing mortality starting in 2007. The percent of OY attainment ranged from 56 to 74 percent in the 2007-2010 period (Table 4-8).

Only one ACL alternative is proposed that sets the 2013 and 2014 ACLs equal to the ABCs. This is the same basis used to decide the No Action 2012 ACL. The preferred ACLs are slightly less than the No Action ACL since the OFL is trending down slightly in projections due to the average recruitment assumption posited in the 2009 assessment. Both substocks are projected to remain healthy under these harvest limits.

The PSA vulnerability score of 1.68 indicates a low risk of overfishing.

Cabezon off Oregon

The 2009 assessment of the Oregon sub-stock of cabezon was the first ever for cabezon in Oregon waters. Only one index of abundance was used for modeling the Oregon cabezon sub-stock (the Oregon Recreational Boat Survey or ORBS CPUE index). The Oregon model was robust to almost all data and parameter manipulation trials except the removal of the ORBS survey. Removal of the only abundance index causes the population to drop sharply below the overfished level and absolute biomass to be much smaller than in the base case. The 2009 assessment indicated a healthy stock status for Oregon cabezon at 52.4 percent depletion at the start of 2009. Unlike the assessments for the California sub-stocks, the assessment of the Oregon cabezon sub-stock does not show recent increases in spawning biomass. While the uncertainty in the estimated depletion level of the Oregon sub-stock is generally low, uncertainty in the estimated spawning biomass is high.

Stock Productivity

Steepness in the 2009 assessment of the Oregon substock of cabezon was assumed to be 0.7. Recruitment in the Oregon substock of cabezon was estimated to be less dynamic than that for the California substocks. The PSA productivity score of 1.72 indicates a stock of relatively high productivity.

The assessment estimates large recruitments in 1999 and 2004. Uncertainty in estimating recruitment for the Oregon substock is less than the recruitment estimation for the California substocks.

Fishing Mortality

Cabezon exploitation in Oregon started in the 1970s and caused the biomass to decline. However, exploitation was not excessive and the estimated spawning biomass has always been above the B_{MSY} target.

Only one ACL alternative is proposed that sets the 2013 and 2014 ACLs equal to the ABCs. This is the same basis used to decide the No Action 2012 ACL. The preferred ACLs are slightly less than the No Action ACL since the OFL is trending down slightly in projections due to the average recruitment assumption posited in the 2009 assessment. The stock is projected to remain healthy under these harvest limits.

The PSA vulnerability score of 1.68 indicates a low risk of overfishing.

California Scorpionfish

California scorpionfish were assessed in 2005 (Maunder, *et al.* 2006) in the southern California Bight south of Point Conception at 34º27' N. latitude to the U.S.-Mexico border. The stock assessment indicated the California scorpionfish stock was healthy with an estimated spawning stock biomass of 79.8 percent of its initial, unfished biomass in 2005.

In most years, 99 percent or more of the landings occur in the southern California ports. The California nearshore fishery management plan includes California scorpionfish. The stock is managed by the state under provisions for improved fishery monitoring and research data collection.

Stock Productivity

A steepness value of 0.7 was assumed for California scorpionfish in the 2005 assessment. The PSA productivity score of 1.83 indicates a stock of relatively high productivity, especially for a rockfish.

The assessment noted a high recruitment variation in the stock and recruitments in the 1990s and early 2000s were estimated to be substantially above average. Significant recruitment events were estimated starting in 1984.

Fishing Mortality

A substantial but unknown portion of the stock occurs in Mexican waters. The exploitation of the stock in Mexican waters is unknown and the connectivity of that stock with the U.S. stock in the Southern California Bight is also unknown.

Commercial catch records for scorpionfish were available beginning in 1928. Commercial catches were the dominant removals until the 1990s when the recreational catch became significant. High catches and low recruitments in the 1950s and 1960s precipitated a decline in biomass. Stock biomass has been on an increasing trend since the mid-1970s.

Only one ACL alternative is proposed that sets the 2013 and 2014 ACLs equal to the ABCs. This is the same basis used to decide the No Action 2012 ACL. The preferred ACLs are slightly less than the No Action ACL since the OFL is trending down slightly in projections due to the average recruitment assumption posited in the 2005 assessment. The stock is projected to remain healthy under these harvest limits.

The PSA vulnerability score of 1.41 indicates a low risk of overfishing.

Chilipepper Rockfish South of 40°10' N. Latitude

The last full assessment of chilipepper rockfish was conducted in 2007 (Field 2008). The 2007 assessment indicated the stock was healthy with a spawning stock biomass estimated to be at 70 percent of its initial, unfished biomass in 2006.

<u>Stock Productivity</u>

Steepness in the 2007 assessment was fixed at 0.57 which was the mean of the prior probability distribution in the base model. Since steepness was thought to be poorly specified in the model and was therefore chosen as the major axis of uncertainty. The decision table projected outcomes for a low productivity and a high productivity model using steepness values of 0.34 and 0.81, respectively. The PSA productivity score of 1.83 indicates a stock of relatively high productivity, especially for a rockfish.

There have been strong recruitments estimated for the stock in the late 1960s, early 1970s, and very strong recruitments in 1984 and 1999. The 1999 year class was the biggest recruitment event in the assessment time series and caused spawning biomass to increase substantially in the last ten years.

<u>Fishing Mortality</u>

Chilipepper rockfish have been one of the most important commercial target species in California since the late 1800s and was also a recreational target in southern California waters. Catches and exploitation rate has declined significantly since the early 1990s. While chilipepper has always been an important target species in California, the exploitation rate has rarely exceeded the F_{MSY} target of a 50 percent SPR. Exploitation rates declined significantly since the late 1990s with the implementation of more restrictive management measures to rebuild depleted stocks.

There is little concern that fishing in 2013 and 2014 will have any negative impacts on the chilipepper rockfish stock since the center of the stock's distribution is in the core RCA. Chilipepper ACLs/OYs have been significantly underharvested since implementation of the RCAs in 2003. The annual total mortality in 2005-2009 averaged less than 9 percent of OYs (Table 4-8).

The PSA vulnerability score of 1.35 indicates a low risk of overfishing.

Dover Sole

The new Dover sole assessment conducted in 2011 indicates the stock is healthy with an increasing abundance trend. Spawning stock biomass depletion was estimated to be 83.7 percent of unfished biomass at the start of 2011. The 2011 Dover sole assessment is data-rich and the species is readily tracked in the NMFS trawl survey (most survey tows are positive for Dover).

Stock Productivity

Steepness in the 2011 Dover sole assessment was fixed at 0.8, the mean steepness estimated in the SSC's 2010 meta-analysis of flatfish productivity (PFMC 2010). While the 2011 assessment was considered data-rich, estimates of steepness are uncertain partly because the stock has not been fished to low levels to understand potential recruitment at low spawning biomass. The PSA productivity score of 1.8 indicates a stock of relatively high productivity.

There is little information regarding recruitment prior to 1960. Estimates of recruitment appear to oscillate between periods of low recruitment and periods of high recruitment. The five largest recruitments were predicted in the years 2000, 1992, 1988, 1965, and 1991. The five smallest recruitments were predicted in 2003, 2002, 2004, 2006, and 1974.

Fishing Mortality

The spawning biomass of Dover sole reached a low in the mid-1990s before beginning to increase throughout the last decade. The estimated depletion has remained above the 25 percent biomass target and it is unlikely that the stock has ever fallen below this threshold. Throughout the 1970s, 1980s, and 1990s the exploitation rate and SPR generally increased, but never exceeded the SPR 30 percent F_{MSY} target. Recent exploitation rates on Dover sole have been small, even after management increased catch levels in 2007.

Only one ACL alternative is proposed that sets the 2013 and 2014 ACL equal to the No Action ACL of 25,000 mt. The preferred 2013 and 2014 ACL is significantly lower than the ABCs. Given the productivity of the stock and constraints on fishing, projections assuming a 25,000 mt constant annual catch predict the stock would remain above the target B_{MSY} level in the next ten years even under the more pessimistic and less likely low state of nature in the assessment decision table. Dover sole is a trawl dominant species and managed using IFQs in the rationalized fishery. Despite Dover sole being an important target species, only 35 percent of the 2011 quota was attained in the IFQ fishery.

The PSA vulnerability score of 1.54 indicates a low risk of overfishing.

English Sole

The 2007 assessment of English sole estimated the spawning biomass to be at 116 percent of the exploited equilibrium level at the start of 2007. However, the influence of the strong 1999 year class on projected spawning biomass has diminished through natural and fishing mortality. The English sole assessment is relatively data-rich and this species is readily tracked in the trawl survey.

Stock Productivity

There is little evidence for a strong stock-recruitment relationship, with some of the largest recruitments occurring at moderate levels of spawning biomass. This corresponds to the relatively high estimate of steepness of 0.80 in the assessment. In general, recruitment deviations are well informed by the data between 1940 and 2000.

Following two decades of low recruitments, strong year classes were estimated for 1995, 1998-2000, and 2002. The data indicate that the 1999 year class was the largest in the time-series.

The PSA productivity score of 2.25 indicates a very productive stock, which is true for most nearshore and shelf flatfishes.

Fishing Mortality

The estimated SPR for English sole has never been below the proxy target of 30 percent for flatfish. Exploitation rates were highest from the late 1940s to the early 1990s. Since 1992 the intensity of exploitation has been significantly less, resulting in higher SPR levels. This corresponds to a relative exploitation rate (catch/biomass of age 3 and older fish) history that is high from the late 1940s to the early 1990s, and steadily declining to very low levels over the last 15 years.

English sole are a trawl-dominant species. Management uncertainty is low with the 100 percent observer coverage for the trawl fleet under trawl rationalization. Very small amounts of English sole were landed in the 2011 IFQ fishery with only 1 percent of the quota attained. This is due to low trawl effort on the shelf since such efforts require investment of limited quota for Pacific halibut, canary rockfish, and yelloweye rockfish.

Only one 2013 and 2014 English sole ACL alternative is considered, which sets ACLs equal to the specified ABCs. This is the same basis for deciding the No Action 2012 ACL. However, the 2013 and 2014 ACLs are significantly lower than the No Action ACL due to the OFL being biased low. The 1999 year class has been dominant in the population in the last ten years and is now a very minor component of the spawning biomass with the high natural mortality of the stock. The reason the OFL projected from the 2007 assessment is biased low is that the OFL projections assume the annual removal of the entire projected OFL rather than the average ACL/OY or average catch. Catch of English sole has always been much lower than the OFL; therefore, the current exploitable biomass upon which the OFL is based, is much higher than projected. The SSC and Council will explore better projection rules for future management cycles, but for now, the biased OFLs (and hence the lower ABCs/ACLs) are proposed for 2013-2014. The No Action ACL cannot be considered in 2013 and 2014 since it is considerably higher than the projected OFLs.

The PSA vulnerability score of 1.19 shows a very low concern of overfishing on the stock.

Lingcod

The 2009 lingcod assessment modeled two west coast stocks, both of which were estimated to be healthy in 2009 with depletion rates of 74 and 62 percent, respectively for the southern and northern stocks.

Stock Productivity

Steepness was fixed at 0.8 in the 2009 assessment. The PSA productivity score of 1.75 indicates a stock of relatively high productivity.

Recruitments in the North were estimated from 1928-2007, with bias correction ramping in from 1950 to 1964 as data becomes informative. The base model indicates a very strong recruitment event in 1964, a secondary event in 1970, and recent relatively strong recruitments in 1999-2002, with fairly high recruitment in 2006 as well. Recruitments in the south were estimated from 1928-2007, with bias correction ramping in from 1960 to 1974 as data becomes informative. The base model indicates relatively strong recruitment events in 1976, 1983 and in 1999-2003, similar to the period of increased recruitment in the north, with a very high but uncertain recruitment in 2007.

Fishing Mortality

Lingcod exploitation coastwide was above the target rate for most of the 1970s through the 1990s driving the stock below the MSST and into an overfished condition. The stock was successfully rebuilt by 2006 based on good recruitments and very low fishing mortality rates. The SPR for northern lingcod been above the proxy target of 45 percent (indicating fishing mortality rates below the target) since 1998, and in recent years has been far above that level. The SPR for the southern lingcod stock has been above the proxy target of 45 percent since 2001, and in recent years has been far above that level.

The Council only advanced the one lingcod ACL alternative with 2013 and 2014 ACLs north and south of 40º10' N. latitude equal to the ABCs. The ABCs were decided using the same sigma and P* values used for the 2011 and 2012 ABC specifications. The only difference in the analytical basis for the No Action 2012 lingcod ACLs is these ACLs are stratified north and south of 42º N. latitude, whereas the proposed ACLs are stratified north and south of 40º10' N. latitude (see next section for details).

The PSA vulnerability score for lingcod is 1.55 indicating a low risk of overfishing of the stock. It is likely that 2013 and 2014 total catches will be well below the preferred lingcod ACLs since fishing on the shelf will be limited by the RCAs recommended under the proposed action.

Lingcod Management Line Shift

The Council recommended separate ACLs for the northern and southern stocks to be specified north and south of the management line at 40º10' N. latitude. The most recent assessment conducted in 2009 provided two area assessments north and south of the California-Oregon border at 42º N. latitude, which was the basis for 2011 and 2012 harvest specifications. The recommended shift to the 40º10' N. latitude management line is to not overly encumber the commercial fishing industry which is required to fish within a single management area within one trip. Maintaining the lingcod management line at 42º N. latitude would create two management areas stratified at 40º10' N. latitude and 42º N. latitude. This would especially burden vessels home ported out of Brookings, Crescent City, Eureka, and Ft. Bragg since they would have to restructure their current fishing practices to avoid a violation of the management line cross-over provisions.

Shifting the lingcod management line south to 40º 10' N. latitude should not have negative biological impacts since Cape Mendocino is a natural biogeographic break in the California Current ecosystem. It is stated in the 2009 assessment that a management break at Cape Mendocino would be likely more biologically accurate than stratifying the assessment north and south of 42º N. latitude. In general, given the cross-over provisions and the other regulations that foster area management strategies, the fewer latitudinal management lines there are, the less burdened the offshore commercial fishery will be. Two major biogeographic breaks occur on the west coast at Pt. Conception at 34º27' N. latitude and Cape Mendocino approximately at 40º10' N. latitude and many stocks show differences north and south of these latitudes. These biogeographic breaks are probably the more appropriate latitudes to specify management lines given how north-south physical processes such as current patterns tend to be different creating stock differences for species affected by these different physical processes. The lingcod management line shift is therefore biologically responsible and less of a burden to industry. While not contemplated in this action, shifting the sablefish management line from 36º N. latitude to 34º27' N. latitude would likewise be an appropriate shift for the same reasons.

The lingcod STAT was asked to estimate the relative exploitable lingcod biomass north and south of 40º10' N. latitude to enable this management line shift. They evaluated the swept area biomass estimates calculated annually (2003-2010) from the NMFS Northwest Fisheries Science Center trawl survey, which indicated that 48 percent of the lingcod biomass for the stock south of 42º N. latitude occurred between 40º10' N. latitude and 42º N. latitude. Therefore, 48 percent of the 2013 and 2014 OFLs projected in the 2009 lingcod assessment for the southern lingcod stock were added to OFLs proposed for the stock north of 40º10' N. latitude. Likewise, 48 percent of the projected OFLs for the southern stock were subtracted from the OFLs proposed for the stock south of 40º10' N. latitude. Given that the trawl survey is the main fishery-independent tuning index of biomass in the assessment, using swept area biomass from the trawl survey to estimate relative biomass north and south of 40º10' N. latitude is appropriate.

Longnose Skate

The longnose skate stock is healthy based on the 2007 assessment, which projected a continued healthy status under the harvest levels specified since 2009 when the stock was removed from the Other Fish complex and first managed with stock-specific harvest specifications.

Stock Productivity

Steepness of the stock-recruitment curve was fixed at a value of 0.4, to reflect the K-type reproductive strategy of the longnose skate. Recruitments were deterministic in the assessment and recruitment deviations were not estimated. The PSA productivity score of 1.53 indicates a stock of moderate productivity.

Fishing Mortality

Historically, the exploitation rate for the longnose skate has been low. It reached its maximum level of 4.02 percent in 1981, which is below the proxy exploitation rate of 4.26 percent associated with an SPR of 45 percent. The actual MSY exploitation rate may be lower than that but the SSC recommended continued use of the 45 percent proxy SPR for longnose skate. The 2007 exploitation rate was estimated to be 1.25 percent.

There are two 2013-2014 ACL alternatives adopted for detailed analysis: the No Action ACL of 1,349 mt and the preliminary preferred ACL of 2,000 mt. Both alternatives are projected to maintain stock depletion above the $B_{40\%}$ target under the most likely base case model in the 2007 assessment. The $F_{45\%}$ catch stream with the 40-10 harvest control rule assumes annual harvests of 2,600-3,400 mt, yet still projects a healthy stock through 2018 (Table 4-11). The Council proposes the 2,000 mt ACL for longnose skate in recognition of increased targeting and demand which led to the 2009 and 2010 OYs being exceeded (Table 4-8). It is noted that the assessment assumed 50 percent of discarded longnose skate in the trawl fishery survive; a survival rate supported by research on skate discards (see Appendix C for more information). However, the reconciled total mortalities of longnose skate in 2010 fisheries does not apply a 50 percent survival of trawl discards and, in fact assumes 100 percent mortality of discards. If the 50 percent survival of trawl discards was applied to reconcile the total mortality of longnose skate in 2009 and 2010, the mortality would not have exceeded the specified OYs. Regardless, the recent upward trend in market demand, ex-vessel value, and landed catch of longnose skate would compel consideration for a higher ACL. The SSC recommended discard mortality assumptions be consistent between assessments and management. Although the discard mortality assumptions used in the longnose skate assessment are based on very limited information, they represent the best information available. The SSC recommended that this information be used for management of longnose skate. The biological risk of specifying the higher longnose skate ACL of 2,000 mt is low based on the PSA vulnerability score and the projected biomass and depletion in Table 4-11.

If the total fishing mortality of longnose skate was indeed greater than specified OYs in 2009 and 2010 (i.e., if discard mortality is assumed to be 100%), this outcome would compel a review of the accountability measures (AMs) to insure this is not a chronic result since the FMP and NS1 guidelines require consideration of better AMs when ACLs/OYs are exceeded more often than 1 in 4 years. Detailed analysis and discussion of management and accountability measures for longnose skate are provided in Appendix C).

The PSA vulnerability score of 1.68 indicates a low risk of overfishing.

Table 4-11. Projected longnose skate spawning stock biomass and depletion under two catch streams assuming the base case model in the 2007 assessment (table excerpted from (Gertseva and Schirripa 2008)).

Forecast	Year	Q=0.83 BASE		
		Total catch (mt)	Spawning Stock Biomass (mt)	Depletion
$F_{45\%}$ with 40-10 adjustment for base scenario	2009	3,428	4,673	66%
	2010	3,269	4,424	63%
	2011	3,128	4,195	60%
	2012	3,006	3,985	57%
	2013	2,902	3,794	54%
	2014	2,816	3,621	51%
	2015	2,745	3,465	49%
	2016	2,686	3,327	47%
	2017	2,638	3,206	46%
	2018	2,598	3,100	44%
50% increase in average 2004-2006 landings and discard mortality for base scenario	2009	1,349	4,673	66%
	2010	1,349	4,649	66%
	2011	1,349	4,624	66%
	2012	1,349	4,599	65%
	2013	1,349	4,572	65%
	2014	1,349	4,542	65%
	2015	1,349	4,509	64%
	2016	1,349	4,475	64%
	2017	1,349	4,439	63%
	2018	1,349	4,402	63%

Longspine Thornyhead

The most recent stock assessment (Fay 2006) indicated that the longspine thornyhead stock was healthy with an estimated spawning stock biomass at 71 percent of its initial, unfished biomass in 2005.

<u>Stock Productivity</u>

Annual deviations about this stock-recruitment curve were estimated for the years 1980 through 2002. The steepness parameter (*h*) was fixed at 0.75, and a likelihood profile over this parameter showed little sensitivity in the results to the value assumed for this parameter. The impact of recruitment variability on the biomass for longspine thornyhead is low due to the long-lived nature of the species. The bulk of the biomass for this stock is contained in a large number of old age-classes. Estimation of recruitment events is therefore difficult, and information is only really available to estimate recruitment for recent years when size-composition data from the slope surveys are available. Strong year classes were estimated for 1982-83 and 1992-93, although the absolute increase in numbers from the average recruitment in these years was small.

The PSA productivity score of 1.47 indicates a stock of moderate productivity.

<u>Fishing Mortality</u>

West coast longspine thornyhead are estimated to be well above the management target and the current fishing mortality rate is substantially lower than the F_{MSY} proxy of $F_{50\%}$. Fishing mortality rates were estimated to be higher than $F_{50\%}$ in the 1990s during the expansion of the fishery, but have since declined to well below this level.

Longspine thornyhead is a trawl-dominant species in the north and caught in association with Dover sole, shortspine thornyhead, and sablefish in the deep water DTS strategy. Under trawl rationalization with the 100 percent observer requirement, catch monitoring uncertainty is low. The trawl fishery is also restricted to operate in waters shallower than 700 fm, which is much shallower than the distribution of longspine. This significantly reduces any biological risk to the stock resulting from fishing pressure. Longspine thornyhead is not targeted in the Conception area and is caught in incidental amounts that are well below the preferred ACLs.

Longspine thornyhead has been managed with separate ACLs/OYs north and south of Point Conception at 34º27' N. latitude since 2007. The preferred 2013 and 2014 ACLs for longspine thornyhead are based on the same area stratification strategy used to manage the stock since 2007 and use the same basis for calculating the ACLs as was used to determine the No Action 2012 ACLs. The apportionment methodology assumed constant density throughout the Conception area and estimated 79 percent of the assessed coastwide biomass occurs north of Pt. Conception. The northern ACL was then reduced by 25 percent to account for relatively high assessment uncertainty. The southern ACL was reduced by 50 percent to account for relatively high assessment uncertainty and a paucity of survey data for the Conception area. Scientific uncertainty is typically considered when deciding the ABC; however, since the ABCs are coastwide and the two areas where ACLs are specified have differential scientific uncertainties, the scientific uncertainty adjustment is made in deciding the ACLs. The preferred ACLs are slightly less than the No Action ACLs since the OFL is trending down slightly in projections due to the average recruitment assumption posited in the 2005 assessment. The longspine thornyhead stock is projected to remain above the target $B_{40\%}$ level under this harvest regime. No other ACL alternatives for longspine thornyhead were decided for detailed analysis in this EIS.

The PSA vulnerability score of 1.54 indicates a low risk of overfishing.

Pacific Cod

Pacific cod is a transboundary stock with most of the biomass distributed north of the U.S.-Canada border. They are harvested primarily in the limited entry trawl fishery north of 40º10' N latitude. Pacific cod have never been formally assessed on the U.S. west coast.

<u>Stock Productivity</u>

The PSA productivity score of 2.11 indicates a stock of relatively high productivity.

<u>Fishing Mortality</u>

The No Action OFL, ABC, and ACL for Pacific cod are recommended for 2013-2014 fisheries. The OFL of 3,200 mt is based on historical landings and the ACL of 1,600 mt is based on the 50 percent precautionary reduction for unassessed stocks as recommended by Restrepo et al. (1998). Prior to 2006, allowable landings of Pacific cod were not limited. Harvests in recent years were under the status quo (and proposed) ACL of 1,600 mt, but in 2004, total catch approached this harvest level. Therefore, limited entry trawl and limited entry and open access fixed gear trip limits were specified beginning in period 2 of the 2006 fishery to alleviate potential overfishing concerns. These same harvest specifications and trip limits are recommended for the 2013-2014 management period, which should maintain total catches well below the Council-preferred ACL. There is little concern of biological risk to the Pacific cod under this harvest regime. Pacific cod are only available in harvestable amounts off northern Washington every four or five years on average. The effective fishing mortality rate for Pacific cod in west coast fisheries is therefore very low.

The PSA vulnerability score of 1.34 indicates a low risk of overfishing.

Sablefish

A new coastwide sablefish stock assessment was conducted in 2011 (Stewart et al. 2011). The spawning stock biomass was estimated to be at 33 percent of its unfished biomass at the beginning of 2011. The coastwide abundance of sablefish was estimated to have dropped below the $B_{40\%}$ management target in 2009 and is currently declining steeply.

Stock Productivity

Steepness in the 2011 assessment was assumed to be 0.6. Efforts to estimate steepness led to implausible results so the sensitivity of fixing steepness at 0.6 was analyzed. The estimated depletion was robust to varying steepness values; however, estimated MSY was sensitive to the steepness assumption.

The PSA productivity score of 1.61 indicates a stock of moderate productivity.

The cause of the declining trend in the sablefish population appears to be primarily due to relatively poor recruitments (Figure 4-16). Sablefish recruitment is estimated to be quite variable over the historical record; however uncertainty in individual recruitment events is large. Within this variability, the average recruitment is estimated to have declined steadily between the 1970s and 2007. Recruitments during the 1980s were, on average, roughly an order of magnitude higher than the very poor recent cohorts estimated between 2002 and 2007. It appears that large 1999 and 2000 year classes briefly slowed the rate of stock decline between 2002 and 2005. An above-average 2008 cohort is currently moving through the population, however it has yet to mature, and therefore is not currently contributing to the trend in spawning biomass.

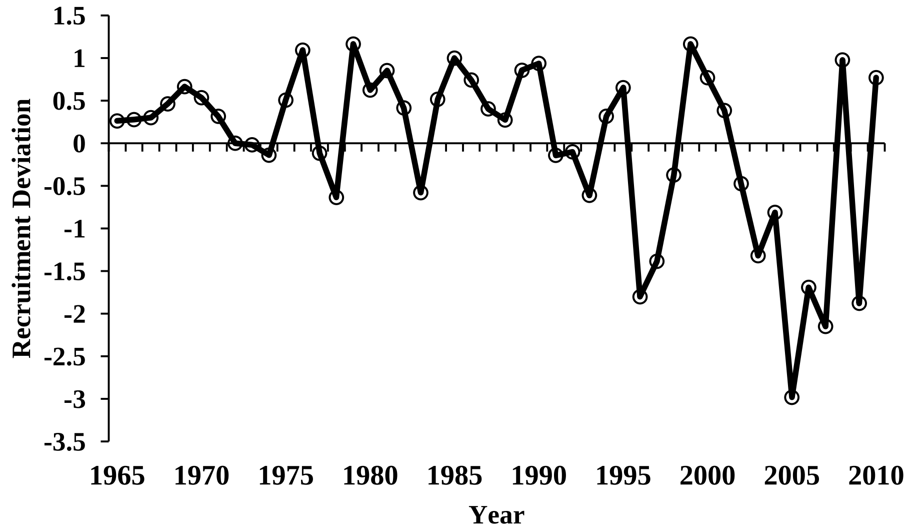


Figure 4-16. Time series of estimated recruitment deviations from the base model in the 2011 sablefish assessment.

<u>Fishing Mortality</u>

Sablefish are estimated to have been exploited at a modest level through the first half of the 20th century. Following a period of recruitments estimated to have been above average, but highly uncertain, the spawning stock biomass rebounded to nearly unexploited levels in the late 1970s. Large harvests during those years, and throughout the 1980s, are estimated to have caused the stock to decline nearly monotonically to the present (Figure 4-17). Fishing intensity remained below target SPR harvest rates from 1988 to 2008 (Figure 4-18). However, in retrospect both relative SPR and exploitation fraction are estimated to be increasingly rapidly over the last four years.

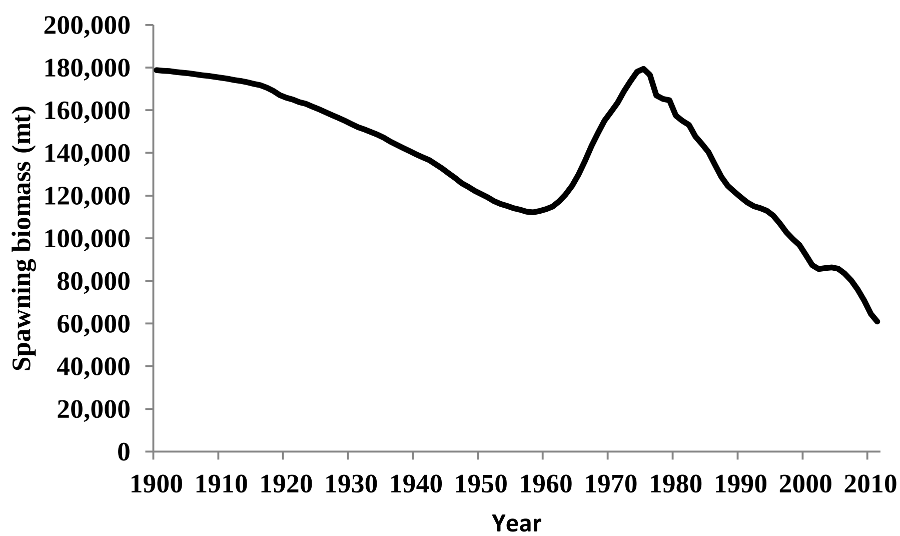


Figure 4-17. Estimated spawning biomass time-series (1900-2011) for the base-case model in the 2011 sablefish assessment.

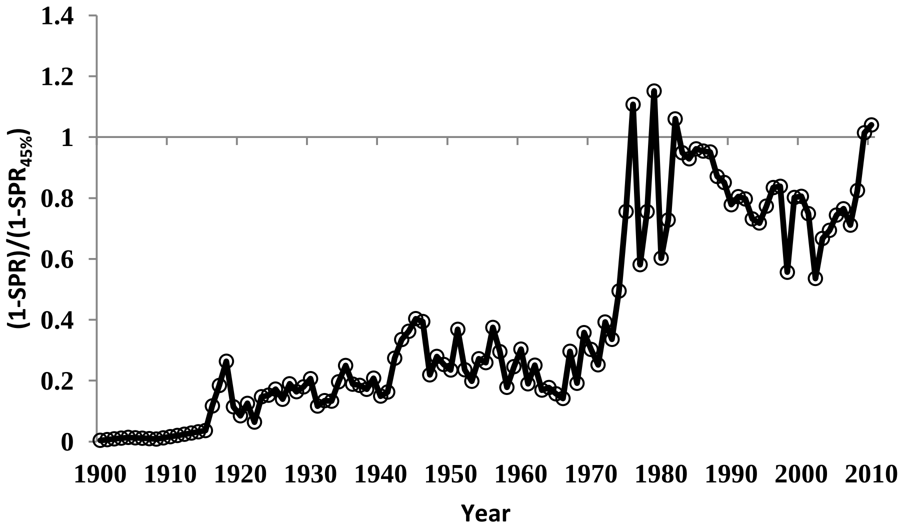


Figure 4-18. Time series of relative spawning potential ratio from the base model in the 2011 sablefish assessment.

One 2013-2014 ACL alternative is analyzed where the ACL is set based on a relatively conservative ABC (P* = 0.4) and application of the default 40-10 ACL control rule (Figure 2-1) since the stock is in the precautionary zone (i.e., below the B_{MSY} target but above MSST). The basis for the preferred 2013-2014 alternative differs from that of the No Action 2012 ACL in many ways. While the 40-10 rule was applied to determine the 2012 ACL, the ABC buffer was determined using a P* of 0.45 and therefore smaller in 2012. Further, there was a different apportionment of the coastwide biomass to determine ACLs north and south of 36º N. latitude. The sablefish STAT was asked to determine an appropriate apportionment. The STAT examined annual (2003-2010) swept area biomass estimates derived from the NMFS Northwest Fisheries Science Center trawl survey to determine that 26.4 percent of the coastwide sablefish biomass occurred south of 36º N. latitude. Therefore, 2013 and 2014 sablefish ABCs were apportioned north and south of 36º N. latitude assuming 73.6 percent of the biomass occurred in the north and 26.4 percent occurred in the south. A 68:32 north:south apportionment using the 2003-2008 average estimated trawl survey swept area biomass was used to determine north and south ACLs in 2012. Additionally, a further 50 percent adjustment was made to the 2012 ACL south of 36º N. latitude to account for the greater scientific uncertainty in the south that could not be accommodated with a coastwide ABC. The 2011 sablefish STAT recommended there was no greater uncertainty in estimating biomass in the south relative to the north now that there are eight years of continuous trawl survey data available for the Southern California Bight. Therefore, a 50 percent reduction of the southern ACL is not proposed for 2013 and beyond.

The preferred 2013 and 2014 sablefish ACLs conditioned on continuation of the same ABC and ACL control rules project a slow increase in spawning biomass and depletion starting in 2013 (Table 4-12). Management uncertainty is relatively low for sablefish. The recreational take is negligible and the largest allocation is to the limited entry trawl sector, which is observed at a 100 percent rate and managed carefully with IFQs. The second largest sector is limited entry fixed gear and the primary sablefish fishery in that sector is observed at a relatively high 20-25 percent rate. The open access allocation is 9.4 percent of the fishery harvest guideline; that sector is observed at about a 5 percent rate. Sablefish catch is actively tracked inseason and the stocks are subject to the most frequent inseason adjustments currently in the Council process.

Sablefish are the most valuable groundfish species on a per pound basis and OY attainment is relatively high (

Table 4-4 and Table 4-8). The sablefish catch exceeded the OY in 2007. The GMT determined there was an inseason catch tracking error which was fixed. Similar catch overages are not expected due to such tracking errors.

The PSA vulnerability score is 1.64, which predicts a low concern of overfishing.

Table 4-12. Projected spawning biomass and depletion of west coast sablefish under the Council's preferred harvest specifications for 2013-2014 (from Stewart et al. 2011).

Year	OFL (mt)	ACL (mt)	Spawning Biomass (mt)	Depletion
2011	*8,808*	*6,813*	60,957	33%
2012	*8,623*	*6,645*	57,606	32%
2013	6,621	5,451	56,271	31%
2014	7,171	5,909	56,358	31%
2015	7,857	6,512	57,066	31%
2016	8,526	7,121	58,015	32%
2017	9,107	7,662	58,969	32%
2018	9,563	8,097	59,821	33%
2019	9,898	8,424	60,550	33%
2020	10,094	8,629	61,174	34%
2021	10,191	8,745	61,732	34%
2022	10,273	8,847	62,258	34%

Shortbelly Rockfish

Shortbelly rockfish is a healthy and valuable forage species that is not targeted in any commercial or recreational fisheries. The PSA vulnerability score is 1.13 which indicates a low overfishing concern. Only one ACL alternative is analyzed in the EIS, which is the 50 mt No Action 2012 ACL. The 50 mt ACL recommended by the Council is intended to accommodate incidental catch while preventing the development of fisheries specifically targeting shortbelly rockfish. The Council recognized shortbelly rockfish for its value as a forage fish and the low ACL (relative to the ABC) is largely decided due to ecological considerations. The low level of fishing mortality of shortbelly rockfish is due to the fact the species is not targeted and only small amounts are incidentally caught.

Stock Productivity

Steepness was not estimated in the 2007 assessment and the mean value of 0.65 (i.e., Dorn prior at that time) was assumed. The PSA productivity score of 1.94 indicates a stock of relatively high productivity, among the highest for any west coast rockfish (Table 4-1).

Fishing Mortality

Fishing mortality is negligible and incidental catches of shortbelly rockfish have averaged less than 10 mt in recent years (<0.1% of specified OYs; Table 4-8). The 50 mt ACL should accommodate incidental unavoidable bycatch and provide a significant amount of surplus production for ecosystem needs given the stock's importance as forage for other species. This is a case where prey availability directly affected the ACL decision.

Shortspine Thornyhead

The most recent stock assessment (Hamel 2006b) estimated the shortspine thornyhead spawning stock biomass to be at 62.9 percent of its initial, unfished biomass in 2005.

Stock Productivity

Steepness was assumed to be 0.6 in the 2005 shortspine thornyhead assessment. The PSA productivity score of 1.33 indicates a stock of moderate productivity.

The recruitment pattern for shortspine thornyhead is based on length data only, with low survey selectivity for lengths corresponding to the first few ages. The slow growth of shortspine, however, with continuous length increases on the order of 1 cm/year, suggests that the data may be able to fit a general pattern of recruitment if there is adequate contrast between years, or especially between groups of years. The first year for which there are length composition data to support the estimate of recruitment is 1978; however, the data are relatively poor early on and recruitments are estimated in this model for the years 1985 through 2000. It appears that the resulting pattern may represent smoothed recruitment over time, with good recruitment around the 1988-1990 period and poor recruitment around the 1994-1997 period.

Fishing Mortality

Overfishing ($F > F_{MSY}$) occurred in all years from 1984-1994 although the fishing mortality from 1995-2004 was less than F_{MSY}.

Shortspine thornyhead has been managed with separate ACLs/OYs north and south of Point Conception at 34º27’ N. latitude since 2007. The preferred 2013 and 2014 ACLs for shortspine thornyhead are based on the same area stratification strategy used to manage the stock since 2007 and use the same basis for calculating the ACLs as was used to determine the No Action 2012 ACLs. The apportionment methodology assumes constant density throughout the Conception area and estimated 66 percent of the assessed coastwide biomass occurs north of Point Conception and 34 percent of the biomass south of Point Conception. The SSC has recommended coastwide OFLs and ABCs for shortspine thornyhead since the 2005 assessment presents a coastwide model. However, the Council and NMFS have decided to apply a differential scientific uncertainty buffer in the ACL specified south of Point Conception. The preferred 2013 and 2014 ACLs of 1,540 mt and 1,525 mt, respectively for the stock north of 34º27’ N. latitude are calculated as 66 percent of the projected OFLs. The preferred 2013 and 2014 ACLs of 397 mt and 393 mt, respectively for the stock south of 34º27’ N. latitude are calculated as 34 percent of the projected OFLs with a further 50 percent reduction to account for scientific uncertainty. The greater assessment uncertainty for the portion of the stock south of Point Conception is largely due to the fact that a small proportion of the Conception area is surveyed in the NMFS trawl survey given the high proportion of untrawlable habitat and the prohibition of bottom trawling in the CCAs. While higher scientific uncertainty would conceptually be accommodated in specifying the ABC, the higher scientific uncertainty south of Point Conception is accommodated in consideration of the ACL for the shortspine thornyhead stock south of 34º27’ N. latitude since the SSC recommended a coastwide OFL and ABC. The preferred ACLs are slightly less than the No Action ACLs since the OFL is trending down slightly in projections due to the average recruitment assumption posited in the 2005 assessment. The shortspine thornyhead stock is projected to remain above the target $B_{40\%}$ level under this harvest regime. No other ACL alternatives for shortspine thornyhead were decided for detailed analysis in this EIS.

Management uncertainty is low for shortspine in the north since most of the catch is in the trawl fishery which is now observed at a 100 percent rate. In the south, shortspine are mostly targeted in the limited entry fixed gear fishery which is observed at a 20-25 percent rate.

The percent of OY attainment in 2007-2010 for the stock north of 34º27' N. latitude averaged 86 percent of specified OYs (Table 4-8) and 50 percent of the trawl IFQ allocation was attained in 2011 (Table 4-5). The percent attainment of OYs for the stock south of 34º27' N. latitude averaged 41 percent of specified 2007-2010 OYs and only 17 percent of the 2011 trawl IFQ allocation was attained. The risk of exceeding 2013 and 2014 ACLs is low, especially the ACLs in the south, given the dynamics of recent fisheries.

The PSA vulnerability score is 1.80, which is at the lowest end of the range for stocks of medium concern of overfishing.

Splitnose Rockfish South of 40º10' N. latitude

A new splitnose rockfish assessment was done in 2009 (Gertseva, *et al*. 2009). Splitnose rockfish is a healthy stock with spawning depletion estimated at 66 percent of its unexploited level at the beginning of 2009.

<u>Stock Productivity</u>

Recruitment deviations were estimated for each year between 1960 and 2006, which is the period best informed by the data based on evaluation of the variance of the recruitment deviations. Steepness of the stock-recruitment curve was fixed at a value of 0.58, as estimated by the Dorn rockfish meta-analysis. The PSA productivity score of 1.28 indicates a stock of relatively low productivity.

Recruitments were estimated to be below average from the 1960s to the mid-1980s. Recent recruitments since the early 1990s have been above average, with the 1999 recruitment being the highest in the time series.

<u>Fishing Mortality</u>

Splitnose rockfish have been taken incidentally in fisheries such as the trawl fisheries targeting for POP, mixed slope rockfish and other deepwater targets, but have not been a commercial target species. The Council recommended that splitnose rockfish continue to be managed with stock-specific specifications south of 40º10' N. latitude and within the Minor Slope Rockfish complex in the north.

Splitnose rockfish were lightly exploited until the 1940s, when the trawl fishery for the rockfish first became important. With the development of the POP fishery (a species with which splitnose rockfish co-occur), spawning output of splitnose rockfish began to decline. A sharp drop in the 1960s was associated with large harvests of POP by foreign trawl fleets operating in the current U.S. EEZ. In the 1980s and 1990s splitnose rockfish spawning biomass continued to decrease as a result of relatively low recruitment and removal by domestic trawl and non-trawl fisheries, with a large portion of trawl catches being discarded. The spawning biomass reached its minimum size (35.8% of its unexploited level) after large domestic removals of 2,780 mt in 1998, when the increased availability of splitnose rockfish led to higher than usual removals off California where large aggregations of splitnose were encountered. Since 1999, the splitnose spawning output was estimated to have been increasing in response to below average removals and above average recruitment during the last decade.

The preferred 2013-2014 ACL alternative for splitnose sets the ACLs equal to the ABCs which is the same basis used to determine the No Action 2012 ACL. The base case model in the 2009 assessment projects the stock will maintain a high biomass and depletion at catch streams significantly higher than these ACLs. A constant catch of 2,780 mt (i.e., equal to the recent year (1998) catch) is projected to increase spawning stock biomass in the next ten years. Regardless, splitnose are not targeted and OY attainment averaged 38 percent of specified 2005-2010 OYs (Table 4-8). Only 2 percent of the 2011 trawl IFQ allocation of splitnose was attained (Table 4-5).

The PSA vulnerability score is 1.82, which is at the low end of the range for stocks of medium risk of overfishing.

Starry Flounder

Starry flounder was assessed in 2005 (Ralston 2006) and both the northern (Washington and Oregon) and southern (California) populations were estimated to be above the target level of 40 percent of unfished spawning biomass (44 percent in Washington-Oregon and 62 percent in California), although the status of this data-poor species remains fairly uncertain compared to that of many other groundfish species. The SSC categorized starry flounder as a category 2 stock due to a very uncertain catch history, a lack of age or size composition data, and poor tracking in the NMFS trawl survey.

Stock Productivity

In the assessment, recruitment was modeled assuming a steepness of 0.80 (the median value in the Myer's meta-analysis and recommended by the SSC in 2010). Recruitment deviations were estimated for the period 1970-2002 in the northern model and 1970-2003 in the southern model. Both stocks showed evidence of strong recruitment in the 1982-85 period, weak recruitment from the late 1980s into the early 1990s, and then strong recruitment in the mid-1990s.

The PSA productivity score of 2.15 indicates a very productive stock, which is true for most nearshore and shelf flatfishes.

Fishing Mortality

Similar exploitation histories were estimated for both starry flounder stocks. The southern stock declined during the 1970s apparently due to a high exploitation rate in the California trawl fishery. Depletion of the stock reached a minimum biomass close to the current flatfish MSST in the early 1980s, but recruitment from the huge 1982 year-class led to a rapid and dramatic increase in exploitable and spawning biomass, such that by 1987 spawning biomass was 17 percent greater than the unexploited level.

Exploitation rates were also high for the northern stock during the late 1970s, with stock biomass declining to below B_{MSY} in the early 1980s, but rebuilt to a population size substantially in excess of virgin conditions by 1990. Thus, there is a remarkable similarity in estimated population dynamics between the northern and southern models, in spite of complete independence of the data used to estimate model parameters.

Management uncertainty is relatively low due to a significant trawl catch, where there is mandatory 100 percent observer coverage. Starry flounder are also caught in recreational fisheries where management uncertainty is greater. However, they are caught at 25-33 percent of the rate in recent recreational fisheries relative to trawl fisheries.

The preferred 2013-2014 ACL alternative for starry flounder sets the ACLs equal to the ABCs which is the same basis used to determine the No Action 2012 ACL. The base case model in the 2005 assessment projects both stocks will maintain a high biomass above the target B_{MSY}. It is likely that projected biomass is higher than indicated in the assessment since actual catches have been less than specified harvest limits. Cumulative catch in 2007-2010 averaged 3 percent of the specified OYs (Table 4-8) and the 2011 trawl IFQ fishery caught only 2 percent of the allocation (Table 4-5).

The PSA vulnerability score of 1.02 for starry flounder is the lowest vulnerability scored for groundfish FMP species, indicating a low risk of overfishing.

Widow Rockfish

A new widow rockfish assessment was conducted in 2011 indicating the stock was successfully rebuilt with a spawning biomass depletion of 51 percent at the start of 2011 (He et al. 2011), which is above the management target of 40 percent. The assessment indicated the estimated spawning stock biomass has increased steadily from a low of 30.6 percent at the start of 2001. The new assessment estimates that the relative spawning stock biomass never dropped below the 25 percent MSST.

Stock Productivity

The major axis of uncertainty in the new widow rockfish assessment is steepness, which defines the relative productivity of the stock. The SSC recommended fixing the steepness parameter at 0.76 in the assessment due to the lack of information to reliably estimate steepness. The steepness parameter of 0.76 is the median value in the distribution of steepness parameters of assessed rockfish species in the (i.e., the Dorn prior; Figure 4-6). The decision table in the assessment was developed to bracket model uncertainty in widow rockfish productivity with alternative values of steepness. The 12.5% and 87.5% quantiles from the prior distribution on h translate into steepness values of 0.54 and 0.95 respectively. This range was considered reasonable to account for the uncertainty associated with steepness. It was, however, agreed by the STAT and the SSC to shift this range to a lower steepness value to (a) take account of the data which, while not greatly informative, did provide some evidence for a lower steepness value, and (b) provide continuity by considering the value of steepness used in the 2009 assessment (0.41). As a result, steepness values of 0.41 and 0.90 were used for the low and high states of nature in the assessment decision table.

The high uncertainty in the steepness of the stock-recruitment relationship and the lack of recent strong recruitments compels a precautionary approach to managing widow rockfish. If the pessimistic state of nature is correct ($h = 0.41$), then annual constant catches of up to 1,500 mt are projected to maintain spawning stock biomass above the MSST during the 10-year projection period (i.e., 2013-2022).

The base model in the 2011 widow assessment estimated a time series of recruitment of age-0 fish from 1948 to 2009. The highest recruitment occurred in 1970 (Figure 4-19). Recruitments remained generally low in the early 1990s and have been very low since 2001 as compared to the long-term average. As in the past widow assessments, uncertainties in estimation of recruitment remain high.

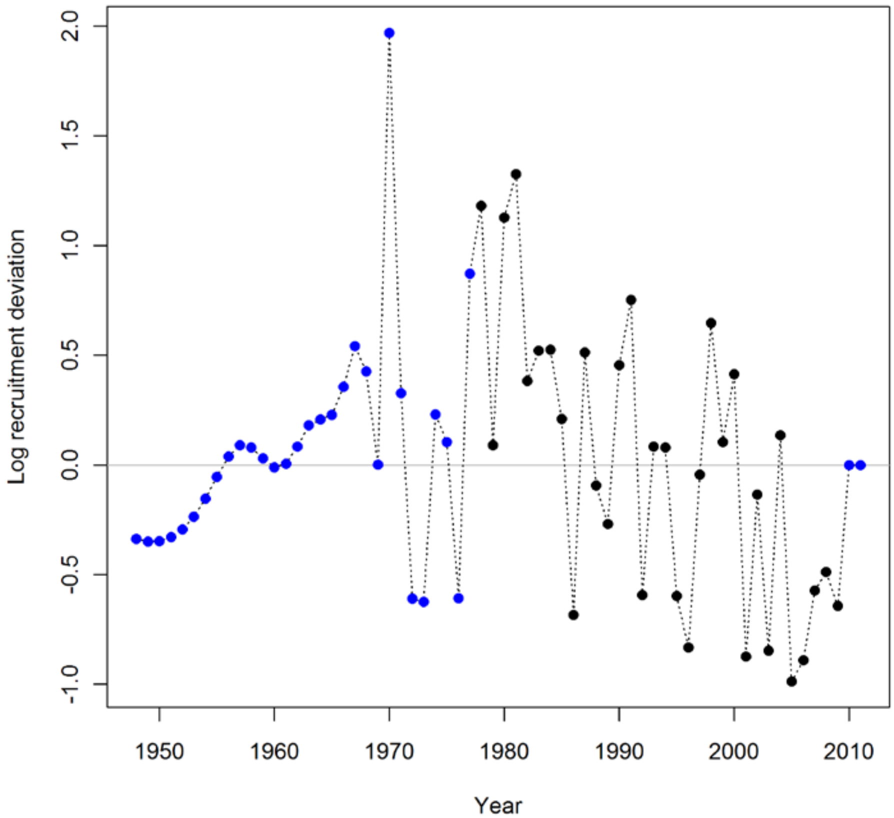


Figure 4-19. Time series of estimated recruitments from the base model in the 2011 widow rockfish assessment.

<u>Fishing Mortality</u>

Widow rockfish are caught mostly in midwater trawls used to target Pacific whiting and, before 2002, used to target widow and yellowtail rockfish. The exploitation rate was above the target SPR of 50 percent (i.e., $F<F_{MSY}$) until the late 1970s when trawl catches in the target midwater fishery increased to rates beyond the target. This continued until the stock was declared overfished and managed under a rebuilding plan. Harvest declined dramatically and the estimated SPR harvest rates increased rapidly above target F_{MSY}. The increase in biomass during the past decade was the result of reduced catches rather than strong year-classes.

Both widow rockfish ACL alternatives analyzed for 2013-2014 are projected to maintain spawning stock biomass at a healthy level above the 40 percent management target in the next ten years according to the base model (h = 0.76) in the 2011 assessment (Table 4-13). However, the stock is estimated to be below the management target under the more pessimistic state of nature where steepness is assumed to be lower (h = 0.41). A constant catch of 1,500 mt annually (the preliminary preferred ACL Alt. a) is the highest constant catch scenario analyzed that maintains the stock above the MSST of 25 percent in the next ten years under the more pessimistic state of nature. A constant catch of 2,500 mt (ACL Alt. b) is projected to drop spawning depletion to a nadir of 23 percent in 2017 before slowly rebuilding under the more pessimistic state of nature.

Both widow rockfish ACL alternatives provide some opportunity to target this healthy stock and healthy co-occurring yellowtail rockfish. The No Action ACL of 600 mt only accommodates unavoidable widow bycatch and does not provide adequate yield to resume a midwater trawl target fishery on widow and yellowtail rockfish. The preliminary preferred ACL alternative of 1,500 mt does provide some modest target opportunity but is lower than the catch of 2,300 mt realized in 2001, the last full year where targeting of widow and yellowtail rockfish was allowed. The ACL Alternative b of 2,500 mt does allow the same level of catch as 2001 assuming the fleet can avoid an excessive bycatch of canary rockfish and other species that potentially constrain a midwater trawl fishery targeting widow and yellowtail rockfish.

Lower OYs specified in 2005-2010 were not exceeded as the fishery was managed to avoid widow bycatch and the percent of OY attainment decreased with time during that period (Table 4-8). The percent attainment of the 2011 IFQ allocation was 40 percent (Table 4-5). The at-sea whiting sectors have been better able to avoid widow rockfish in recent years with the lowest bycatch rates (widow catch/whiting catch) observed in the past couple of years (2009 for CPs and 2011 for MS; Table B-X in Appendix B).

Management uncertainty is low since widow rockfish is a trawl-dominant species and there is mandatory 100 percent observer coverage in trawl fisheries.

Table 4-13. Projected widow rockfish depletion and spawning biomass under two 2013-2014 ACL alternatives and two states of nature analyzed in the 2011 assessment (from Table ES8a in He et al. 2011).

ACL Alternative	Year	Catch (mt)	State of nature			
			h = 0.41		Base case (*h*=0.76)	
			Depletion (%)	Spawning biomass (mt)	Depletion (%)	Spawning biomass (mt)
Alt. a (PPA; constant catch = 1,500 mt)	2011	600	30.0	22,765	51.1	36,342
	2012	600	29.4	22,288	50.7	36,053
	2013	1,500	28.6	21,686	49.9	35,514
	2014	1,500	27.2	20,619	48.5	34,473
	2015	1,500	26.1	19,839	47.5	33,785
	2016	1,500	25.6	19,443	47.2	33,585
	2017	1,500	25.7	19,515	47.8	34,014
	2018	1,500	26.4	19,993	49.2	35,022
	2019	1,500	27.2	20,655	51.1	36,325
	2020	1,500	28.1	21,354	53.1	37,737
	2021	1,500	29.0	22,029	55.1	39,182
	2022	1,500	29.9	22,648	57.1	40,603
Alt. b (constant catch = 2,500 mt)	2011	600	30.0	22,765	51.1	36,342
	2012	600	29.4	22,288	50.7	36,053
	2013	2,500	28.6	21,686	49.9	35,514
	2014	2,500	26.4	20,046	47.7	33,896
	2015	2,500	24.7	18,729	45.9	32,663
	2016	2,500	23.5	17,838	44.9	31,957
	2017	2,500	23.0	17,460	44.9	31,922
	2018	2,500	23.1	17,520	45.7	32,499
	2019	2,500	23.4	17,783	47.0	33,398
	2020	2,500	23.8	18,089	48.4	34,429
	2021	2,500	24.2	18,364	49.9	35,513
	2022	2,500	24.5	18,565	51.4	36,589

Yellowtail Rockfish North of 40°10' N. Latitude

Stock Productivity

There is no obvious spawner-recruit relationship in the 2005 assessment. Recruitments were above average in the 1970s though 1980s and were at record lows in the 1990s until the large recruitment event in 1999. The average annual recruitment of age 4 fish was 7.6 million fish during 1995-2001, but increased to an average of 12.9 million during 2002-2004.

The PSA productivity score of 1.33 indicates a stock of moderate productivity.

Fishing Mortality

The preferred 2013-2014 ACL alternative for yellowtail rockfish sets the ACLs equal to the ABCs which is the same basis used to determine the No Action 2012 ACL. The 2005 assessment projects the stock will maintain a high biomass and depletion at this level of catch. Actual removals have been much less with RCA protection. OY attainment averaged 14 percent of specified 2005-2010 OYs (Table 4-8). Only 24 percent of the 2011 trawl IFQ allocation of yellowtail rockfish was attained (Table 4-5).

The PSA vulnerability score is 1.88, which predicts a medium risk of overfishing.

4.1.1.5 Effects of ACL Alternatives for Stock Complexes

The vulnerability of a stock to overfishing is defined in the National Standard 1 guidelines as a function of its productivity and its susceptibility to the fishery. The guidelines note that the "vulnerability" of fish stocks should be considered when: (1) deciding if a stock considered is to be "in the fishery" or if it is an ecosystem component stock; (2) considering the management of stocks managed within complexes and the need to re-structure the stock complexes; and (3) creating management control rules. The GMT and the NMFS Vulnerability Evaluation Work Group considered the productivity and susceptibility of each groundfish stock by providing PSA scores for each stock. The PSA structure and scoring is described above in Section 4.1.1.2.

In the consideration of stock complex structure, a four step approach for defining the relationship between fisheries and appropriate stock complexes was developed using the PSA score: (1) calculate PSA scores for each species in the FMP; (2) identify the overlap in distributions of each species based on latitude and depth range; (3) assign each species to the various fisheries; and (4) overlay the groupings onto the PSA plot. The GMT provided the PSA vulnerability scores for all of the Pacific coast groundfish and completed a cluster analysis based on latitude and depth to identify spatial overlaps. The results of the cluster analysis (see Appendix B) indicate that there is a need to adjust the assignment of FMP stocks to complexes.

The proposed action does not include the reorganization of the existing stock complexes for the 2013-14 cycle. However, the Council's advisory bodies recommended that further analysis be conducted for the purpose of reorganizing the complexes to the extent needed to account for the relative vulnerability of stocks in the complexes in future biennial cycles.

The performance of the management system to stay within specified annual OYs for stock complexes in recent years (2005-2010) is discussed to better understand the ability to stay within 2013 and 2014 ACLs (Table 4-14). Total mortality estimates are not yet available for 2011; however, trawl catch data in the 2011 trawl IFQ fishery are available (Table 4-15). Therefore, 2011 trawl catch data for the complexes with allocated IFQ (i.e., Minor Shelf Rockfish north and south, Minor Slope Rockfish north and south, and Other Flatfish) are known and discussed in the sections below.

Table 4-14. Specified annual OYs (mt), estimated annual total mortality (mt), and percent of OY attainment of west coast groundfish stock complexes, 2005-2010.

Species	Specified OYs, Estimated Total Mortality, and Percent of OY Attainment					
	2005 OY (mt)	2006 OY (mt)	2007 OY (mt)	2008 OY (mt)	2009 OY (mt)	2010 OY (mt)
Minor Nearshore RF (coastwide) a/						
OY (mt)	737	NA	NA	NA	NA	NA
Est. Mort. (mt)	590	NA	NA	NA	NA	NA
% OY	80.1%	NA	NA	NA	NA	NA
Minor Nearshore RF N						
OY (mt)	122	122	142	142	155	155
Est. Mort. (mt)	NA	96	133	97	63	75
% OY	NA	78.5%	93.6%	68.5%	40.6%	48.5%
Minor Shelf RF (coastwide) a/						
OY (mt)	1,682	NA	NA	NA	NA	NA
Est. Mort. (mt)	501	NA	NA	NA	NA	NA
% OY	29.8%	NA	NA	NA	NA	NA
Minor Shelf RF N						
OY (mt)	968	968	968	968	968	968
Est. Mort. (mt)	NA	104	153	75	70	77
% OY	NA	10.8%	15.8%	7.7%	7.2%	7.9%
Minor Slope RF (coastwide) a/						
OY (mt)	1,799	NA	NA	NA	NA	NA
Est. Mort. (mt)	435	NA	NA	NA	NA	NA
% OY	24.2%	NA	NA	NA	NA	NA
Minor Slope RF N						
OY (mt)	1,160	1,160	1,160	1,160	1,160	1,160
Est. Mort. (mt)	NA	283	522	484	517	562
% OY	NA	24.4%	45.0%	41.7%	44.6%	48.4%
Minor Nearshore RF S						
OY (mt)	615	615	564	564	650	650
Est. Mort. (mt)	NA	711	466	394	388	384
% OY	NA	115.6%	82.7%	69.9%	59.7%	59.0%

Species	Specified OYs, Estimated Total Mortality, and Percent of OY Attainment					
	2005 OY (mt)	**2006 OY (mt)**	**2007 OY (mt)**	**2008 OY (mt)**	**2009 OY (mt)**	**2010 OY (mt)**
Minor Shelf RF S						
OY (mt)	714	714	714	714	714	714
Est. Mort. (mt)	NA	334	365	212	273	251
% OY	NA	46.8%	51.2%	29.7%	38.2%	35.2%
Minor Slope RF S						
OY (mt)	639	639	626	626	626	626
Blackgill RF Est. Mort. (mt)	*90*	*123*	*51*	*72*	*136*	*152*
Est. Mort. (mt)	NA	256	149	189	231	183
% OY	NA	40.1%	23.8%	30.1%	36.9%	29.2%
Other Flatfish						
OY (mt)	4,090	4,090	4,884	4,884	4,884	4,884
Est. Mort. (mt)	1,965	1,962	1,649	1,040	1,565	1,144
% OY	48.1%	48.0%	33.8%	21.3%	32.0%	23.4%
Other Fish						
OY (mt)	7,300	7,300	7,300	7,300	5,600	5,600
Spiny dogfish Est. Mort. (mt)	*2,044*	*1,407*	*1,504*	*2,497*	*1,207*	*1,215*
Est. Mort. (mt)	6,424	4,242	4,516	5,339	2,514	2,231
% OY	88.0%	58.1%	61.9%	73.1%	44.9%	39.8%

a/ Area-specific OYs north and south of 40º10’ N. latitude were specified for the minor nearshore, shelf, and slope complexes through this period. However, only coastwide catches of species in the minor nearshore, shelf, and slope rockfish complexes were reported in the 2005 NWFSC total mortality report. Therefore, the coastwide OYs for each assemblage are the sum of the north and south OYs specified in regulations.

Table 4-15. Allocations, total catch, and percent attainment of allocations of stock complexes managed with IFQs in the 2011 shoreside trawl fishery, ranked by percent attainment of allocations.

Species	Allocation (lbs)	Total catch (lbs)	Attainment
Minor Slope Rockfish North of 40º10' N.	1,828,779	318,390	17%
Other Flatfish	9,253,683	1,510,877	16%
Minor Slope Rockfish South of 40º10' N.	831,958	112,606	14%
Minor Shelf Rockfish North of 40º10' N.	1,150,813	32,646	3%
Minor Shelf Rockfish South of 40º10' N.	189,598	4,634	2%

Minor Nearshore Rockfish North of 40º10’ N. latitude

The species comprising the Minor Nearshore Rockfish North complex are all unassessed species except for the portion of the blue rockfish stock occurring in waters off California (i.e., 40º10’ N. latitude to the California-Oregon border at 42º N. latitude). All stocks other than blue rockfish off California are category 3 stocks with catch-based approaches for determining the OFL contribution of the stock. The OFL contribution for blue rockfish off California is based on a 2007 assessment (Key, et al. 2008) and is recommended as a category 2 stock based on relatively high assessment uncertainty.

Stock assessments have not yet been conducted for many of the nearshore species, due in part to the lack of available information. Thus the overall stock biomass and age structure is unknown. Most of the OFLs for component species were calculated on a coastwide basis and then apportioned north and south of 40°10' N. latitude into the respective nearshore complexes based on proportion of catches during 1983-1989 and 1993-1999. Biological impacts to the component stocks should be considered on both a coastwide level and within each management area where there is evidence of finer-scale stock structure. Current evidence suggests that population structuring, both genetically and biologically, may occur in many nearshore populations, but any short term impacts to sub-populations under the preferred ACLs are unknown (Cope 2004), (Gunderson, *et al.* 2008), and (Waples, *et al.* 2008).

The preferred northern Minor Nearshore Rockfish ACL is equal to the ABC of 94 mt and is less than the No Action ACL of 99 mt. The decrease in the ACL is due to a correction in a bias in calculating the No Action OFLs; 2013-2014 OFLs of component stocks calculated using DBSRA or DCAC were revised.

Concern was expressed regarding the potential for overfishing vulnerable species within the northern Minor Nearshore Rockfish complex, particularly China, copper, and quillback rockfish. These species were all identified as highly vulnerable with a major concern based on the PSA analysis (Table 4-16). All three of these species are structure-based, longer-lived, deeper-dwelling nearshore rockfish, and thus prone to serial depletion. Concern for these species could arise if catch allocated within the nearshore complex is shifted to these highly vulnerable species. State nearshore management plans and policies may adequately mitigate these risks.

Nearshore rockfish species are commercially landed under state permits in California and Oregon (Washington does not allow nearshore commercial fishing) and all commercial landings must be sorted. The states have catch accounting programs to actively monitor and manage these species inseason. Management uncertainty is therefore lower in the commercial fisheries for nearshore rockfish species. There is less monitoring for recreational fisheries that target or otherwise interact with these species.

The trip limits for the complex may be restructured inseason if necessary to limit take of a particular nearshore species to reduce the risk of overfishing that species or a constraining co-occurring species. Such action was taken in 2009 for blue rockfish in California based on the results of the 2007 assessment. The trip limit in northern California (between 42° N. latitude and 40°10' N. latitude was previously *"6,000 lb/ 2 months, no more than 1,200 lb of which may be species other than black or blue rockfish"* and was restructured to *"7,000 lb/ 2 months, no more than 1,200 lb of which may be species other than black rockfish"* as a means to limit take of blue rockfish and keep it within the statewide harvest guideline.

The states may also take inseason action independent of NMFS if necessary to prevent exceeding an ACL. Both the nearshore commercial and recreational fisheries will be constrained by the low availability of yelloweye in 2013 and 2014. As such, catches for both fisheries are not expected to increase and exceed the ACLs. Because the nearshore fisheries will be restricted in 2013-2014, it is unlikely that the ACL will be exceeded.

The blue rockfish stock off California north of 34º27' N. latitude was estimated to be at 29.7 percent of its unfished biomass in 2007 and is considered to be in the precautionary zone. During the 2009 and 2010 biennial specification process, the Council contemplated removing California blue rockfish from the northern (and southern) Minor Nearshore Rockfish complexes. Blue rockfish have been managed within both the northern and southern Minor Nearshore Rockfish complexes because of the interaction of blue rockfish with other nearshore species. When blue rockfish occur offshore they can be targeted separately from other nearshore rockfish, but those that occur inshore mix with other nearshore rockfish stocks. Blue rockfish are managed under the California nearshore management plan which has mandatory sorting requirements for landed catch. Landings are routinely tracked and monitored, thereby reducing management uncertainty. For more efficient state management, blue rockfish remains a component of the northern and southern Minor Nearshore Rockfish complexes.

The risk of exceeding the preferred 2013-2014 ACL for the Minor Nearshore Rockfish North complex is low given how well the states manage the nearshore fisheries. While the percent of OY attainment has been high (i.e., 93.6% of the 2007 OY was attained), the average percent attainment of 2006-2010 OYs was only 62 percent (Table 4-14).

Table 4-16. The relative vulnerability of rockfish stocks managed in the Minor Nearshore Rockfish complex north of 40º10' N. latitude ranked by relative level of vulnerability within the complex.

Stock Complex and Component Stocks	PSA Results Vulnerability	
	Score	**Level**
Minor Nearshore Rockfish North	NA	NA
China	2.23	Major
Copper	2.27	Major
Quillback	2.22	Major
Blue (CA)	2.01	Med/High
Blue (OR & WA)	2.01	Med/High
Brown	1.99	Med
Grass	1.89	Med
Olive	1.87	Med
Black and yellow	1.70	Low
Calico	1.57	Low
Gopher	1.76	Low
Kelp	1.59	Low
Treefish	1.73	Low

Minor Shelf Rockfish North of 40º10' N. Latitude

The species comprising the Minor Shelf Rockfish North complex are all unassessed species except for chilipepper rockfish, which was assessed in 2007 (Field 2008); greenstriped rockfish, which was assessed in 2009 (Hicks, et al. 2009); and greenspotted rockfish in waters off California, which was newly assessed in 2011 (Dick et al. 2011). All stocks other than chilipepper, greenstriped, and greenspotted rockfish are category 3 stocks with catch-based approaches for determining the OFL contribution of the stock.

Apportionment of chilipepper, greenstriped, and greenspotted rockfish north and south of 40º10' N. latitude was requested of the respective STATs so that the appropriate OFL and ABC contributions to the northern and southern Minor Shelf Rockfish complexes can be made. The following methods, endorsed by the SSC, were used to apportion the biomass and harvest specifications of these component stocks:

- Chilipepper was apportioned 7 percent to the complex based on the average 1998-2008 assessed area catch;
- Greenstriped was apportioned 84.5 percent to the complex based on the mean of the 2003-2008

swept area biomass estimates north of 40°10’ N. latitude from the NMFS trawl survey;

- The northern stock of greenspotted rockfish in waters off California was apportioned 22.2 percent to the complex based on the average estimated catch proportion in the assessment for the stock occurring in the area between 40°10’ N. latitude and the California-Oregon border at 42° N. latitude.

The PSA analysis of the relative vulnerability of stocks to overfishing indicated that a number of the component rockfish stocks have a medium to high relative vulnerability to overfishing (Table 4-17). However, the RCAs implemented to reduce mortality on overfished species greatly protect shelf rockfish leading to few concerns regarding overfishing.

Given that the preferred (and No Action) Minor Shelf Rockfish North ACL is well below the SSC-recommended OFL and the SSC-approved ABC, there is little risk of overfishing this complex. There will also be similar RCA protections for the core areas of the northern shelf in 2013 and 2014, as for prior years, which will limit access to shelf rockfish in general. This is evidenced by the 2006-2010 catches of northern Minor Shelf Rockfish being well under the specified OYs, averaging less than 10 percent of the specified OYs (Table 4-14). The Minor Shelf Rockfish North complex is also managed in the IFQ fishery. Only 3 percent of the 2011 IFQ allocation of the Minor Shelf Rockfish North complex was attained (Table 4-5).

The new greenspotted rockfish assessment indicates the stock occurring in waters off California north of Pt. Conception is in the precautionary zone with a 30.6 percent depletion at the start of 2011. This is a stock that was harvested at a rate higher than the proxy F_{MSY} harvest rate during an extended period (1970-1998), which drove the stock below the current MSST in 1990. The northern stock biomass hit a nadir in 1998 and has been increasing steadily since with the protections implemented to minimize mortality on overfished shelf rockfish (e.g., implementation of the RCA). Application of the 40-10 rule for the northern stock in aggregate (i.e., the stock occurring in waters off California north of Pt. Conception) would determine an ACL greater than 30 mt; however, the recent estimated total mortality of northern greenspotted rockfish has been less than 1 mt. At this level of harvest, the stock is projected to reach target biomass by 2017. The continued implementation of the RCA makes it likely that this lower level of incidental fishing mortality will occur and stock biomass will increase without additional management measures.

Table 4-17. The relative vulnerability of rockfish stocks managed in the Minor Shelf Rockfish complex north of 40º10' N. latitude ranked by relative level of vulnerability within the complex.

Stock Complex and Component Stocks	PSA Results Vulnerability	
	Score	Level
Minor Shelf Rockfish North	NA	NA
Bronzespotted	2.12	High
Cowcod	2.13	High
Greenblotched	2.12	High
Redstripe	2.16	High
Speckled	2.10	High
Chameleon	2.03	Med/High
Pink	2.02	Med/High
Rosethorn	2.09	Med/High
Silvergray	2.02	Med/High
Tiger	2.06	Med/High
Vermilion	2.05	Med/High
Bocaccio	1.93	Med
Flag	1.97	Med
Greenspotted	1.98	Med
Greenstriped	1.88	Med
Harlequin	1.94	Med
Honeycomb	1.97	Med
Mexican	1.80	Med
Pinkrose	1.82	Med
Rosy	1.89	Med
Squarespot	1.86	Med
Stripetail	1.80	Med
Swordspine	1.94	Med
Freckled	1.55	Low
Halfbanded	1.38	Low
Puget Sound	1.59	Low
Pygmy	1.55	Low
Starry	1.02	Low

Minor Slope Rockfish North of 40º10' N. Latitude

The species comprising the Minor Slope Rockfish North complex are all unassessed species except for splitnose rockfish, which was assessed in 2009 (Gertseva, *et al.* 2009). All stocks other than splitnose rockfish are category 3 stocks with catch-based approaches for determining the OFL contribution of the stock. The OFL contribution of splitnose rockfish to the complex (35.8 percent) is based on the average 1916-2008 proportion of the coastwide catch of splitnose occurring north of 40º10' N. latitude. The splitnose rockfish stock is categorized as a category 1 stock by the SSC.

The PSA analysis of the relative vulnerability of stocks to overfishing indicated that most of these rockfish stocks have a medium to high vulnerability to overfishing (Table 4-18). Aurora, rougheye, and shortraker rockfish are the stocks within the Minor Slope Rockfish North complex that are most at risk of overfishing. There is some concern regarding the most vulnerable species in the northern Minor Slope Rockfish complex, most notably rougheye rockfish, which the PSA analysis indicates is one of the two most vulnerable groundfish species to overfishing and a major concern for overfishing. While the PSA analysis indicates shortraker rockfish is also a major concern, it may be less susceptible to overfishing than scored. Recent examination of the available data to potentially use in a stock assessment for currently unassessed groundfish species indicates shortraker are much rarer in the trawl survey and fishery (true?) than the other slope species managed in the northern Minor Slope Rockfish complex. If they are truly rare off the west coast then shortraker susceptibility to encounters with the fishery are lower making them less vulnerable to overfishing. Of the three most vulnerable species in the complex, it appears there is much more data to inform an assessment of aurora rockfish. An assessment of any one of the most vulnerable species could better inform the vulnerability of these species and could potentially be used as an indicator stock for managing the other vulnerable species to reduce the risk of overfishing.

While overfishing is legally exceeding an OFL specified in regulations and the rougheye rockfish OFL contribution will not be specified in regulations (only the OFLs at the complex level are in regulations), there could be effective overfishing of rougheye and perhaps other component stocks based on the best information currently available. The best remedy for this other than assessing these stocks may be the restructuring of complexes to aggregate species of similar vulnerabilities and distributions. While there was a consideration for restructuring the complexes this year, the Council, in the spirit of simplifying the 2013-2014 specifications process, preferred deferring these considerations until the next management cycle when more time and resources could be brought to bear on this task.

The preferred 2013 and 2014 ACL for northern Minor Slope Rockfish of 1,160 mt is the No Action 2012 ACL. Given that this ACL is well below the SSC-recommended OFL and the SSC-approved ABC there is little risk of overfishing this complex. The 2006-2010 catches of northern Minor Slope Rockfish have been well under the preferred ACL, with the highest catch in that period (562 mt in 2010) only 48 percent of the ACL (Table 4-14). The average percent attainment of 2006-2010 OYs was 41 percent. The Minor Slope Rockfish North complex is also managed in the IFQ fishery. Only 17 percent of the 2011 IFQ allocation of the Minor Slope Rockfish North complex was attained (Table 4-5). Stock-specific info on total mortalities?

Table 4-18. The relative vulnerability of rockfish stocks managed in the Minor Slope Rockfish complex north of 40º10’ N. latitude ranked by relative level of vulnerability within the complex.

Stock Complex and Component Stocks	PSA Results Vulnerability Score	PSA Results Vulnerability Level
Minor Slope Rockfish North	NA	NA
Rougheye	2.27	Major
Shortraker	2.25	Major
Aurora	2.10	High
Bank	2.02	Med/High
Blackgill	2.08	Med/High
Redbanded	2.02	Med/High
Sharpchin	2.05	Med/High
Yellowmouth	1.96	Med/High
Splitnose	1.82	Med

Minor Nearshore Rockfish South of 40º10’ N. Latitude

The species comprising the Minor Nearshore Rockfish South complex are all unassessed species except for the portion of the blue rockfish stock occurring in waters off California north of Pt. Conception (i.e., 34º27’ N. latitude to 40º10’ N. latitude) and gopher rockfish north of Pt. Conception. All stocks other than the assessed portions of the blue and gopher rockfish stocks off California are category 3 stocks with catch-based approaches for determining the OFL contribution of the stock. The OFL contribution for blue rockfish off California is based on the 2007 assessment (Key, et al. 2008) and is recommended as a category 2 stock based on relatively high assessment uncertainty. The OFL contribution for gopher rockfish is based on the 2005 assessment (Key, et al. 2006) and is recommended as a category 1 stock by the SSC.

Stock assessments have not yet been conducted for many of the nearshore species, due in part to the lack of available information. Thus the overall stock biomass and age structure is unknown. Biological impacts to the component stocks should be considered on both a coastwide level and within each management area where there is evidence of finer-scale stock structure. Current evidence suggests that population structuring, both genetically and biologically, may occur in many nearshore populations, but any short term impacts to subpopulations under the final preferred ACLs are unknown (Cope 2004), (Gunderson, *et al.* 2008), and (Waples, *et al.* 2008).

Historically, harvest specifications for the southern Minor Nearshore Rockfish complex were set at a level that was not expected to constrain the fishery and a 50 percent precautionary OY reduction was applied to address scientific and management uncertainty. Management of the complex was designed to ensure that total take of all component species did not exceed the aggregate limit. Given the improved methods of calculating component species contributions to the complexes, as well as the guidance under the NS1 guidelines and the FMP to prevent overfishing, management of complexes such as the Minor Nearshore Rockfish South complex is expected to be refined in future biennial cycles.

It is unlikely that the preferred 2013-2014 ACL for the Minor Nearshore Rockfish South complex will be exceeded. Nearshore rockfish species are commercially landed under state permits in California and all commercial landings must be sorted. The state has catch accounting programs to actively monitor and manage these species inseason. The state may also take inseason action independent of NMFS if necessary to prevent exceeding an ACL. Both the nearshore commercial and recreational fisheries will be constrained by the low availability of yelloweye in 2013 and 2014. As such, catches for both fisheries are not expected to increase and exceed the ACLs.

The trip limits for the complex may be restructured inseason if necessary to limit take of a particular nearshore species to reduce the risk of overfishing that species. Such action was taken in 2009 for blue rockfish in California, based on the results from a new assessment. The trip limit in northern California (between 42° N. latitude and 40°10' N. latitude was previously *"6,000 lb/ 2 months, no more than 1,200 lb of which may be species other than black or blue rockfish"* and was restructured to *"7,000 lb/ 2 months, no more than 1,200 lb of which may be species other than black rockfish"* as a means to limit take of blue rockfish and keep it within the statewide harvest guideline.

Concerns have been raised about overfishing component stocks within the minor nearshore complexes. When considering the risk of overfishing to the nearshore species, the biological impact to the stock must be considered. All rockfish comprising the nearshore complexes have longevities of at least 20 years, with many being much greater. Stocks with greater longevities are more resilient to short term fluctuations in environmental conditions or fishing practices, assuming older individuals are retained in the population. If older individuals are not retained and the stock becomes overfished, rebuilding the stock would likely require a lengthy rebuilding period.

Particular concern was expressed regarding the potential for overfishing vulnerable species within the northern Minor Nearshore Rockfish complex, particularly China, copper, and quillback rockfish. These species were all identified as highly vulnerable with a major concern based on the PSA analysis (Table 4-19). All three of these species are structure-based, longer-lived, deeper-dwelling nearshore rockfish, and thus prone to serial depletion. Concern for these species could arise if catch allocated within the nearshore complex is shifted to these highly vulnerable species. As explained in further detail in Section 4.X and Appendix X, state nearshore management plans and policies may adequately mitigate these risks.

The risk of exceeding the preferred 2013-2014 ACL for the Minor Nearshore Rockfish South complex is low given how well the California manages their nearshore fisheries. While the percent of OY attainment has been high (the 2006 OY was exceeded by about 16%), the average percent attainment of 2006-2010 OYs was only 77 percent (Table 4-14). No subsequent catch overage of the Minor Nearshore Rockfish South OY occurred after 2006.

Table 4-19. The relative vulnerability of rockfish stocks managed in the Minor Nearshore Rockfish complex south of 40º10’ N. latitude ranked by relative level of vulnerability within the complex.

Stock Complex and Component Stocks	PSA Results	
	Vulnerability	
	Score	Level
Minor Nearshore Rockfish South	NA	NA
China	2.23	Major
Copper	2.27	Major
Quillback	2.22	Major
Blue (assessed area)	2.01	Med/High
Blue (S of 34º27’ N. latitude)	2.01	Med/High
Brown	1.99	Med
Grass	1.89	Med
Olive	1.87	Med
Black and yellow	1.70	Low
Calico	1.57	Low
Gopher (N of Pt. Conception)	1.76	Low
Gopher (S of Pt. Conception)	1.76	Low
Kelp	1.59	Low
Treefish	1.73	Low

Minor Shelf Rockfish South of 40º10’ N. Latitude

The species comprising the Minor Shelf Rockfish South complex are all unassessed species except for greenstriped rockfish, which was assessed in 2009 (Hicks, *et al.* 2009) and greenspotted rockfish, which was newly assessed in 2011 (Dick et al. 2011). All stocks other than greenstriped and greenspotted rockfish are category 3 stocks with catch-based approaches for determining the OFL contribution of the stock. The OFL contributions for greenstriped and greenspotted rockfish are based on application of the proxy MSY harvest rate of $F_{50\%}$ to the projected exploitable biomass estimates in their respective assessments. Both the greenstriped and greenspotted stocks are categorized as category 2 stocks. The greenstriped stock categorization is based on relatively high assessment uncertainty due to uncertain estimates of historical discards (greenstriped rockfish are rarely landed due to their small size and lack of market value and desirability). The greenspotted stock categorization is based on the fact that annual recruitments are not estimated in the assessment since length and age composition data for greenspotted rockfish contain insufficient information to reliably resolve year-class strength. The greenstriped assessment was a coastwide assessment and the harvest specifications were apportioned using the mean of the 2003-2008 swept area biomass estimates south of 40º10’ N. latitude (15.5 percent) from the NMFS trawl survey. The northern greenspotted stock biomass (and projected OFLs) were apportioned 77.8 percent to the complex based on the average estimated catch proportion in the assessment for the stock occurring in the area between 34º27’ N. latitude and 40°10’ N. latitude. The entire biomass (and projected OFLs) from the assessment of the southern stock occurring south of 34º27’ N. latitude were contributed to the complex.

The PSA analysis of the relative vulnerability of stocks to overfishing indicated that a number of the component rockfish stocks have a medium to high relative vulnerability to overfishing (Table 4-20). However, the RCAs implemented to reduce mortality on overfished species greatly protect shelf rockfish leading to few concerns regarding overfishing.

Given that the preferred 2013-2014 ACL of 714 mt proposed for Minor Shelf Rockfish South is well below the SSC-recommended OFL and the SSC-approved ABC, there is little risk of overfishing this complex. There will also be similar RCA protections for the core areas of the southern shelf in 2013 and 2014, which will limit access to shelf rockfish in general. This is evidenced by the 2006-2010 catches of southern Minor Shelf Rockfish being well under the preferred ACL, averaging 40 percent of the specified OYs (Table 4-14). The Minor Shelf Rockfish South complex is also managed in the IFQ fishery. Only 2 percent of the 2011 IFQ allocation of the Minor Shelf Rockfish South complex was attained (Table 4-5).

The new greenspotted rockfish assessment indicates the stocks occurring in waters off California north and south of Pt. Conception are in the precautionary zone with a 30.6 percent depletion for the northern stock and a 37.4 percent depletion for the southern stock at the start of 2011. The northern stock was harvested at a rate higher than the proxy F_{MSY} harvest rate during an extended period (1970-1998), which drove the stock below the current MSST in 1990. Similarly, the southern stock was harvested at a rate above F_{MSY} during 1969-1998, which drove the stock below the MSST in 1984. The northern and southern stock biomasses hit their respective nadirs in 1998 and 1987, respectively and have been increasing steadily since with the protections implemented to minimize mortality on overfished shelf rockfish (e.g., implementation of the RCA). Application of the 40-10 rule for the northern stock in aggregate (i.e., the stock occurring in waters off California north of Pt. Conception) would determine an ACL greater than 30 mt; however, the recent estimated total mortality of northern greenspotted rockfish has been less than 1 mt. At this level of harvest, the stock is projected to reach target biomass by 2017. The continued implementation of the RCA makes it likely that this lower level of incidental fishing mortality will occur and stock biomass will increase without additional management measures. Application of the 40-10 rule for the southern stock would determine ACLs close to 40 mt while the recent estimated harvest has been about one third of that amount. The southern greenspotted rockfish stock is projected to attain target biomass by 2013 under existing management measures.

Table 4-20. The relative vulnerability of rockfish stocks managed in the Minor Shelf Rockfish complex north of 40º10’ N. latitude ranked by relative level of vulnerability within the complex.

Stock Complex and Component Stocks	PSA Results Vulnerability	
	Score	Level
Minor Shelf Rockfish South	NA	NA
Bronzespotted	2.12	High
Greenblotched	2.12	High
Redstripe	2.16	High
Speckled	2.10	High
Chameleon	2.03	Med/High
Pink	2.02	Med/High
Rosethorn	2.09	Med/High
Silvergray	2.02	Med/High
Tiger	2.06	Med/High
Vermilion	2.05	Med/High
Flag	1.97	Med
Greenspotted	1.98	Med
Harlequin	1.94	Med
Honeycomb	1.97	Med
Swordspine	1.94	Med
Greenstriped	1.88	Med
Mexican	1.80	Med
Pinkrose	1.82	Med
Rosy	1.89	Med
Squarespot	1.86	Med
Stripetail	1.80	Med
Yellowtail	1.88	Med
Freckled	1.55	Low
Halfbanded	1.38	Low
Pygmy	1.55	Low
Starry	1.02	Low

Minor Slope Rockfish South of 40º10’ N. Latitude

The species comprising the Minor Slope Rockfish South complex are all unassessed species except for bank rockfish, which was assessed in 2000 (Piner, *et al.* 2000), and blackgill rockfish, which was newly assessed in 2011(Field and Pearson 2011). All stocks other than bank and blackgill rockfish are category 3 stocks with catch-based approaches for determining the OFL contribution of the stock. The OFL contribution for bank rockfish is based on the 2000 assessment and is recommended as a category 2 stock by the SSC. The OFL contribution for blackgill rockfish is based on the 2011 assessment and is also recommended as a category 2 stock by the SSC. Both OFLs are determined by applying the proxy harvest rate of $F_{50\%}$ to projected exploitable biomass.

There is some concern regarding the most vulnerable species in the southern Minor Slope Rockfish complex. The PSA analysis of the relative vulnerability of stocks to overfishing indicated that aurora rockfish has a high vulnerability to overfishing, and rougheye, and shortraker rockfish stocks have a major vulnerability to overfishing (Table 4-21). However, rougheye and shortraker rockfish are rare south of 40º10’ N. latitude and the vulnerability of these two species is really only a concern in managing the northern Minor Slope Rockfish complex. Aurora rockfish has an estimated probability of being subject to overfishing of 36 percent if catches are as high as they have been in recent years Given the rarity of rougheye and shortraker rockfish in the south, there is less risk and concern of overfishing component stocks in the southern Minor Slope Rockfish complex than there is in the north.

The preferred 2013 and 2014 ACLs of 618 mt and 622 mt, respectively for the southern Minor Slope Rockfish complex are slightly less than the No Action 2012 ACL of 626 mt. This is because the DBSRA and DCAC OFL estimates of component stocks were revised to correct a bias in calculating the No Action OFLs. The net effect is that the summed contribution of OFLs for the complex decreased slightly. After applying the status quo basis for deciding the ABCs, the No Action ACL was now slightly higher than the recalculated ABCs. Therefore, the Council decided to set the complex ACLs equal to the ABCs. The 2006-2010 catches of southern Minor Slope Rockfish have been well under the preferred ACLs, with the highest catch in that period (256 mt in 2006) only 40 percent of the specified OY (Table 4-14). The average percent attainment of 2006-2010 OYs was 32 percent. The Minor Slope Rockfish South complex is also managed in the IFQ fishery. Only 14 percent of the 2011 IFQ allocation of the Minor Slope Rockfish South complex was attained (Table 4-15).

The new blackgill rockfish assessment indicates the stock south of 40º10’ N. latitude is in the precautionary zone with an estimated depletion of 30.2 percent at the start of 2011. The assessment estimates that the spawning output of blackgill rockfish was at high levels in the mid-1970s; began to decline steeply in the late 1970s through the 1980s, consistent with the rapid development and growth of the targeted fishery; and reached a low of approximately 18 percent of the unfished level in the mid-1990s. Since that time, catches have declined and spawning output has increased such that the current estimated larval production is 30 percent of the unfished level.

The preferred alternative is to continue to manage blackgill rockfish in the southern Minor Slope Rockfish complex and to manage total mortality of this component stock south of 40º10’ N. latitude with 2013 and 2014 harvest guidelines of 119 mt and 122 mt, respectively. These HGs are the calculated ABCs under the Council’s preferred P* of 0.45 for this category 2 stock. The HGs do not comport with ACLs calculated using the default 40-10 harvest control rule, which would have a further downward adjustment for this stock since it is in the precautionary zone. The 2013 and 2014 HGs in this case would be 106 mt and 110 mt, respectively (Table 4-22). The projected depletion in ten years under the preferred HGs assuming the ABC rule is 35.6 percent, which compares to a depletion in ten years of 36.0 percent under HGs assuming the 40-10 rule (Table 4-22). While application of the 40-10 rule is more precautionary, the biological consequences of applying the ABC rule rather than the 40-10 rule are negligible.

Table 4-21. The relative vulnerability of rockfish stocks managed in the Minor Slope Rockfish complex south of 40º10’ N. latitude ranked by relative level of vulnerability within the complex.

Stock Complex and Component Stocks	PSA Results Vulnerability	
	Score	Level
Minor Slope Rockfish South		
Rougheye	2.27	Major
Shortraker	2.25	Major
Aurora	2.10	High
Bank	2.02	Med/High
Blackgill	2.08	Med/High
Redbanded	2.02	Med/High
Sharpchin	2.05	Med/High
Yellowmouth	1.96	Med
Pacific ocean perch	1.69	Low

Table 4-22. Projected spawning output and depletion of blackgill rockfish under alternative catch streams assuming the base model in the 2011 assessment.

Year	Assuming OFL Removals			Assuming ABC Removals			Assuming ABC Removals and a 40-10 Adjustment		
	Spawning output (larvae 10^6)	Depletion	Catch (mt)	Spawning output (larvae 10^6)	Depletion	Catch (mt)	Spawning output (larvae 10^6)	Depletion	Catch (mt)
2011	359,236	30.2%	279	359,236	30.2%	279	359,236	30.2%	279
2012	358,426	30.2%	275	358,426	30.2%	275	358,426	30.2%	275
2013	357,200	30.1%	130	357,200	30.1%	119	357,200	30.1%	106
2014	365,426	30.8%	133	366,214	30.8%	122	367,126	30.9%	110
2015	373,164	31.4%	135	374,764	31.6%	124	376,517	31.7%	114
2016	380,422	32.0%	137	382,853	32.2%	126	385,375	32.4%	117
2017	387,216	32.6%	139	390,491	32.9%	128	393,708	33.1%	120
2018	393,563	33.1%	140	397,692	33.5%	130	401,527	33.8%	123
2019	399,487	33.6%	142	404,472	34.1%	131	408,850	34.4%	125
2020	405,010	34.1%	143	410,850	34.6%	133	415,697	35.0%	128
2021	410,160	34.5%	144	416,848	35.1%	134	422,091	35.5%	130
2022	414,964	34.9%	145	422,490	35.6%	135	428,060	36.0%	132

Other Flatfish

The Other Flatfish complex is the most reasonably constructed complex since all the species have similar life history characteristics, distributions, and low relative vulnerabilities to overfishing (Table 4-23). A systematic overhaul of the Other Flatfish complex in 2004 for the 2005-2006 biennial specifications is documented in the 2005-2006 EIS documents (PFMC 2004b).

All of the component stocks in the Other Flatfish complex are unassessed and are therefore category 3 stocks. OFLs for the component stocks were derived using catch-based methods such as DBSRA and DCAC.

The preferred 2013 and 2014 ACL for the Other Flatfish complex of 4,884 mt is the No Action 2012 ACL. Given that this ACL is well below the SSC-recommended OFL and the SSC-approved ABC, there is little risk of overfishing this complex. The 2005-2010 catches of Other Flatfish have been well under the preferred ACL, with the highest catch in that period (1,965 mt in 2006) only 48 percent of the specified OY (Table 4-14). The average percent attainment of 2005-2010 OYs was 34 percent. The Other Flatfish complex is also managed in the IFQ fishery. Only 16 percent of the 2011 IFQ allocation of the Other Flatfish complex was attained (Table 4-15).

Table 4-23. The relative vulnerability of stocks managed under the Other Flatfish complex.

Stock Complex and Component Stocks	PSA Results Vulnerability	
	Score	Level
Other Flatfish		
Butter sole	1.18	Low
Curlfin sole	1.23	Low
Flathead sole	1.03	Low
Pacific sanddab	1.25	Low
Rex sole	1.28	Low
Rock sole	1.42	Low
Sand sole	1.23	Low

Other Fish

The Other Fish complex is comprised of species with dissimilar life histories, distributions, and vulnerabilities to overfishing. The Other Fish complex has historically been the "accumulation complex" for all unassessed non-rockfish, non-flatfish species that are taken in groundfish fisheries. The No Action harvest specifications for the Other Fish complex do not have an analytical basis and many of the dissimilar component species have relatively high vulnerabilities to overfishing (Table 4-24). The GMT and SSC recommend a complete overhaul of the Other Fish complex. The recommended approach to doing this is consideration for adding new species related to the component species of the complex into the FMP and re-grouping species with similar vulnerabilities, ecological interactions, and distributions (see Appendix B). This effort is anticipated in time for the next management cycle.

The only assessed stock managed in the Other Fish complex is spiny dogfish, which was assessed for the first time in 2011 (Gertseva and Taylor 2011). The assessment indicated the stock was currently healthy with an estimated depletion of 63 percent of unfished biomass. The SSC endorsed the use of the 2011 spiny dogfish assessment as the best scientific information available for status determination and management in the Council process. The assessment results indicated that because of the longevity, low productivity, and other vital rates of the spiny dogfish stock, fishing at the F_{MSY} proxy level (SPR = 45 percent) is expected to severely reduce the spawning output of spiny dogfish over the long term. The STAR Panel suggested that the SSC may want to consider the appropriateness of using the current proxy harvest rate for spiny dogfish (Tsou et al. 2011). The SSC concurred that the F_{MSY} proxy may be too aggressive for spiny dogfish and other elasmobranches managed under the FMP. However, the supporting data and analysis needed to recommend a more appropriate SPR (greater than the current proxy) are not currently available. The SSC noted that pertinent research is underway and should be completed in time for the SSC to recommend more appropriate reference points for elasmobranches prior to the next assessment cycle.

The other issue discussed with the SSC is the assumed discard mortality rate for spiny dogfish. The total mortality reports that produced the estimated total mortalities in Table 4-14 assumed 100 percent mortality of discarded spiny dogfish, which represents the bulk of the estimated total mortality of the west coast stock. However, the 2011 spiny dogfish assessment assumed some survival of discarded spiny dogfish. The SSC recommended discard mortality assumptions be consistent between assessments and management. Although the discard mortality assumptions used in the assessment are based on very limited information, they represent the best information available. The SSC recommended that this information be used for management of spiny dogfish. More discussion of the discard mortality of spiny dogfish is provided in Appendix C.

Table 4-24. The relative vulnerability of stocks managed under the Other Fish complex.

Stock Complex and Component Stocks	**PSA Results Vulnerability**	
	Score	**Level**
Other Fish		
California skate	2.12	High
Leopard shark	2.00	High
Soupfin shark	2.02	High
Spiny dogfish	2.13	High
Big skate	1.99	Med
Pacific rattail	1.82	Med
Cabezon (WA)	1.68	Low
Finescale codling	1.48	Low
Kelp greenling	1.56	Low
Ratfish	1.72	Low

The 2013 and 2014 OFLs, ABCs, and ACLs proposed for the Other Fish complex, described in Section 2.1.3.3, are biased low (i.e., underestimated) due to missing OFL contributions from three of the stocks managed in the Other Fish complex and conservative OFL estimates for some of the component stocks as explained in more detail below.

Subsequent to the November 2011 Council meeting, methods were proposed to estimate OFL contributions for six of the seven stocks lacking an OFL estimate. The SSC endorsed the methods and OFL estimates for four of the six stocks lacking an OFL estimate at their March 2012 meeting. The endorsed methods were based on survey biomass and MSY harvest rates, although the SSC cautioned that several strong assumptions were made. Further evaluation of the methods would require a review of background materials used to estimate OFLs, such as the meta-analyses of the ratio of the MSY harvest rate to natural mortality rate. The SSC noted that methods used to derive these OFL estimates are a short-term solution for the Other Fish complex since the complex is expected to be restructured during the next management cycle. Further detail on the SSC-endorsed methods and those not endorsed for estimating OFLs for component stocks in the Other Fish complex follows.

The problem of missing OFLs was addressed in an analysis conducted by scientists from the NMFS Northwest and Southwest Fisheries Science Centers. OFLs for four species currently managed in the Other Fish complex were developed by applying approximate MSY harvest rates to estimates of stock biomass from the NWFSC West Coast Bottom Trawl Survey (Keller et al., 2008). The approach of Rogers et al. (1996) was modified to estimate OFLs for Pacific grenadier, big skate, California skate, and spotted ratfish using the equation:

$$OFL = F_{MSY}*B_W,$$

where F_{MSY} is the fishing mortality rate that maximizes long-term yield, and B_W is an inverse-variance weighted average of recent survey biomass estimates. For all species, a simplifying assumption was made about survey catchability (q), namely that q = 1, which is likely to result in conservative estimates of OFL for species whose range extends beyond survey boundaries or that occupy habitats inaccessible to survey gear.

To estimate F_{MSY} for each species, the product of estimates for the natural mortality rate (M) and the ratio F_{MSY} /M were calculated. Natural mortality rates were obtained from the literature or estimated from maximum observed ages using Hoenig's method (Hoenig, 1980). Maximum reported ages for Pacific grenadier and big skate were 73 and 26 years, respectively (Andrews et al., 1999; McFarlane and King, 2006). No published estimates of maximum age for California skate were found, so we assume a maximum age equal to that of big skate (26 years). Barnett (2008) reports a range for M of 0.17 – 0.26 for spotted ratfish based on reproductive output. For the ratio F_{MSY}/M, previous studies (e.g., Dick and MacCall, 2011) followed the suggestion of Walters and Martel (2004) that F_{MSY} = 0.8M for demersal groundfish in the northeast Pacific. The present analysis incorporates estimates of F_{MSY}/M, tailored to specific taxonomic groups, from a recent meta-analysis based on more than 200 species (Shijie Zhou, CSIRO; personal communication).

To propagate uncertainty in M and F_{MSY}/M into the OFL estimates, probability density functions were specified for each quantity (Table 4-25). For Pacific grenadier and the two skate species, we assumed M was lognormally distributed with a species-specific mean and a log-scale standard deviation of 0.4 (CV = 0.417; Dick and MacCall, 2011). Ageing methods for ratfish remain highly imprecise, so we assumed a uniform distribution of M over the range 0.17 – 0.26, following Barnett (2008). The meta-analysis of Zhou (pers. comm.) reports estimates of the posterior mean and standard deviation of the distribution of F_{MSY}/M for teleosts (mean = 0.87, SD = 0.05) and chondrichthyans (mean = 0.41, SD = 0.09). Given that there was little skewness in Zhou's posterior distributions for this quantity, we assume normal distributions for F_{MSY}/M.

Table 4-25. Assumed distributions for natural mortality (M) and F_{MSY}/ M by species, with associated coefficients of variation (CV) or standard deviations (SD). For spotted ratfish, bounds of the assumed uniform distribution on *M* are provided in place of a CV.

		Pacific grenadier	Big skate	California skate	Spotted ratfish
Natural Mortality, M yr^{-1}					
	Distribution	lognormal	lognormal	Lognormal	uniform
	Expected Value	0.053	0.162	0.162	0.215
	CV (range)	0.417	0.417	0.417	(0.17, 0.26)
F_{MSY}/M					
	Distribution	normal	normal	Normal	normal
	Expected Value	0.87	0.41	0.41	0.41
	SD	0.05	0.09	0.09	0.09

Trawl survey estimates of abundance were provided by NWFSC staff (A. Keller and B. Horness, personal communication) for the years 2003-2010. Estimates were stratified by year, depth, and INPFC area. Annual biomass and variance estimates were calculated as the sum of stratum-specific biomasses and variances within each year (Table 4-26, Figure 4-20). To reduce the effect of spurious annual estimates, we assume current biomass is the inverse-variance weighted average over the most recent three years (2008-2010). This approach assumes that no significant changes in abundance occurred during this time period, which is not unreasonable for low-productivity stocks that are not primary targets of the fishery.

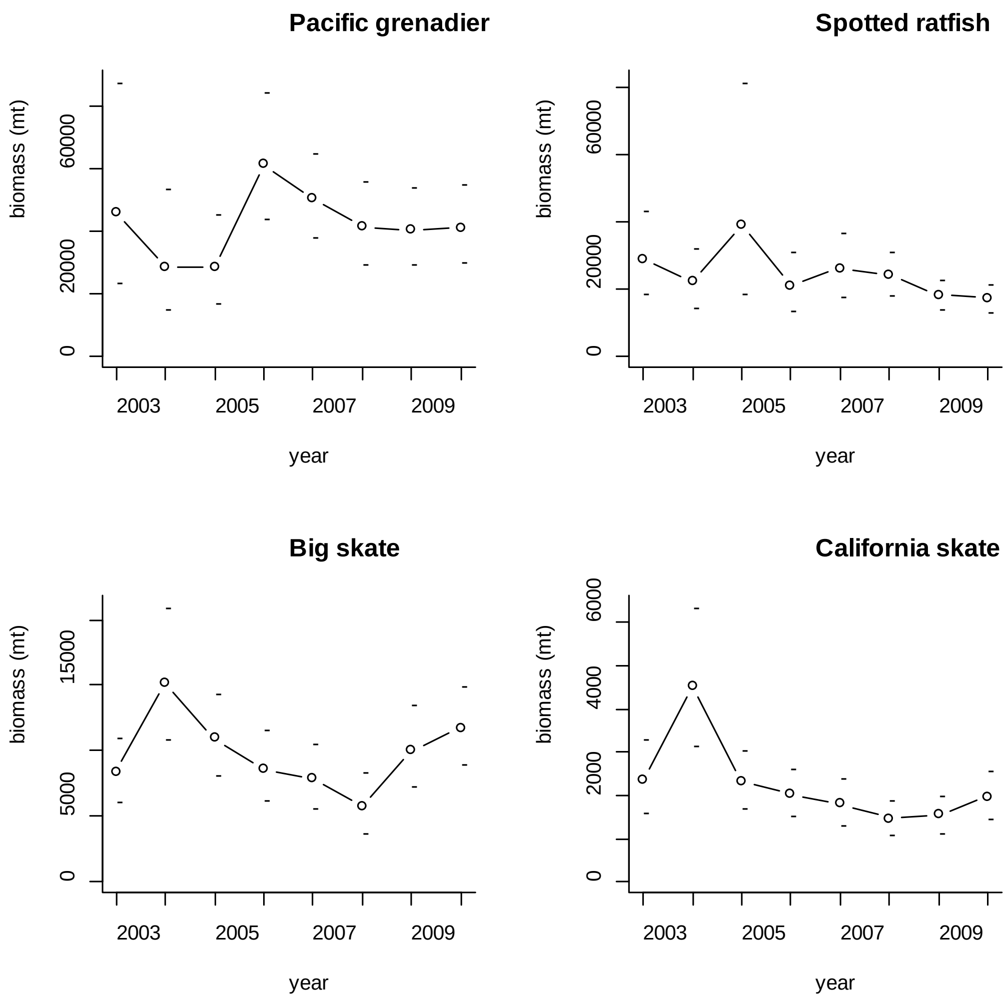


Figure 4-20. Time series of estimated survey biomass (mt), 2003-2010, with estimated 95% confidence intervals.

Table 4-26. Biomass estimates (mt) and associated coefficients of variation (CV) from the NWFSC trawl survey, by year and species.

Year	Pacific grenadier		Big skate		California skate		Spotted ratfish	
	Biomass	CV	Biomass	CV	Biomass	CV	Biomass	CV
2003	45,796	34.3%	8,331	14.6%	2,340	18.4%	28,895	21.5%
2004	28,564	33.3%	15,159	16.7%	4,516	17.6%	22,086	19.9%
2005	28,395	25.1%	10,943	14.3%	2,336	14.5%	39,262	39.0%

2006	61,292	16.7%	8,587	15.9%	2,025	13.8%	21,080	20.8%
2007	50,235	13.6%	7,844	15.7%	1,804	15.1%	26,030	18.2%
2008	41,205	16.3%	5,742	20.3%	1,463	14.0%	24,123	13.8%
2009	40,267	15.7%	10,070	15.3%	1,546	14.2%	18,151	12.7%
2010	41,007	15.3%	11,709	12.8%	1,975	14.6%	17,125	12.6%

OFL point estimates are typically based on the median of the OFL distribution, as this statistic represents the catch associated with a 50 percent probability of overfishing. Median OFLs for Pacific grenadier, big skate, California skate, and spotted ratfish are 1,720 mt, 513 mt, 96 mt, and 1,633 mt, respectively. Descriptions of the OFL distributions (mean, median, and selected percentiles) for the four species are provided in Table 4-27. Illustrations of prior distributions for M and F_{MSY}/M, along with derived distributions for weighted average biomass and OFL, are included in Figure 4-21 through Figure 4-24. All distributions were approximated using 1 million Monte Carlo draws.

Table 4-27. Summary statistics for distributions of OFL (mt) based on estimated survey biomass and MSY harvest rates.

Species	Mean	Percentile				
		2.5%	25%	50%	75%	97.5%
Pacific grenadier	1,873	763	1,299	1,720	2,274	3,871
Big skate	568	199	374	513	701	1,256
California skate	107	38	70	96	131	236
Spotted ratfish	1,661	894	1,358	1,633	1,935	2,581

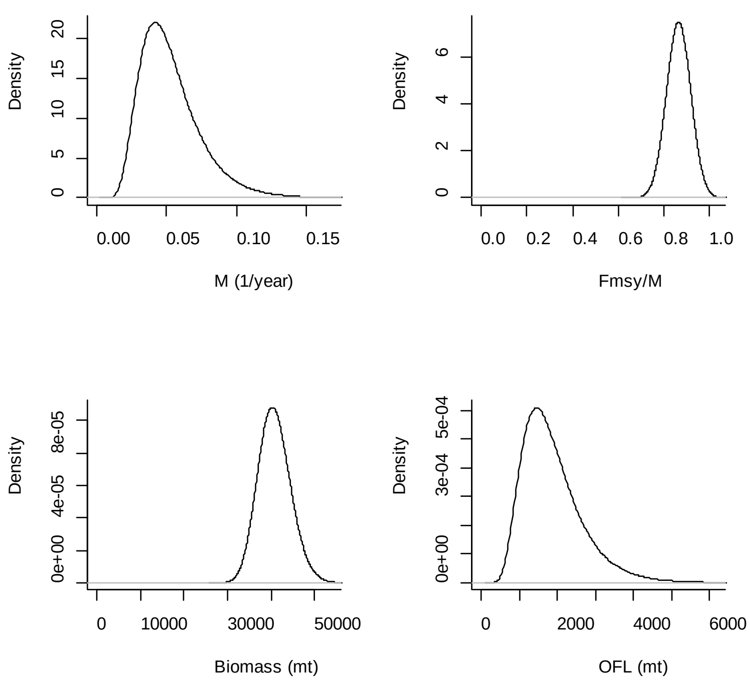


Figure 4-21. Assumed distributions for M and F_{MSY}/M (upper panels) and distributions of the weighted average survey biomass (2008-2010) and OFL (lower panels) for Pacific grenadier.

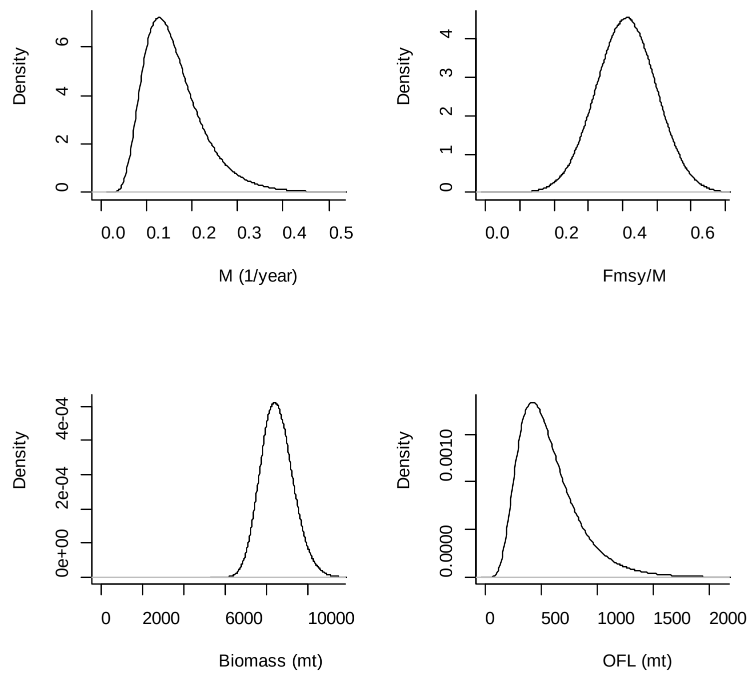


Figure 4-22. Assumed distributions for M and F_{MSY}/M (upper panels) and distribution of the weighted average survey biomass (2008-2010) and OFL (lower panels) for big skate.

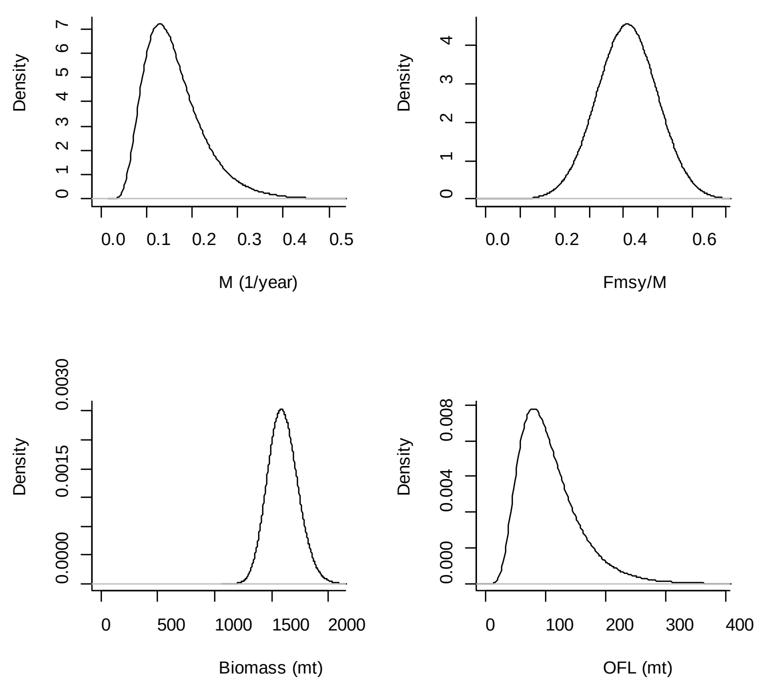


Figure 4-23. Assumed distributions for M and F_{MSY}/M (upper panels) and distributions of the weighted average survey biomass (2008-2010) and OFL (lower panels) for California skate.

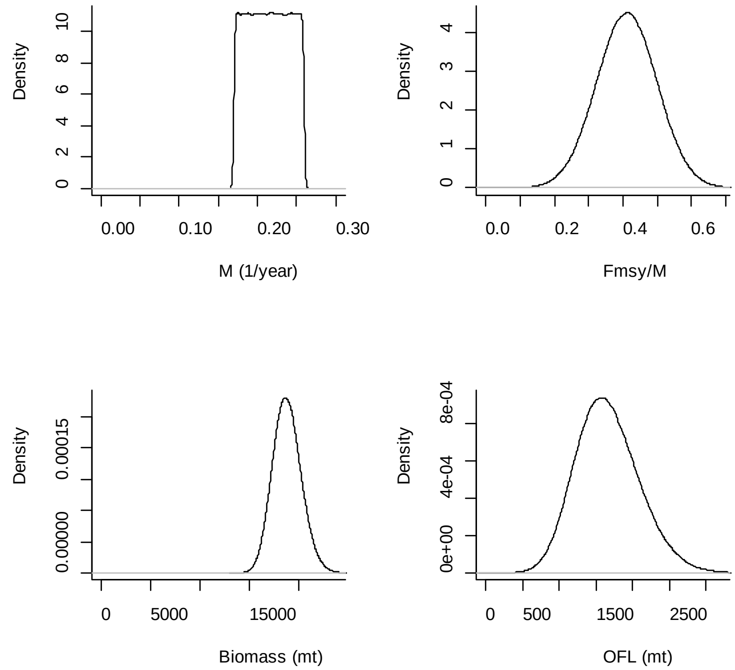


Figure 4-24. Assumed distributions for M and F_{MSY}/M (upper panels) and distributions of the weighted average survey biomass (2008-2010) and OFL (lower panels) for spotted ratfish.

A proposed method to estimate OFLs for the cabezon stock off Washington and the kelp greenling stock off Oregon and Washington using previous stock assessments was reviewed yet not endorsed by the SSC at their March 2012 meeting. The proposed OFLs were estimated using previously accepted assessment models where additional catch was added to account for areas that were not included in the original assessment. The SSC did not endorse the modeling approach used to estimate OFLs for cabezon in Washington and kelp greenling in Washington/Oregon since the interplay between amounts of catch used in the model, model parameters and estimated OFLs was found to be counterintuitive, and further exploration was required to address this issue.

Given the lack of any biological and fisheries information on finescale codling and the fact that the overall complex OFL is the sum of all component stocks' OFLs, no OFL estimate was proposed for finescale codling to reduce the risk of inflating a complex-level OFL that contains stocks with variable vulnerabilities (Cope et al. 2011).

The current preferred 2013 and 2014 ACLs of 4,717 mt and 4,697 mt, respectively for the Other Fish complex are not likely to impede fishery access to target species since they are higher than the historic estimated mortality of stocks managed in the complex (Table 4-14). The average annual (2005-2010) total mortality of stocks managed in the Other Fish complex is 4,211 mt or approximately 500 mt less than the proposed ACLs.

Chapter 4

4.1 Biological Consequences

[insert sec 4.1.1 here]

4.2 Socioeconomic Consequences

This section evaluates the effects of the alternatives (see section 2. 4) on fishery participants and fishing communities. Section 3.2 describes the economic status of these affected groups during the baseline period 2005-2010 based on historical commercial landings data, estimates of recreational fishing activity, and census data. Here, various methods are used to estimate how conditions may change from the baseline, either by continuing to apply the ACLs and management measures in effect in 2012 (No Action) or under the seven action alternatives, which are organized around different combinations of ACLs for canary rockfish and POP. ACLs for all other groundfish species categories do not vary under the integrated alternatives.

4.2.1 Models and Data

The GMT has developed several methods or models to project catch of overfished and principal target species in different groundfish fisheries, or "sectors." (See section 3.3.1.) For commercial fisheries these catch (or landings) estimates are converted to ex-vessel revenue estimates by applying historical price information derived from the PacFIN database. A landings distribution model is then used to estimate where landings are likely to occur and the resulting port-level ex-vessel revenue. The landings distribution model was reviewed by the SSC in September 2011. A description of the model and SSC review comments can be found at http://www.pcouncil.org/wp-content/uploads/G5a_ATT6_DIST_MDL_SEPT2011BB.pdf and http://www.pcouncil.org/wp-content/uploads/G5b_SUP_SSC_SEPT2011BB.pdf.

Another measure used to compare impacts on commercial fisheries under the alternatives is the estimated change in total accounting net revenues ("profits") by each directed shoreside groundfish vessel sector. Results are presented for vessels engaged in shoreside whiting, nonwhiting trawl, limited entry fixed gear, and directed open access sectors.

Since recreationally-caught fish are not sold, a different metric—recreational angler trips—is used to compare the impacts of the alternatives on recreational fisheries. These estimates are made by state and within states by county level regions.

In addition to ex-vessel revenue, the effect of the alternatives on coastal communities (ports where groundfish is landed) is evaluated by estimating personal income generated ("income impacts") and resulting employment. These metrics are derived from the IOPAC model developed by economists at the NWFSC. Personal income impact is a valuable metric because in addition to earnings received by harvesters, it also captures effects on processors, local input suppliers, and retail businesses that serve the communities. However since personal income impacts are generated by an economic model and only produced for the base years and the alternative scenarios being evaluated, there is no existing time series of personal income impacts that can be used to establish baseline conditions in the communities.

Consequently personal income impacts are not used to compare effects under the alternatives against historic conditions, but rather solely to illustrate the differences between the alternatives in terms of regional economic effects that can be expected in coastal communities.

Personal income impact results are also used to project the average change in employment and overall unemployment rates in each community under the alternatives.

The models used to project harvest by fisheries sector, and the socioeconomic impacts associated with those activities are detailed in Appendices A and D and summarized in the sections below.

The socioeconomic impacts of the alternatives are evaluated using the following comparisons.

Commercial and Tribal Groundfish Fisheries: Change in total ex-vessel revenue (and accounting net revenue) from No Action by fishery sector

In section 4.2.2.1 the alternatives are compared based on data summarized in Table 4-1and Table 4-2 showing projected ex-vessel revenues by groundfish fisheries sectors in 2013 under the proposed management alternatives. All comparisons are with respect to the No Action alternative unless otherwise indicated. Projections assume average 2011 ex-vessel prices. Effects are presented according to groundfish fishery "sectors," which are described in section 3.3.1. It should be noted that shoreside whiting trawl is presented separately from nonwhiting trawl, although both these sectors comprise the shorebased IFQ fishery beginning in 2011. As explained in section 3.3.1, because vessels fishing under the IFQ program may use any legal groundfish gear, the terminology is moving away from referring to "trawl" sectors. Participants in the IFQ fishery may use fixed gear, principally to target sablefish, while species such as Pacific whiting and flatfish will continue to be harvested with trawl gear since they are not vulnerable to fixed gear. However, in the evaluation of alternatives below the terminology whiting and nonwhiting "trawl" is used for these components of the shorebased IFQ fishery.

In modeling commercial fishery impacts, it is assumed that effort that is displaced or discouraged by management measures under a particular alternative is not able to switch readily into another fishery in the same region, or another region elsewhere along the coast. Thus the numbers reported probably represent something of an upper bound on regional economic impacts on commercial fisheries, or the maximum amount of displacement that could be expected occur under the alternatives.

Under each of the action alternatives, two suboptions ("A" and "B") are shown under each action alternative for the Nearshore Open Access sector. This treatment reflects consideration of two different management options to achieve the prescribed bycatch levels. In each case, the "B" option would likely yield lower harvests and revenues for the Nearshore Open Access sector than would the "A" option. Note that the same two options are applied to the Nearshore Open Access sector under alternatives 1, 2, 3, 5, 6 and 7. Two options yielding distinctly lower revenues are applied under Alternative 4 reflecting effects under two different possible management responses to the implement the low canary rockfish ACLs and sector harvest guidelines under this alternative. Also note that revenues projected for the Limited Entry Fixed Gear, Non-nearshore Open Access, Tribal and At Sea sectors are the same across all action alternatives. Results for these three sectors are driven by the ACLs for sablefish north and south of 36° north latitude and the ACL for Pacific whiting, which do not vary across the action alternatives (See section 4.2.2.5 for an evaluation of the effects of Pacific whiting ACLs other than those used to model the alternatives.

The Pacific whiting ACL is set annually in a separate action and therefore the actual ACLs in 2013-14 were not known at the time this document was prepared. Therefore to model the socioeconomic impacts of the alternatives a consistent ACL and sector allocations equivalent to the 2012 Pacific whiting fishery were used. Note however there is some variation in estimated ex-vessel revenues earned by the shoreside whiting sector under the integrated alternatives due to the effects of variation in ACLs for constraining bycatch species POP and canary rockfish.

Table 4-3 and Table 4-4 show the change in groundfish ex-vessel revenue by fishery sector from the baseline period described in section 3.3 in absolute and percentage terms. In these tables for simplicity only the "A" option is shown for each alternative. The baseline is the average annual inflation-adjusted ex-vessel revenue from 2005 to 2010.

Additionally, Table 4-5 and Table 4-6 report projected aggregate accounting net revenues (i.e., "profits") for the directed shoreside groundfish sectors in terms of dollar and percentage change from No Action, respectively. For this analysis note that because there have not been separate surveys of vessel costs associated with the two open access subsectors, Nearshore Open Access and Non-nearshore Open Access subsectors have been combined into a single Open Access sector.

Recreational Fisheries: Change in marine angler trips from No Action under the alternatives

In section 4.2.2.2 the impacts of the alternatives on recreational fisheries are compared using the data summarized in Table 4-14 and showing projected numbers of marine area angler boat trips taken in groundfish plus Pacific halibut recreational fisheries under the proposed management alternatives. All comparisons are with respect to the No Action alternative unless otherwise indicated. Under action Alternative 4 there are two sub alternatives ("A" and "B"). This treatment reflects consideration of two different management strategies to achieve the prescribed bycatch levels in Oregon and California recreational fisheries. Selection of the "B" option would likely result in lower participation rates in those states' recreational fisheries than would the "A" option.

In modeling recreational fishery impacts, it is assumed that anglers that are displaced or discouraged by management measures under a particular alternative are not able to switch readily into a different fishery in the same region or another region elsewhere along the coast. Thus the numbers reported below probably represent something of an upper bound on regional economic impacts on recreational fisheries, or the maximum amount of displacement likely to occur under the alternatives.

Results are compared here at the coastwide and individual state levels. Comparison of income impacts at the sub-state regional level are discussed under the communities impacts section, below. Note that there are no projections for groundfish plus halibut trips taken from the Astoria region in Oregon due to the relatively small numbers of such trips originating there.

Communities: Change in personal income and employment from No Action under the alternatives and change from the 2005-10 baseline in ex-vessel revenue

Change in personal income (income impacts) and employment-related measures for communities under the alternatives are compared in section 4.2.2.3. As described above, these effects are a function of the projected changes in commercial and recreational fishing activity. All comparisons are with respect to the No Action alternative unless otherwise indicated. Impacts were estimated using NWFSC IOPAC input-output model and convey combined direct, indirect, and induced economic effects resulting from projected changes in commercial fishing and recreational angling and related downstream fish processing and support activities.

For simplification and ease of comparing and combining impacts from commercial and recreational fishing activities, coastal ports are grouped regionally into the following community groups:

- Puget Sound: ports in combined King, Mason, Pierce, San Juan, Skagit, Snohomish, Thurston and Whatcom counties in Washington.
- Washington Coast: ports in combined Jefferson, Clallam, Grays Harbor and pacific counties in Washington.
- Astoria-Tillamook: ports in combined Clatsop and Tillamook counties in Oregon.
- Newport: ports in Lincoln County Oregon.
- Coos Bay – Brookings: ports in combined Lane, Douglas, Coos and Curry counties in Oregon.
- Crescent City – Eureka: ports in combined Del Norte and Humboldt counties in California.
- Fort Bragg – Bodega Bay: ports in combined Mendocino and Sonoma counties in California.
- San Francisco: ports in combined Marin, Alameda, Contra Costa, San Francisco and San Mateo counties in California.
- Santa Cruz – Monterey – Morro Bay: ports in combined Santa Cruz, Monterey and San Luis Obispo counties in California.
- Santa Barbara – Los Angeles – San Diego: ports in combined Santa Barbara, Ventura, Los Angeles, Orange and San Diego counties in California.

Commercial fishery and recreational fishery impacts are calculated and displayed separately. Impacts are calculated by applying income and employment multipliers generated using IOPAC regional impact models to the projected levels of local expenditures by commercial harvesters, processors and recreational anglers under the alternatives. Income impacts from the two sectors are combined in order to compare overall income impacts by community group for each alternative. While strictly speaking, these two components are not directly additive due to the slightly different estimation procedures used, for the following discussion income impacts generated by commercial fishing and recreational fishing activities are combined to provide an index to facilitate comparison of effects under the alternatives.

Projected changes in measures of personal income and employment in community groups under the alternatives are shown in the following tables. Table 4-9 displays the dollar change in commercial fishery income impacts from No Action. Table 4-10 displays the same information in terms of percentage change. Table 4-11 and Table 4-12 display the projected change in commercial fishery employment impacts from No Action in number of total jobs (combined full-time and part-time), and percentage change, respectively. Table 4-13 displays the projected change in regional unemployment rates from No Action in each community resulting from the commercial fishery employment impacts. Table 4-14 and Table 4-15 display recreational fishery income impacts in terms of change in dollars and percentage change, respectively. Finally, Table 4-16 and Table 4-17 display the combined commercial plus recreational fishery income impacts for each community group under the alternatives in terms of change in dollars and percentage change, respectively.

As discussed above, estimates of personal income for the full range of baseline years are not available for comparison. Therefore, Table 4-18 and Table 4-19 compare the change in total groundfish ex-vessel revenue from the baseline by community group. The baseline, described above, is inflation-adjusted average annual ex-vessel revenue, 2005-10.

Note that where impacts from commercial fisheries are reported, the alternatives are grouped based on whether the “A” or “B” suboption for the Nearshore Open Access sector is included. In all cases inclusion of suboption “B” for the Nearshore Open Access sector results in more negative overall impacts than suboption “A.” Among the recreational alternatives, only Alternative 4 includes both “A” and “B” suboptions in order to show effects under two different possible management responses to the implement the low canary rockfish ACLs and sector harvest guidelines under this alternative. Again suboption “B” results in more negative overall impacts than suboption “A”.

Processors

Section 4.2.2.4 describes impacts to processors using the comparison in Table 4-20 and Table 4-21, which show projected processor purchases of groundfish landings under the proposed management alternatives. These are actually estimates of ex-vessel revenues paid to harvesters but are used here as a measure of the value of raw material inputs available to processors. All comparisons are with respect to the No Action alternative unless otherwise indicated. The projections assume average 2011 ex-vessel prices. Results are summarized for whiting and combined non-whiting groundfish species. For each action alternative, two suboptions ("A" and "B") are shown reflecting the two different management options included in each case for the Nearshore Open Access sector. Results for nonwhiting species are driven in large part by the ACL for sablefish north of 36° north latitude, which is 25 percent lower than No Action but does not vary across the 2013 action alternatives.

In modeling impacts on processors, it is assumed that effects of the management measures under a particular alternative are not avoidable by simply buying from another fishery in the same region or from another region elsewhere along the coast. Thus the numbers reported below probably represent something of an upper bound on regional economic impacts on processors, or the maximum amount of economic displacement projected to occur under the alternatives.

Impacts on Non-market and Non-use Values

EISs evaluating previous harvest specifications discuss effects related to non-market and non-use (NMNU) values. These are non-consumptive uses that range from recreational enjoyment of the environment (e.g., wildlife viewing) to option or existence value (benefit derived from the knowledge that these resources will be available in the future or simply that environmental quality is maintained). There is no information to directly determine these preferences with respect to the resources most directly affected by the proposed action (groundfish species). Since all the alternatives evaluated here (including No Action) are consistent with FMP goals and MSA National Standards, which among other things include the objective of maintaining or rebuilding fish stock to MSY (or proxy) biomass, there are not likely to be substantive differences among them in terms of NMNU values.

Impacts on Vessel Safety

The differences between the integrated alternatives in terms of their possible effects on vessel safety are expected to be negligible. Any proposed shifts in RCA boundaries, thereby potentially forcing vessels to fish in much deeper waters or much closer to shore, are minimal and therefore not expected to adversely impact vessel safety. Also the introduction of the individual quota program for groundfish trawl fisheries during the prior management cycle has eliminated pressure on vessels in that fisheries sector to fish for "use-it-or-lose-it" periodic trip limits. Individual quota management will be in place during the 2013-2014 management cycle for shorebased trawl fisheries. While periodic trip limits will still be used to manage nontrawl fisheries, for the most part these do not vary substantially between the integrated alternatives.

Impacts on Other Indicators of Social Welfare

The differences between the integrated alternatives in terms of their possible effects on other indicators of community social welfare (e.g., poverty, divorce rates, graduation/dropout rates, incidents of domestic violence, etc.) are expected to be negligible.

4.2.2 Direct and Indirect Economic Impacts of the Alternatives

4.2.2.1 Commercial and Tribal Groundfish Fisheries

No Action: 2012 Regulations, 107 mt Canary Rockfish ACL and 187 mt POP ACL

Under No Action, total shoreside ex-vessel revenues from shoreside groundfish landings of $93.512 million are projected in 2013. This total includes the following projections for shoreside groundfish sectors: Whiting Trawl $23.65 million, Nonwhiting Trawl $26.912 million, Limited Entry Fixed Gear $19.068 million, Nearshore Open Access $4.218 million, Non-nearshore Open Access $7.687 million, Tribal groundfish (including shoreside whiting) $11.825 million, and Incidental Open Access $0.151 million. In addition, $30.890 million ex-vessel revenue equivalent from At Sea Non Tribal whiting fisheries (combined Motherships and Catcher Processors), and $9.675 million ex-vessel revenue equivalent from At Sea Tribal whiting (Mothership) fisheries are projected under the No Action and all action alternatives.

Much of the change from No Action under the action alternatives results from a 25 percent reduction in the ACL for sablefish north of 36° north latitude. This reduction extends across all the 2013 action alternatives and forms a backdrop affecting all sectors targeting sablefish. The affected sectors and projected respective shares of total groundfish ex-vessel revenue contributed by sablefish landings under No Action are: Nonwhiting Trawl 50 percent, Limited Entry Fixed Gear 79 percent, Non-nearshore Open Access 88 percent, and Tribal groundfish (including shoreside whiting) 35 percent.

Note that there is no projected change from No Action for groundfish landings by the Incidental Open Access and At Sea whiting sectors under the action alternatives. Therefore discussion of results for these sectors is omitted from the summary of impacts, below.

Comparing estimated shoreside ex-vessel revenue to average annual (inflation adjusted) revenue during the 2005-10 baseline, revenue increases by 41 percent for all shoreside groundfish fisheries. Shoreside whiting ex-vessel revenue more than doubles from the 2005-10 baseline under No Action, because of substantial increases in the Pacific whiting ACL in 2011-12 compared to previous management cycles as well as higher ex-vessel prices. Changes from the baseline in other fishery sectors are strongly influenced by the price and availability of sablefish, the largest revenue generator in groundfish fisheries. Although the sablefish ACL north of 36° N. latitude is lower than the average during the baseline period, the sablefish ACL south of 36° N. latitude is higher than the base period average. This plus the assumption of continued high sablefish ex-vessel prices as was observed in 2011 cause the limited entry and open access fixed gear fisheries to show 38 percent and 76 percent gains in ex-vessel revenue respectively. Nonwhiting trawl, on the other hand, declines slightly under No Action, by $0.9 million (-3%), chiefly due to lower harvest limits for petrale sole.

Total shoreside directed groundfish net accounting revenues (“profits”) for participating groundfish sectors are projected to be $30.629 million under No Action. This total includes the following projections for shoreside groundfish sectors: Whiting Trawl $10.256 million, Nonwhiting Trawl $6.693 million, Limited Entry Fixed Gear $8.059 million, and Open Access $5.621 million. Note that net accounting revenues for the Limited Entry Fixed Gear sector are the same under all the action alternatives.

Alternative 1: (Preliminary Preferred) 116 mt Canary Rockfish ACL and 150 mt POP ACL

Compared with No Action, under Preliminary Preferred Alternative 1, total shoreside ex-vessel revenue is projected to decline by $8.98 million (-9.6%) or $9.174 million (-9.8%) and accounting net revenues by

$4.411 million (-14.4%) or $4.510 (-14.7) depending on whether Nearshore Open Access option A or B is selected. These numbers represent the second highest result for ex-vessel revenue and accounting net revenue under the action alternatives.

Nearshore Open Access would see projected revenues increased by $0.733 million (17.4%) under option A, or $0.539 million (12.8%) if option B were selected. These numbers represent the best outcome for the Nearshore Open Access sector and are the same as those expected under Alternatives 1, 2, 3, 5, 6 and 7.

All other shoreside directed groundfish sectors would experience ex-vessel revenue decreases from No Action under this alternative: Whiting Trawl by $0.278 million (-1.2%), Nonwhiting Trawl by $3.175 million (-11.8%), Limited Entry Fixed Gear by $3.782 million (-19.8%), Non-nearshore Open Access by $1.436 million (-18.7%), and Tribal groundfish by $1.042 million (-8.8%).

Under Alternative 1, Shoreside Whiting and Nonwhiting Trawl would experience the second highest ex-vessel revenues among the action alternatives. Ex-vessel revenues for Limited Entry Fixed Gear, Non-nearshore Open Access and Tribal sectors do not vary across the action alternatives.

Compared to the 2005-10 baseline, ex-vessel revenue increases for all fishery sectors except non-whiting trawl. For all sectors combined the change is +28 percent versus +41 percent for No Action. Under all the action alternatives the nonwhiting trawl sector shows a large decline in ex-vessel revenue compared to the baseline. For Alternative 1 a $4.1 million decline in ex-vessel revenue (-15%) is forecast.

All shoreside directed sectors would see reduced accounting net revenues under this alternative: Shoreside Whiting accounting net revenues would decline by $0.146 million or -1.4 percent, the second best result for this sector among the action alternatives; Nonwhiting trawl by $1.637 million or -24.5 percent, the second best result; Open Access by $0.280 million (-5.0%) to 0.380 million (-6.8%), tied for the best result; and Limited Entry Fixed Gear by $2.348 million or -29.1 percent, the same under all the action alternatives.

Alternative 2: Lower Canary Rockfish ACL

Projected impacts under Alternative 2 are the same as under Alternative 1 for all commercial groundfish sectors. This is because measures used to manage commercial fisheries to stay within the 119 mt canary rockfish ACL and sector harvest guidelines under Alternative 1 are also sufficient to not exceed the 104 mt canary rockfish ACL under Alternative 2. The main factors limiting commercial fisheries modeled under Alternatives 1 and 2 are the common ACLs for POP and the other overfished species.

Alternative 3: Lower POP ACL

Alternative 3 is expected to produce the second lowest total ex-vessel revenues and accounting net revenues among action alternatives. Under Alternative 3 (compared with No Action), total ex-vessel revenue declines by $14.061 million (-15%) or $14.255 million (-15.2%), and accounting net revenues by $5.971 million (-19.5%) or $6.071 (-19.8) depending on whether Nearshore Open Access option A or B is selected.

Revenues in the shoreside Whiting and Nonwhiting Trawl sectors decrease by $2.296 million (-9.7%) and $6.238 million (-23.2%), respectively. These numbers represent the lowest sector revenues for Nonwhiting Trawl and the second lowest revenues for Whiting Trawl among the action alternatives.

Revenues in Limited Entry Fixed Gear and Non-nearshore Open Access sectors decrease by $3.782 million (-19.8%) and $1.436 million (-18.7%), respectively, the same result as under Alternative 1.

Tribal groundfish revenues decrease by $1.042 million (-8.8%), the same as under Alternative 1.

Nearshore Open Access revenues increase by $0.733 million (17.4%) under option A, or $0.539 million (12.8%) under option B, the same as under Alternative 1.

Compared to the 2005-10 baseline the increase in ex-vessel revenue for all shoreside sectors combined under Alternative 3 is smaller than under Alternatives 1 and 2 (20% versus 28%). The differences between Alternative 3 and Alternatives 1 and 2 are due to the smaller increase in the shoreside whiting sector (+92% versus +110%) and a larger decrease in the nonwhiting trawl sector (-26% versus -15%).

All shoreside directed sectors would see reduced accounting net revenues under this alternative: Shoreside Whiting accounting net revenues would decline by $1.224 million or -11.9%, the second worst result for this sector among the action alternatives; Nonwhiting trawl by $2.119 million or -31.7%, the worst overall result; Open Access by $0.280 million (-5.0%) to 0.380 million (-6.8%), tied for the best result; and Limited Entry Fixed Gear by $2.348 million or -29.1 percent, the same under all the action alternatives.

Alternative 4: Lowest Canary Rockfish ACL and Highest POP ACL

Alternative 4 is expected to produce the lowest total ex-vessel revenues and accounting net revenues among the action alternatives. Under Alternative 4 (compared with No Action), total ex-vessel revenue declines by $14.698 million (-15.7%) or $15.531 million (-16.6%), and accounting net revenues by $6.963 million (-22.7%) or $7.571 (-24.7%) depending on whether Nearshore Open Access option A or B is selected.

Revenues in the Whiting and Nonwhiting Trawl sectors decrease by $2.584 million (-10.9%) and $5.157 million (-19.2%), respectively. These numbers represent the lowest sector revenues for Whiting Trawl and the second lowest revenues for Nonwhiting Trawl among the action alternatives.

Nearshore Open Access would see revenues fall by $0.698 million (-16.5%) under option A, or $1.531 million (-36.3%) under option B. These results represent the lowest sector revenues for Nearshore Open Access among the action alternatives.

Revenues in Limited Entry Fixed Gear and Non-nearshore Open Access sectors decrease by $3.782 million (-19.8%) and $1.436 million (-18.7%), respectively, the same as under Alternative 1.

Tribal groundfish revenue decreases by $1.042 million (-8.8%), the same as under Alternative 1.

Compared to the 2005-10 baseline, ex-vessel revenue for all shoreside sectors combined shows the smallest increase under this alternative compared to all others at 19 percent. Compared to Alternative 3, which shows the next smallest overall increase, the change from the baseline in the shoreside whiting revenue (+89%) and open access fixed gear revenue (+11% under suboption A and -16% under suboption B) are smaller. The decline in nonwhiting trawl ex-vessel revenue (-22%) is smaller than Alternative 3 but greater than the other action alternatives.

All shoreside directed sectors would see reduced accounting net revenues under this alternative: Shoreside Whiting accounting net revenues would decline by $1.38 million or -13.5 percent, the worst result for this sector among the action alternatives; Nonwhiting trawl by $2.049 million or -30.6 percent, the second worst result; Open Access by $1.186 million (-21.1%) to 1.794 million (-31.9%), the worst result; and Limited Entry Fixed Gear by $2.348 million or -29.1 percent, the same under all the action alternatives.

Alternative 5: Highest Canary Rockfish ACL and Lowest POP ACL

Projected impacts under Alternative 5 are the same as under Alternative 3 for all commercial groundfish sectors. This is because measures used to manage commercial fisheries to stay within the 76 mt POP ACL and sector harvest guidelines under Alternative 5 are the same as those used under Alternative 3. The 76 mt POP ACL is the main factor limiting commercial fisheries modeled under both Alternatives 3 and 5.

Alternative 6: Lower Canary Rockfish ACL and Higher POP ACL

Alternative 6 is expected to produce the highest total ex-vessel revenues and accounting net revenues among the action alternatives. Under Alternative 6, total ex-vessel revenue declines by $8.798 million (-9.4%) or $8.992 million (-9.6%), and accounting net revenues by $4.319 million (-14.1%) or $4.419 (-14.4%) depending on whether Nearshore Open Access option A or B is selected.

Revenues in the Whiting and Nonwhiting Trawl sectors decrease by $0.110 million (-0.5%) and $3.162 million (-11.7%), respectively. These results represent the highest sector revenues for Whiting Trawl and Nonwhiting Trawl sectors among the action alternatives.

Nearshore Open Access revenues would increase by $0.733 million (17.4%) under option A, or $0.539 million (12.8%) under option B, the same result as under Alternative 1.

Revenues in Limited Entry Fixed Gear and Non-nearshore Open Access sectors decrease by $3.782 million (-19.8%) and $1.436 million (-18.7%), respectively, the same as under Alternative 1.

Tribal groundfish revenue decreases by $1.042 million (-8.8%), the same as under Alternative 1.

Among the action alternatives, Alternative 6 would result in the largest overall increase in ex-vessel revenue from the 2005-10 baseline at $18.5 million (+28%), although only slightly greater than Alternatives 1 and 2. Alternative 6 differs from the other action alternatives primarily in terms of the change from the baseline in whiting and nonwhiting trawl ex-vessel revenue. Whiting trawl shows the largest increase from the baseline among all the alternatives, including No Action, $12.4 million (111%), while nonwhiting trawl shows the smallest decline at -$4.1 million (-15%) among all the action alternatives although very close to the estimated change under Alternatives 1 and 2.

All shoreside directed sectors would see reduced accounting net revenues under this alternative: Shoreside Whiting accounting net revenues would decline by $0.056 million or -0.5 percent, the best result for this sector among the action alternatives; Nonwhiting trawl by $1.635 million or -24.4 percent, the best result; Open Access by $0.280 million (-5.0%) to 0.380 million (-6.8%), tied for the best result; and Limited Entry Fixed Gear by $2.348 million or -29.1 percent, the same under all the action alternatives.

Alternative 7: Higher Canary Rockfish ACL and Lower POP ACL

Projected impacts under Alternative 7 are the same as under Alternative 6 for all commercial groundfish sectors. This is because measures used to manage commercial fisheries to stay within the 226 mt POP

ACL and sector harvest guidelines under Alternative 7 are the same as those used under Alternative 6. The 226 mt POP ACL is the main factor limiting commercial fisheries modeled under both Alternatives 6 and 7.

Table 4-1. Change in groundfish ex-vessel revenues from No Action by groundfish harvest sector under the 2013-14 integrated alternatives ($1,000).

	No Action	Alternative 1 PPA		Alternative 2		Alternative 3		Alternative 4	
Nearshore Open Access option:		***A***	***B***	***A***	***B***	***A***	***B***	***A***	***B***
Shoreside Sectors:									
Whiting	*23,650*	- 278		- 278		- 2,296		- 2,584	
Nonwhiting Trawl	*26,912*	- 3,175		- 3,175		- 6,238		- 5,157	
Limited Entry Fixed Gear	*19,068*	- 3,782		- 3,782		- 3,782		- 3,782	
Nearshore Open Access	*4,218*	+ 733	+ 539	+ 733	+ 539	+ 733	+ 539	- 698	- 1,531
Non-nearshore Open Access	*7,687*	- 1,436		- 1,436		- 1,436		- 1,436	
Incidental Open Access	*151*	-		-		-		-	
Tribal (incl. whiting)	*11,825*	- 1,042		- 1,042		- 1,042		- 1,042	
At-Sea Sectors:									
Non Tribal Whiting	*30,890*	-		-		-		-	
Tribal Whiting	*9,675*	-		-		-		-	
TOTAL CHANGE IN SHORESIDE REVENUES ($1,000)	*93,512*	**-8,980**	**-9,174**	**-8,980**	**-9,174**	**-14,061**	**-14,255**	**-14,698**	**-15,531**

Groundfish Sector	Alternative 5		Alternative 6		Alternative 7	
Nearshore Open Access option:	***A***	***B***	***A***	***B***	***A***	***B***
Shoreside Sectors:						
Whiting	- 2,296		- 110		- 110	
Nonwhiting Trawl	- 6,238		- 3,162		- 3,162	
Limited Entry Fixed Gear	- 3,782		- 3,782		- 3,782	
Nearshore Open Access	+ 733	+ 539	+ 733	+ 539	+ 733	+ 539
Non-nearshore Open Access	- 1,436		- 1,436		- 1,436	
Incidental Open Access	-		-		-	
Tribal (incl. whiting)	- 1,042		- 1,042		- 1,042	
At-Sea *Sectors:*						
Non Tribal Whiting	-		-		-	
Tribal Whiting	-		-		-	
TOTAL CHANGE IN SHORESIDE REVENUES ($1,000)	-14,061	-14,255	-8,798	-8,992	-8,798	-8,992

Note: "A" and "B" identifiers indicate the Nearshore Open Access option included in the Alternative.

Table 4-2. Change in groundfish ex-vessel revenues from No Action by shoreside harvest sector under the 2013-14 integrated alternatives (%).

	No Action	Alternative 1 PPA		Alternative 2		Alternative 3		Alternative 4	
Nearshore Open Access option:		***A***	***B***	***A***	***B***	***A***	***B***	***A***	***B***
Shoreside Sectors:									
Whiting	*23,650*	- 1.2%		- 1.2%		- 9.7%		- 10.9%	
Nonwhiting Trawl	*26,912*	- 11.8%		- 11.8%		- 23.2%		- 19.2%	
Limited Entry Fixed Gear	*19,068*	- 19.8%		- 19.8%		- 19.8%		- 19.8%	
Nearshore Open Access	*4,218*	+17.4%	+12.8%	+17.4%	+12.8%	+17.4%	+12.8%	- 16.5%	- 36.3%
Non-nearshore Open Access	*7,687*	- 18.7%		- 18.7%		- 18.7%		- 18.7%	
Incidental Open Access	*151*	-		-		-		-	
Tribal (incl. whiting)	*11,825*	- 8.8%		- 8.8%		- 8.8%		- 8.8%	
At-Sea Sectors:									
Non Tribal Whiting	*30,890*	-		-		-		-	
Tribal Whiting	*9,675*	-		-		-		-	
TOTAL CHANGE IN SHORESIDE REVENUES (%)	*93,512*	**- 9.6%**	**- 9.8%**	**- 9.6%**	**- 9.8%**	**- 15.0%**	**- 15.2%**	**- 15.7%**	**- 16.6%**

Groundfish Sector	Alternative 5		Alternative 6		Alternative 7	
Nearshore Open Access option:	***A***	***B***	***A***	***B***	***A***	***B***
Shoreside Sectors:						
Whiting	- 9.7%		- 0.5%		- 0.5%	
Nonwhiting Trawl	- 23.2%		- 11.7%		- 11.7%	
Limited Entry Fixed Gear	- 19.8%		- 19.8%		- 19.8%	
Nearshore Open Access	+17.4%	+12.8%	+17.4%	+12.8%	+17.4%	+12.8%
Non-nearshore Open Access	- 18.7%		- 18.7%		- 18.7%	
Incidental Open Access	-		-		-	
Tribal (incl. whiting)	- 8.8%		- 8.8%		- 8.8%	
At-Sea Sectors:						
Non Tribal Whiting	-		-		-	
Tribal Whiting	-		-		-	
TOTAL CHANGE IN SHORESIDE REVENUES (%)	**- 15.0%**	**- 15.2%**	**- 9.4%**	**- 9.6%**	**- 9.4%**	**- 9.6%**

Table 4-3. Change in groundfish ex-vessel revenues from the baseline (2005-10 inflation-adjusted average annual ex-vessel revenue) by shoreside harvest sector under the 2013-14 integrated alternatives (2011 $1,000).

		Integrated Alternatives							
	Baseline	No Action	1	2	3	4	5	6	7
Shoreside Whiting	*11,141*	+12,509	+12,231	+12,231	+10,213	+9,925	+10,213	+12,399	+12,399
Shoreside Nonwhiting Trawl	*27,824*	-912	-4,087	-4,087	-7,150	-6,069	-7,150	-4,074	-4,074
Shoreside LE Fixed Gear	*13,796*	+5,272	+1,490	+1,490	+1,490	+1,490	+1,490	+1,490	+1,490
Shoreside Non-nearshore OA	*3,756*	+3,930	+2,495	+2,495	+2,495	+2,495	+2,495	+2,495	+2,495
Shoreside Tribal (incl. whiting)	*6,376*	+5,449	+4,407	+4,407	+4,407	+4,407	+4,407	+4,407	+4,407
Shoreside Nearshore OA (suboption A)	*3,185*	+1,033	+1,766	+1,766	+1,766	+336	+1,766	+1,766	+1,766
Shoreside Nearshore OA (suboption B)			+1,572	+1,572	+1,572	-498	+1,572	+1,572	+1,572
Total (under suboption A)*	*66,079*	+27,281	+18,302	+18,302	+13,221	+12,583	+13,221	+18,483	+18,483

*Total does not include inflation-adjusted annual average $0.7 million from un-modeled landings including EFP, research, exempted trawl, and other fisheries catching groundfish incidentally.

Table 4-4. Change in groundfish revenues from baseline (2005-10 inflation-adjusted annual average ex-vessel revenue) by shoreside harvest sector under the 2013-14 integrated alternatives (%).

	Integrated Alternatives							
	No Action	1	2	3	4	5	6	7
Shoreside Whiting	+112%	+110%	+110%	+92%	+89%	+92%	+111%	+111%
Shoreside Nonwhiting Trawl	-3%	-15%	-15%	-26%	-22%	-26%	-15%	-15%
Shoreside LE Fixed Gear	+38%	+11%	+11%	+11%	+11%	+11%	+11%	+11%
Shoreside Non-nearshore OA	+105%	+66%	+66%	+66%	+66%	+66%	+66%	+66%
Shoreside Tribal (incl. whiting)	+85%	+69%	+69%	+69%	+69%	+69%	+69%	+69%
Shoreside Nearshore OA (suboption A)	+32%	+55%	+55%	+55%	+11%	+55%	+55%	+55%
Shoreside Nearshore OA (suboption B)		+49%	+49%	+49%	-16%	+49%	+49%	+49%
Total (under suboption A)*	+41%	+28%	+28%	+20%	+19%	+20%	+28%	+28%

*Total does not include inflation-adjusted annual average $0.7 million from un-modeled landings including EFP, research, exempted trawl, and other fisheries catching groundfish incidentally.

Table 4-5. Change in groundfish accounting net revenue impacts by shoreside commercial fishery sector from No Action under the 2013-14 integrated alternatives ($1,000)

	No Action	Alternative 1 PPA		Alternative 2		Alternative 3		Alternative 4	
Sector \ Nearshore OA Option		**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**
Whiting	*10,256*	-146		-146		-1,224		-1,380	
Nonwhiting Trawl	*6,693*	-1,637		-1,637		-2,119		-2,049	
Limited Entry Fixed Gear	*8,059*	-2,348		-2,348		-2,348		-2,348	
Open Access	*5,621*	-280	-380	-280	-380	-280	-380	-1,186	-1,794
TOTAL SHORESIDE CHANGE ($,000)	***30,629***	**-4,411**	**-4,510**	**-4,411**	**-4,510**	**-5,971**	**-6,071**	**-6,963**	**-7,571**

	Alternative 5		Alternative 6		Alternative 7	
Sector \ Nearshore OA Option	**A**	**B**	**A**	**B**	**A**	**B**
Whiting	-1,224		-56		-56	
Nonwhiting Trawl	-2,119		-1,635		-1,635	
Limited Entry Fixed Gear	-2,348		-2,348		-2,348	
Open Access	-280	-380	-280	-380	-280	-380
TOTAL SHORESIDE CHANGE ($,000)	**-5,971**	**-6,071**	**-4,319**	**-4,419**	**-4,319**	**-4,419**

Table 4-6. Change in groundfish accounting net revenue impacts by shoreside commercial fishery sector from No Action under the 2013-14 integrated alternatives (%).

	No Action	Alternative 1 PPA		Alternative 2		Alternative 3		Alternative 4	
Sector \ Nearshore OA Option		**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**
Whiting	*10,256*	-1.4%		-1.4%		-11.9%		-13.5%	
Nonwhiting Trawl	*6,693*	-24.5%		-24.5%		-31.7%		-30.6%	
Limited Entry Fixed Gear	*8,059*	-29.1%		-29.1%		-29.1%		-29.1%	
Open Access	*5,621*	-5.0%	-6.8%	-5.0%	-6.8%	-5.0%	-6.8%	-21.1%	-31.9%
TOTAL SHORESIDE CHANGE (%)	***30,629***	**-14.4%**	**-14.7%**	**-14.4%**	**-14.7%**	**-19.5%**	**-19.8%**	**-22.7%**	**-24.7%**

	Alternative 5		Alternative 6		Alternative 7	
Sector \ Nearshore OA Option	**A**	**B**	**A**	**B**	**A**	**B**
Whiting	-11.9%		-0.5%		-0.5%	
Nonwhiting Trawl	-31.7%		-24.4%		-24.4%	
Limited Entry Fixed Gear	-29.1%		-29.1%		-29.1%	
Open Access	-5.0%	-6.8%	-5.0%	-6.8%	-5.0%	-6.8%
TOTAL SHORESIDE CHANGE (%)	**-19.5%**	**-19.8%**	**-14.1%**	**-14.4%**	**-14.1%**	**-14.4%**

4.2.2.2 Recreational Fisheries

No Action: 2012 Regulations

Under No Action, a total of 653.6 thousand groundfish and Pacific halibut trips are projected coastwide. Just over half of these are private boat trips with the remainder taken on charter boats. The breakdown by state is: Washington 27.1 thousand trips (14.3 thousand charter + 12.8 thousand private), Oregon 92.1 thousand trips (37.6 thousand charter + 54.4 thousand private), and California 534.5 thousand (269.4 thousand charter + 265.1 thousand private).

Alternative 1: Preliminary Preferred Alternative

Under Preliminary Preferred Alternative 1, angler trips coastwide are projected to increase by 1,700 (+0.3%) over No Action, with all of the increase occurring in the Mendocino and Sonoma County (Fort Bragg – Bodega Bay) region of California. No change in angler effort is expected in Washington or Oregon. This represents the greatest increase in angler trips projected under the action alternatives.

Alternative 2: Lower Canary Rockfish ACL

Impacts under Alternative 2 are very similar to but slightly less favorable than Alternative 1. Coastwide angler trips are projected to increase by 1,400 (+0.2%) over No Action, with all of the increase occurring in the Mendocino and Sonoma County (Fort Bragg – Bodega Bay) region of California. No change in angler effort is expected in Washington or Oregon. These numbers describe the second greatest increase in angler trips projected under the action alternatives.

Alternative 3: Lower POP ACL

Projected impacts under Alternative 3 are exactly the same as under Alternative 2. This is because measures used to manage cowcod, bocaccio and yelloweye rockfish to stay within their common ACLs and harvest guidelines under the action alternatives do not allow recreational fisheries to exploit the relatively higher canary rockfish ACL under Alternative 3.

Alternative 4: Lowest Canary Rockfish ACL and Highest POP ACL

Angler trips projected under Alternative 4 are the lowest among the action alternatives. While no change is projected in Washington, both Oregon and California expect considerable reductions from No Action. Under Alternative 4A, coastwide angler trips are projected to decrease by 11,700 (-1.8%) over No Action, with nearly ¾ of the decrease occurring in Oregon. Under Alternative 4B, coastwide angler trips decrease by 80,200 (-12.3%) over No Action. While Oregon is three times more negatively affected under Alternative 4B than 4A, more than 2/3 of the decrease in angler trips under Alternative 4B is projected to occur in California.

Alternative 5: Highest Canary Rockfish ACL and Lowest POP ACL

Projected impacts under Alternative 5 are exactly the same as under Alternative 2. This is because measures used to manage cowcod, bocaccio and yelloweye rockfish to stay within their common ACLs and harvest guidelines under the action alternatives do not allow recreational fisheries to exploit the relatively higher canary rockfish ACL under Alternative 5.

Alternative 6: Lower Canary Rockfish ACL and Higher POP ACL

Projected impacts under Alternative 6 are exactly the same as under Alternative 2. This is because (1) measures used to manage cowcod, bocaccio and yelloweye rockfish to stay within their common ACLs and harvest guidelines are the same under all the action alternatives, and (2) the canary rockfish ACL is the same under both Alternatives 5 and 2.

Alternative 7: Higher Canary Rockfish ACL and Lower POP ACL

Projected impacts under Alternative 7 are exactly the same as under Alternative 2. This is because measures used to manage cowcod, bocaccio and yelloweye rockfish to stay within their common ACLs and harvest guidelines under the action alternatives do not allow recreational fisheries to exploit the relatively higher canary rockfish ACL under Alternative 7.

Table 4-7. Estimated bottomfish + Pacific halibut marine angler boat trips under No Action and change from No Action under the 2013-14 action alternatives (thousands of trips).

	No Action			*Alternative 1 PPA*			*Alternative 2*			*Alternative 3*			*Alternative 4A*		
State / District	***Charter***	***Private***	***Total***	**Charter**	**Private**	**Total**	**Charter**	**Private**	**Total**	**Charter**	**Private**	**Total**	**Charter**	**Private**	**Total**
Washington															
La Push-Neah Bay	*1.6*	*9.9*	*11.5*	-	-	-	-	-	-	-	-	-	-	-	-
Westport	*11.7*	*1.8*	*13.5*	-	-	-	-	-	-	-	-	-	-	-	-
Ilwaco-Chinook	*1.0*	*1.1*	*2.0*	-	-	-	-	-	-	-	-	-	-	-	-
Washington Total	***14.3***	***12.8***	***27.1***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Oregon	0.0	0.0	0.0												
Astoria	0.0	0.0	0.0												
Tillamook	*5.7*	*8.4*	*14.2*	-	-	-	-	-	-	-	-	-	- 1.8	- 2.6	- 4.3
Newport	*22.5*	*17.6*	*40.0*	-	-	-	-	-	-	-	-	-	- 1.0	- 0.8	- 1.8
Coos Bay	*5.1*	*7.8*	*12.8*	-	-	-	-	-	-	-	-	-	- 0.7	- 1.0	- 1.7
Brookings	*4.3*	*20.7*	*25.0*	-	-	-	-	-	-	-	-	-	- 0.1	- 0.5	- 0.6
Oregon Total	***37.6***	***54.4***	***92.1***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**- 3.5**	**- 4.9**	**- 8.4**
California															
North Coast: Del Norte and Humboldt	*3.4*	*19.0*	*22.4*	-	-	-	-	-	-	-	-	-	+ 0.1	+ 1.4	+ 1.5
North-Central Coast: Mendocino and Sonoma	*4.2*	*6.1*	*10.3*	+ 0.3	+ 1.4	+ 1.7	-	+ 1.4	+ 1.4	-	+ 1.4	+ 1.4	+ 2.7	+ 5.8	+ 8.5
North-Central Coast: Marin through San Mateo	*27.6*	*27.1*	*54.7*	-	-	-	-	-	-	-	-	-	- 1.6	- 0.7	- 2.3
South-Central Coast: Santa Cruz through San Luis Obispo	*32.7*	*37.8*	*70.5*	-	-	-	-	-	-	-	-	-	- 5.0	- 6.1	- 11.1
South Coast: Santa Barbara through San Diego	201.5	175.1	376.6	-	-	-	-	-	-	-	-	-	-	-	-
California Total	**269.4**	**265.1**	**534.5**	**+ 0.3**	**+ 1.4**	**+ 1.7**	**-**	**+ 1.4**	**+ 1.4**	**-**	**+ 1.4**	**+ 1.4**	**- 3.8**	**+ 0.4**	**- 3.4**
Washington-Oregon-California Total	**321.3**	**332.3**	**653.6**	**+ 0.3**	**+ 1.4**	**+ 1.7**	**-**	**+ 1.4**	**+ 1.4**	**-**	**+ 1.4**	**+ 1.4**	**- 7.3**	**- 4.4**	**- 11.7**

(cont.)

	Alternative 4B			*Alternative 5*			*Alternative 6*			*Alternative 7*		
State / District	**Charter**	**Private**	**Total**	**Charter**	**Private**	**Total**	**Charter**	**Private**	**Total**	**Charter**	**Private**	**Total**
Washington												
La Push-Neah Bay	-	-	-	-	-	-	-	-	-	-	-	-
Westport	-	-	-	-	-	-	-	-	-	-	-	-
Ilwaco-Chinook	-	-	-	-	-	-	-	-	-	-	-	-
Washington Total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Oregon												
Astoria												
Tillamook	- 2.4	- 3.6	- 6.0	-	-	-	-	-	-	-	-	-
Newport	- 7.8	- 6.1	- 13.9	-	-	-	-	-	-	-	-	-
Coos Bay	- 0.9	- 1.3	- 2.2	-	-	-	-	-	-	-	-	-
Brookings	- 0.6	- 2.8	- 3.4	-	-	-	-	-	-	-	-	-
Oregon Total	**- 11.7**	**- 13.8**	**- 25.5**		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
California												
North Coast: Del Norte and Humboldt	- 0.7	- 3.8	- 4.6	-	-	-	-	-	-	-	-	-
North-Central Coast: Mendocino and Sonoma	- 0.6	+ 0.9	+ 0.3	-	+ 1.4	+ 1.4	-	+ 1.4	+ 1.4	-	+ 1.4	+ 1.4
North-Central Coast: Marin through San Mateo	- 10.2	- 11.5	- 21.8	-	-	-	-	-	-	-	-	-
South-Central Coast: Santa Cruz through San Luis Obispo	- 12.5	- 16.2	- 28.7	-	-	-	-	-	-	-	-	-
South Coast: Santa Barbara through San Diego	-	-	-	-	-	-	-	-	-	-	-	-
California Total	**- 24.1**	**- 30.7**	**- 54.8**	**-**	**+ 1.4**	**+ 1.4**	**-**	**+ 1.4**	**+ 1.4**	**-**	**+ 1.4**	**+ 1.4**
Washington-Oregon-California Total	**- 35.7**	**- 44.5**	**- 80.2**	**-**	**+ 1.4**	**+ 1.4**	**-**	**+ 1.4**	**+ 1.4**	**-**	**+ 1.4**	**+ 1.4**

Table 4-8. Estimated bottomfish + Pacific halibut marine angler boat trips under No Action and change from No Action under the 2013-14 action alternatives (% change).

	No Action (thousands)			*Alternative 1 PPA*			*Alternative 2*			*Alternative 3*			*Alternative 4A*		
State / District	***Charter***	***Private***	***Total***	**Charter**	**Private**	**Total**	**Charter**	**Private**	**Total**	**Charter**	**Private**	**Total**	**Charter**	**Private**	**Total**
Washington															
La Push-Neah Bay	*1.6*	*9.9*	*11.5*	-	-	-	-	-	-	-	-	-	-	-	-
Westport	*11.7*	*1.8*	*13.5*	-	-	-	-	-	-	-	-	-	-	-	-
Ilwaco-Chinook	*1.0*	*1.1*	*2.0*	-	-	-	-	-	-	-	-	-	-	-	-
Washington Total	***14.3***	***12.8***	***27.1***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Oregon	0.0	0.0	0.0												
Astoria	0.0	0.0	0.0												
Tillamook	*5.7*	*8.4*	*14.2*	-	-	-	-	-	-	-	-	-	- 30.6%	- 30.6%	- 30.6%
Newport	*22.5*	*17.6*	*40.0*	-	-	-	-	-	-	-	-	-	- 4.4%	- 4.4%	- 4.4%
Coos Bay	*5.1*	*7.8*	*12.8*	-	-	-	-	-	-	-	-	-	- 12.9%	- 12.9%	- 12.9%
Brookings	*4.3*	*20.7*	*25.0*	-	-	-	-	-	-	-	-	-	- 2.5%	- 2.5%	- 2.5%
Oregon Total	***37.6***	***54.4***	***92.1***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**- 9.3%**	**- 9.0%**	**- 9.1%**
California															
North Coast: Del Norte and Humboldt	*3.4*	*19.0*	*22.4*	-	-	-	-	-	-	-	-	-	+2.3%	+7.6%	+ 6.8%
North-Central Coast: Mendocino and Sonoma	*4.2*	*6.1*	*10.3*	+7.4%	+23.4%	+16.9%	-	+23.4%	+13.9%	-	+23.4%	+13.9%	+65.7%	+95.1%	+ 83.2%
North-Central Coast: Marin through San Mateo	*27.6*	*27.1*	*54.7*	-	-	-	-	-	-	-	-	-	- 5.8%	- 2.5%	- 4.2%
South-Central Coast: Santa Cruz through San Luis Obispo	*32.7*	*37.8*	*70.5*	-	-	-	-	-	-	-	-	-	- 15.2%	- 16.2%	- 15.8%
South Coast: Santa Barbara through San Diego	201.5	175.1	376.6	-	-	-	-	-	-	-	-	-	-	-	-
California Total	**269.4**	**265.1**	**534.5**	**+ 0.1%**	**+0.5%**	**+0.3%**	**-**	**+0.5%**	**+0.3%**	**-**	**+0.5%**	**+0.3%**	**- 1.4%**	**+0.2%**	**- 0.6%**
Washington-Oregon-California Total	**321.3**	**332.3**	**653.6**	**+ 0.1%**	**+0.4%**	**+0.3%**	**-**	**+0.4%**	**+0.2%**	**-**	**+0.4%**	**+0.2%**	**- 2.3%**	**- 1.3%**	**- 1.8%**

(cont.)

State / District	*Alternative 4B* Charter	Private	Total	*Alternative 5* Charter	Private	Total	*Alternative 6* Charter	Private	Total	*Alternative 7* Charter	Private	Total
Washington												
La Push-Neah Bay	-	-	-	-	-	-	-	-	-	-	-	-
Westport	-	-	-	-	-	-	-	-	-	-	-	-
Ilwaco-Chinook	-	-	-	-	-	-	-	-	-	-	-	-
Washington Total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Oregon												
Astoria												
Tillamook	- 42.4%	- 42.4%	- 42.4%	-	-	-	-	-	-	-	-	-
Newport	- 34.6%	- 34.6%	- 34.6%	-	-	-	-	-	-	-	-	-
Coos Bay	- 17.3%	- 17.3%	- 17.3%	-	-	-	-	-	-	-	-	-
Brookings	- 13.6%	- 13.6%	- 13.6%	-	-	-	-	-	-	-	-	-
Oregon Total	**- 31.0%**	**- 25.3%**	**- 27.7%**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
California												
North Coast: Del Norte and Humboldt	- 21.7%	- 20.1%	- 20.4%	-	-	-	-	-	-	-	-	-
North-Central Coast: Mendocino and Sonoma	- 14.5%	+14.6%	+2.8%	-	+23.4%	+13.9%	-	+23.4%	+13.9%	-	+23.4%	+13.9%
North-Central Coast: Marin through San Mateo	- 37.1%	- 42.6%	- 39.8%	-	-	-	-	-	-	-	-	-
South-Central Coast: Santa Cruz through San Luis Obispo	- 38.2%	- 43.0%	- 40.7%	-	-	-	-	-	-	-	-	-
South Coast: Santa Barbara through San Diego	-	-	-	-	-	-	-	-	-	-	-	-
California Total	**- 8.9%**	**- 11.6%**	**- 10.2%**	**-**	**+0.5%**	**+0.3%**	**-**	**+0.5%**	**+0.3%**	**-**	**+0.5%**	**+0.3%**
Washington-Oregon-California Total	**- 11.1%**	**- 13.4%**	**- 12.3%**	**-**	**+0.4%**	**+0.2%**	**-**	**+0.4%**	**+0.2%**	**-**	**+0.4%**	**+0.2%**

4.2.2.3 Communities

No Action: 2012 Regulations

Coastwide:

Commercial groundfish fishing coastwide generates income and employment impacts of $90.429 million and 3,029 total full and part-time jobs. The unemployment rate in coastal counties coastwide in 2010 according to the Bureau of Labor Statistics was 11.17%. A total of $74.089 million in income impacts were generated by recreational groundfish angling. Combined coastwide commercial plus recreational income impacts under No Action total $164.518 million.

Compared to the 2005-10 baseline period groundfish ex-vessel revenue would increase by $26.3 million coastwide, or 39 percent under the No Action Alternative. No Action would produce the largest increase in ex-vessel revenue among all the alternatives relative to the baseline.

Puget Sound:

Commercial groundfish fishing generates income and employment impacts in Puget Sound of $2.376 million and 56 jobs. This represents the second lowest commercial groundfish income impact and the lowest employment impact among community groups. The local average unemployment rate in 2010 was 9.244%, the lowest among community groups. There were no income impacts resulting from recreational angling of federally managed groundfish (i.e., Puget Sound is not federally managed for groundfish). Combined commercial plus recreational income impacts under No Action are $2.376 million, the lowest total among the community groups.

Compared to the 2005-10 baseline period groundfish ex-vessel revenue would decrease by $1.93 million in Puget Sound, or -54 percent under the No Action Alternative.

Washington Coast:

Commercial groundfish fishing generates income and employment impacts on the Washington Coast of $14.595 million and 310 jobs. This represents the second largest commercial groundfish income impacts among the community groups. The local average unemployment rate in 2010 was 13.142%, highest among community groups. There were $2.310 million in income impacts resulting from recreational groundfish angling. Combined commercial plus recreational income impacts under No Action are $16.905 million.

Compared to the 2005-10 baseline period groundfish ex-vessel revenue would increase by $10.02 million on the Washington Coast, or 77 percent under the No Action Alternative.

Astoria – Tillamook:

Commercial groundfish fishing generates income and employment impacts in Astoria-Tillamook of $26.899 million and 450 jobs. This represents the largest commercial groundfish income impacts among the community groups. The local average unemployment rate in 2010 was 10.039%. $0.978 million in income impacts were generated from recreational groundfish angling, the second lowest level (after Puget Sound) among the community groups. Combined commercial plus recreational income impacts under No Action are $27.877 million, the second highest total among community groups.

Compared to the 2005-10 baseline period groundfish ex-vessel revenue would increase by $8.79 million in Astoria-Tillamook, or 77 percent under the No Action Alternative.

Newport:

Commercial groundfish fishing generates income impacts in Newport of $12.653 million and employment impacts 362 jobs. The local average unemployment rate in 2010 was 10.791%. $3.372 million in income impacts were generated from recreational groundfish angling. Combined commercial plus recreational income impacts under No Action are $16.025 million.

Compared to the 2005-10 baseline period groundfish ex-vessel revenue would increase by $3.66 million in Newport, or 37 percent under the No Action Alternative.

Coos Bay – Brookings:

Commercial groundfish fishing generates income and employment impacts in Coos Bay-Brookings of $11.4 million and 504 jobs. These are the largest commercial groundfish employment impacts among the community groups. The local average unemployment rate in 2010 was 11.964%. $2.481 million in income impacts were generated from recreational groundfish angling. Combined commercial plus recreational income impacts under No Action are $13.881 million.

Compared to the 2005-10 baseline period groundfish ex-vessel revenue would increase by $1.56 million in Coos Bay - Brookings, or 16 percent under the No Action Alternative.

Crescent City – Eureka:

Commercial groundfish fishing generates income and employment impacts in Crescent City-Eureka of $6.523 million and 254 jobs. The local average unemployment rate in 2010 was 11.759%. $1.414 million in income impacts were generated from recreational groundfish angling. Combined commercial plus recreational income impacts under No Action are $7.937 million.

Compared to the 2005-10 baseline period groundfish ex-vessel revenue would decrease by $467 thousand in Crescent City - Eureka, or 7 percent under the No Action Alternative.

Fort Bragg – Bodega Bay:

Commercial groundfish fishing generates income and employment impacts in Fort Bragg-Bodega Bay of $4.750 million and 198 jobs. The local average unemployment rate in 2010 was 9.885%, the second lowest among community groups. $1.035 million in income impacts were generated from recreational groundfish angling. Combined commercial plus recreational income impacts under No Action are $5.786 million, the second lowest total among the community groups.

Compared to the 2005-10 baseline period groundfish ex-vessel revenue would increase by $657 thousand in Fort Bragg – Bodega Bay, or 18 percent under the No Action Alternative.

San Francisco Area:

Commercial groundfish fishing generates income and employment impacts in the San Francisco area of $1.720 million and 98 jobs. This represents the lowest commercial groundfish income and second lowest employment impacts among the community groups. The local average unemployment rate in

2010 was 10.647%. $5.896 million in income impacts were generated from recreational groundfish angling. Combined commercial plus recreational income impacts under No Action are $7.616 million.

Compared to the 2005-10 baseline period groundfish ex-vessel revenue would decrease by $11 thousand in the San Francisco Area, or 1 percent under the No Action Alternative.

Santa Cruz – Monterey – Morro Bay:

Commercial groundfish fishing generates income impacts in Santa Cruz–Monterey–Morro Bay of $6.223 million and employment impacts of 457 jobs. These are the second largest commercial groundfish employment impacts among the community groups. The local average unemployment rate in 2010 was 12.053%, the second highest among community groups. $7.725 million in income impacts were generated from recreational groundfish angling the second highest level among community groups. Combined commercial plus recreational income impacts under No Action are $13.948 million.

Compared to the 2005-10 baseline period groundfish ex-vessel revenue would increase by $2.9 million in the Santa Cruz – Monterey – Morro Bay, or 69 percent under the No Action Alternative.

Santa Barbara – Los Angeles – San Diego:

Commercial groundfish fishing generates income and employment impacts in Santa Barbara – Los Angeles – San Diego of $3.289 million and 339 jobs. The local average unemployment rate in 2010 was 11.779%. $48.878 million in income impacts were generated from recreational groundfish angling, the highest level by far among the community groups. Combined commercial plus recreational income impacts under No Action are $52.167 million, the highest total by far among the community groups.

Compared to the 2005-10 baseline period groundfish ex-vessel revenue would increase by $1.01 million in the Santa Barbara – Los Angeles – San Diego, or 45 percent under the No Action Alternative.

Alternative 1: Preliminary Preferred Alternative

Coastwide:

Impacts from commercial groundfish fishing decline coastwide under this alternative by between $9.132 million (-10.1%) and $9.274 million (-10.3%) income, and between 195 (-6.4%) and 228 (-7.5%) total jobs. Other things being equal, the coastwide unemployment rate would increase by 0.001% to 11.171%. Income impacts from recreational groundfish angling would increase by $0.136 million (+0.2%). Combined coastwide commercial plus recreational income impacts decrease under this alternative by between $8.996 million (-5.5%) and $9.138 million (-5.6%).

Comparing Alternative 1 to the 2005-10 baseline period, groundfish ex-vessel revenue would increase by $17.32 million (suboption A) or $17.12 million (suboption B) coastwide, or 26 percent. Suboption A represents the second largest coastwide increase among the action alternatives after Alternative 6, suboption A.

Puget Sound:

Impacts from commercial groundfish fishing decline under the alternative by $0.509 million (-21.4%) income and by 12 (-21.5%) total jobs. Other things being equal, the local unemployment rate would increase by 0.001% to 9.245%. Income impacts from recreational groundfish angling are nil, the same as No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by $0.509 million (-21.4%).

Comparing Alternative 1 to the 2005-10 baseline period, groundfish ex-vessel revenue would decrease by $2.23 million in Puget Sound under either suboption, a 64 percent decline. Decreases under Alternative 1 in Puget Sound are the same as Alternatives 2, 6, and 7, and less than under Alternatives 5 and 6. The decrease under Alternative 4 is about $2,000 more than under Alternative 1.

Washington Coast:

Impacts from commercial groundfish fishing decline under the alternative by $1.952 million (-13.4%) income and by 50 (-16.2%) total jobs. Other things being equal, the local unemployment rate would increase by 0.017% to 13.159%. There is no change in impacts from recreational groundfish angling from No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by $1.952 million (-11.5%).

Comparing Alternative 1 to the 2005-10 baseline period, groundfish ex-vessel revenue would increase by $7.34 million on Washington Coast under either suboption, a 52 percent increase. Alternatives 1, 2, 6, and 7 would result in the larger increases in ex-vessel revenue on the Washington Coast from the baseline than Alternatives 3-5.

Astoria – Tillamook:

Impacts from commercial groundfish fishing decline under the alternative by between $1.888 million (-7.06%) and $1.909 million (-7.1%) income, and by between 20 (-4.4%) and 28 (-6.2%) total jobs. Other things being equal, the local unemployment rate would increase by between 0.005% and 0.007% to between 10.044% and 10.046%. Income impacts from recreational groundfish angling are the same as No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by between $1.888 million and $1.909 million (-6.8%).

Comparing Alternative 1 to the 2005-10 baseline period, groundfish ex-vessel revenue would increase by $7.32 million (suboption A) or $7.30 million (suboption B) in Astoria – Tillamook, a 64 percent increase. Alternative 1, suboption A, would result in a smaller increase in ex-vessel revenue in Astoria - Tillamook from the baseline than Alternatives 6 and 7 but greater than Alternatives 2-5.

Newport:

Impacts from commercial groundfish fishing decline under this alternative by between $1.558 million (-12.3%) and $1.564 million (-12.4%) income, and by between 57 (-15.9%) and 59 (-16.4%) total jobs. Other things being equal, the local unemployment rate would increase by between 0.245% and 0.254% to between 11.036% and 11.045%. Income impacts from recreational groundfish angling are the same as No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by between $1.558 million (-9.7%) and $1.564 million (-9.8%).

Comparing Alternative 1 to the 2005-10 baseline period, groundfish ex-vessel revenue would increase by $1.95 million (suboption A) or $1.94 million (suboption B) in Newport, a 20 percent increase. Alternative 1 would result in the less increase in ex-vessel revenue from the baseline than Alternatives 6 and 7 but greater than Alternatives 2-5 in Newport.

Coos Bay – Brookings:

Impacts from commercial groundfish fishing decline under this alternative by between $1.810 million (-15.9%) and $1.925 million (-16.9%) income, and by between 41 (-8.2%) and 64 (-12.8%) total jobs. Other things being equal, the local unemployment rate would increase by between 0.015% and 0.024% to between 11.979% and 11.988%. Income impacts from recreational groundfish angling are the same as No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by between $1.810 million (-13%) and $1.925 million (-13.9%).

Comparing Alternative 1 to the 2005-10 baseline period, groundfish ex-vessel revenue would decline by $100 thousand (suboption A) or $262 thousand (suboption B) in Coos Bay – Brookings, a 1-3 percent decline depending on suboption. These declines in ex-vessel revenue from the baseline in Coos Bay – Brookings are greater than Alternatives 6 and 7 but less than Alternatives 2-5.

Crescent City – Eureka:

Impacts from commercial groundfish fishing decline under this alternative by $0.902 million (-13.8%) and by 28 (-11.0%) total jobs. Other things being equal, the local unemployment rate would increase by 0.039% to 11.979%. Income impacts from recreational groundfish angling are the same as No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by $0.902 million (-11.4%).

Comparing Alternative 1 to the 2005-10 baseline period, groundfish ex-vessel revenue would decline by $1.2 million in Crescent City – Eureka under both suboptions, a 19 percent decline. This decline in ex-vessel revenue from the baseline in Crescent City – Eureka is greater than Alternatives 6 and 7 but less than Alternatives 2-5.

Fort Bragg – Bodega Bay:

Impacts from commercial groundfish fishing decline under this alternative by $0.736 million (-15.5%) and by 21 (-10.6%) total jobs. Other things being equal, the local unemployment rate would increase by 0.005% to 9.89%. Income impacts from recreational groundfish angling increase from No Action by $0.136 million (+13.1%). Combined commercial plus recreational income impacts decrease under this alternative in this community group by $0.600 million (-10.4%).

Comparing Alternative 1 to the 2005-10 baseline period, groundfish ex-vessel revenue would decline by $17 thousand in Fort Bragg – Bodega Bay under both suboptions, a 1 percent decline. This decline in ex-vessel revenue from the baseline in Fort Bragg – Bodega Bay is the same as Alternatives 2, 6, and 7 but less than Alternatives 3-5.

San Francisco Area:

Impacts from commercial groundfish fishing decline under this alternative by $0.299 million (-17.4%) and by 10 (-10.4%) total jobs. Other things being equal, the local unemployment rate would increase negligibly from 10.647%. Income impacts from recreational groundfish angling are the same as No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by $0.299 million (-3.9%).

Comparing Alternative 1 to the 2005-10 baseline period, groundfish ex-vessel revenue would decline by $285 thousand in the San Francisco Area under both suboptions, a 17 percent decline. This decline in ex-vessel revenue from the baseline is the same as Alternatives 2, 6, and 7 but less than Alternative 4. Alternatives 3 and 5 show a $3,000 greater decline from the baseline than Alternative 1.

Santa Cruz – Monterey – Morro Bay:

Impacts from commercial groundfish fishing increase under this alternative by $0.453 million (+7.3%) and by 39 (+8.6%) total jobs. Other things being equal, the local unemployment rate would decrease by 0.008% to 12.045%. Income impacts from recreational groundfish angling are unchanged from No Action. Combined commercial plus recreational income impacts increase under this alternative in this community group by $0.453 million (+3.3%).

Comparing Alternative 1 to the 2005-10 baseline period, groundfish ex-vessel revenue would increase by $3.43 million in Santa Cruz – Monterey – Morro Bay under both suboptions, an 82 percent increase. This increase in ex-vessel revenue from the baseline in Santa Cruz – Monterey – Morro Bay is the same as Alternatives 2, 6, and 7 greater than Alternatives 3-5.

Santa Barbara – Los Angeles – San Diego:

Impacts from commercial groundfish fishing increase under this alternative by $0.069 million (+2.1%) and by 6 (+1.8%) total jobs. Other things being equal, the local unemployment rate would decrease negligibly from 11.779%. Income impacts from recreational groundfish angling are the same as No Action. Combined commercial plus recreational income impacts increase under this alternative in this community group by $0.069 million (+0.1%).

Comparing Alternative 1 to the 2005-10 baseline period, groundfish ex-vessel revenue would increase by $1.17 million in Santa Barbara – Los Angeles – San Diego under both suboptions, a 48 percent increase. This increase in ex-vessel revenue from the baseline in Santa Barbara – Los Angeles – San Diego is the same as all the action alternatives except Alternative 4, suboption B, which is slightly lower.

Alternative 2: Lower Canary Rockfish ACL

With the exception of income impacts from recreational fisheries in the Mendocino and Sonoma region of California, which are $49 thousand lower under Alternative 2, impacts in all other community groups are the same under Alternative 2 as under Alternative 1.

Alternative 3: Lower POP ACL

Coastwide:

Impacts from commercial groundfish fishing decline coastwide by between $15.433 million (-17.1%) and $15.575 million (-17.2%) income, and between 298 (-9.8%) and 331 (-10.9%) total jobs. Other things being equal, the coastwide unemployment rate would increase by 0.002% to 11.172%. Income impacts from recreational groundfish angling are slightly less than under Alternative1 and the same as Alternative 2, increasing by $0.087 million (+0.1%). Combined coastwide commercial plus recreational income impacts decrease under this alternative by between $15.346 million (-9.3%) and $15.488 million (-9.4%).

Comparing Alternative 3 to the 2005-10 baseline period groundfish ex-vessel revenue would increase by $12.24 million (suboption A) or $12.04 million (suboption B) coastwide, or 18 percent. Alternative

3 would produce the second smallest increase in ex-vessel revenue among all the alternatives relative to the baseline.

Puget Sound:

Impacts from commercial groundfish fishing are the most severe under the action alternatives, declining by $0.610 million (-25.7%) income and by 14 (-25%) total jobs. Other things being equal, the local unemployment rate would increase by 0.001% to 9.245%. Income impacts from recreational groundfish angling in this region are nil, the same as No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by $0.610 million (-25.7%), the largest amount of decline among the action alternatives.

Comparing Alternative 3 to the 2005-10 baseline period, groundfish ex-vessel revenue would decrease by $2.35 million in Puget Sound under either suboption, a 66 percent decline. Alternatives 3 and 5 show the largest declines in Puget Sound groundfish ex-vessel revenue from the baseline of all the alternatives.

Washington Coast:

Impacts from commercial groundfish fishing decline by $3.019 million (-20.7%) income and by 72 total jobs (-23.3%). Other things being equal, the local unemployment rate would increase by 0.024% to 13.166%. There is no change in impacts from recreational groundfish angling from No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by $3.019 million (-17.9%).

Comparing Alternative 3 to the 2005-10 baseline period, groundfish ex-vessel revenue would increase by $6.42 million on Washington Coast under either suboption, a 46 percent increase. Alternative 3 would result in the smallest increase in ex-vessel revenue from the baseline of all the action alternatives for the Washington Coast.

Astoria – Tillamook:

Impacts from commercial groundfish fishing decline by between $5.540 million (-20.6%) and $5.561 million (-20.7%) income, and by between 73 (-16.1%) and 81 (-18%) total jobs. Other things being equal, the local unemployment rate would increase by between 0.017% and 0.019% to between 10.056% and 10.058%. There is no change in impacts from recreational groundfish angling from No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by between $5.540 million and $5.561 million (-19.9%).

Comparing Alternative 3 to the 2005-10 baseline period, groundfish ex-vessel revenue would increase by $4.59 million (suboption A) or $4.57 million (suboption B) in Astoria – Tillamook, a 40 percent increase. Alternative 3 would result in the same increase in ex-vessel revenue from the baseline in Astoria - Tillamook as Alternative 5, but less than all the other alternatives.

Newport:

Impacts from commercial groundfish fishing are the second most severe under the action alternatives, declining by between $1.937 million (-15.3%) and $1.943 million (-15.4%) income, and by between 64 (-17.6%) and 66 (-18.2%) total jobs. Other things being equal, the local unemployment rate would increase by between 0.272% and 0.281% to between 11.063% and 11.072%. There is no change in impacts from recreational groundfish angling from No Action. Combined commercial plus recreational income impacts are the second most severe under the action alternatives, decreasing in this community group by between $1.937 million and $1.943 million (-12.1%).

Comparing Alternative 3 to the 2005-10 baseline period, groundfish ex-vessel revenue would increase by $1.55 million (under both suboptions when rounded to the nearest $10,000), a 16 percent increase. Alternative 3 would result in the same increase in ex-vessel revenue in Newport from the baseline as Alternative 5 but less than all the other alternatives.

Coos Bay – Brookings:

Impacts from commercial groundfish fishing decline by between $2.026 million (-17.8%) and $2.140 million (-18.8%) income, and by between 45 (-8.9%) and 68 (-13.4%) total jobs. Other things being equal, the local unemployment rate would increase by between 0.017% and 0.025% to between 11.98% and 11.989%. Income impacts from recreational groundfish angling are unchanged from No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by between $2.026 million (-14.6%) and $2.140 million (-15.4%).

Comparing Alternative 1 to the 2005-10 baseline period, groundfish ex-vessel revenue would decline by $303 thousand (suboption A) or $466 thousand (suboption B) in Coos Bay – Brookings, a 3-5 percent decline depending on suboption. Under Alternatives 3 and 5 these declines in ex-vessel revenue from the baseline in Coos Bay – Brookings are greater than all the alternatives except Alternative 4.

Crescent City – Eureka:

Impacts from commercial groundfish fishing decline by $1.735 million (-26.6%) and by 44 (-17.2%) total jobs. Other things being equal, the local unemployment rate would increase by 0.06% to 11.819%. Income impacts from recreational groundfish angling are unchanged from No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by $1.735 million (-21.9%). This represents the greatest decrease in income impacts for this community group among the action alternatives.

Comparing Alternative 3 to the 2005-10 baseline period, groundfish ex-vessel revenue would decline by $1.9 million in Crescent City – Eureka under both suboptions, a 30 percent decline. This decline in ex-vessel revenue from the baseline in Crescent City – Eureka is greater under Alternatives 3 and 5 than all the other alternatives but less than Alternatives 2-5.

Fort Bragg – Bodega Bay:

Impacts from commercial groundfish fishing decline by $0.765 million (-16.1%) and by 22 (-10.9%) total jobs. Other things being equal, the local unemployment rate would increase by 0.005% to 9.89%. Income impacts from recreational groundfish angling increase from No Action by $0.087 million (+8.4%), the same as under Alternative 2. Combined commercial plus recreational income impacts decrease under this alternative in this community group by $0.678 million (-11.7%).

Comparing Alternative 3 to the 2005-10 baseline period, groundfish ex-vessel revenue would decline by $45 thousand in Fort Bragg – Bodega Bay under both suboptions, a 1 percent decline. The decline in ex-vessel revenue from the baseline in Fort Bragg – Bodega Bay under Alternatives 3 and 5 is greater than all the action alternatives except for Alternative 4.

San Francisco Area:

Impacts from commercial groundfish fishing decline by $0.302 million (-17.6%) and by 10 (-10.4%) total jobs. As a result, other things being equal, the local unemployment rate would increase negligibly from 10.647%. Income impacts from recreational groundfish angling are unchanged from No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by $0.302 million (-4%).

Comparing Alternative 3 to the 2005-10 baseline period, groundfish ex-vessel revenue would decline by $288 thousand in the San Francisco Area under both suboptions, a 17 percent decline. Alternatives 3 and 5 show identical declines in ex-vessel revenue from the baseline in the San Francisco Area and only a $3,000 difference from Alternatives 1 and 2; these declines are greater than under Alternatives 6 and 7.

Santa Cruz – Monterey – Morro Bay:

Impacts from commercial groundfish fishing increase by $0.431 million (+6.9%) and by 39 total jobs (+8.5%). Other things being equal, the local unemployment rate would decrease by 0.008% to 12.045%. Income impacts from recreational groundfish angling are unchanged from No Action. Combined commercial plus recreational income impacts increase under this alternative in this community group by $0.431 million (+3.1%).

Comparing Alternative 3 to the 2005-10 baseline period, groundfish ex-vessel revenue would increase by $3.41 million in Santa Cruz – Monterey – Morro Bay under both suboptions, an 82 percent increase. This increase in ex-vessel revenue from the baseline in Santa Cruz – Monterey – Morro Bay is the same as Alternative 5, less than Alternatives 2, 6, and 7 but greater than Alternatives 4.

Santa Barbara – Los Angeles – San Diego:

Impacts from commercial groundfish fishing are the same as under Alternative 1, increasing by $0.069 million (+2.1%) and by 6 total jobs (+1.8%). Other things being equal, the local unemployment rate would decrease negligibly from its No Action level of 11.779%. Income impacts from recreational groundfish angling are unchanged from No Action. Combined commercial plus recreational income impacts are the same as under Alternative 1, increasing in this community group by $0.069 million (+0.1%).

Comparing Alternative 3 to the 2005-10 baseline period, groundfish ex-vessel revenue would increase by $1.17 million in Santa Barbara – Los Angeles – San Diego under both suboptions, a 48 percent increase. This increase in ex-vessel revenue from the baseline in Santa Barbara – Los Angeles – San Diego is the same as all the action alternatives except Alternative 4, which is slightly lower.

Alternative 4: Lowest Canary Rockfish ACL and Highest POP ACL

Coastwide:

Coastwide impacts from commercial groundfish fishing decline the greatest amount among the alternatives, by between $15.577 million (-17.2%) and $16.269 million (-18%) income, and between 492 (-16.2%) and 599 (-19.8%) total jobs. Other things being equal, the coastwide unemployment rate would increase by 0.003% to 11.173%. Income impacts from recreational groundfish angling are the most negative among the alternatives, decreasing by between $1.253 million (-1.7%) and $7.632 (-

10.3%). Combined coastwide commercial plus recreational income impacts decrease the greatest amount among the alternatives, by between $16.830 million (-10.2%) and $23.901 million (-14.5%). Comparing Alternative 4 to the 2005-10 baseline period, groundfish ex-vessel revenue would increase by $11.60 million (suboption A) or $10.77 million (suboption B) coastwide, or 16-17 percent. These are the smallest coastwide increases in groundfish ex-vessel revenue from the baseline among all the alternatives.

Puget Sound:

Impacts from commercial groundfish fishing are less negative than Alternative 3, declining by $0.513 million (-21.6%) income and by 12 (-21.7%) total jobs. Other things being equal, the local unemployment rate would increase by 0.001% to 9.245%. Income impacts from recreational groundfish angling in this region are nil, the same as No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by $0.513 million (-21.6%).

Comparing Alternative 4 to the 2005-10 baseline period, groundfish ex-vessel revenue would decrease by $2.28 million in Puget Sound under either suboption, a 64 percent decline. Alternative 4 would result in the largest decrease in Puget Sound ex-vessel revenue among the alternatives, although the amount is only $3,000 greater than Alternatives 1, 2, 6, and 7.

Washington Coast:

Impacts from commercial groundfish fishing decline by $2.736 million (-18.7%) income and by 66 total jobs (-21.2%) total jobs. This is the second largest reduction in income impacts for this community group among the action alternatives. Other things being equal, the local unemployment rate would increase by 0.022% to 13.164%. There is no change in impacts from recreational groundfish angling from No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by $2.736 million (-16.2%). This represents the second most severe overall impact scenario for this community group among the action alternatives.

Comparing Alternative 4 to the 2005-10 baseline period, groundfish ex-vessel revenue would increase by $6.67 million on Washington Coast under either suboption, a 48 percent increase. Alternative 4 would result in a smaller increase in ex-vessel revenue than Alternatives 1, 2, 6, and 7 but greater than Alternatives 3 and 5.

Astoria – Tillamook:

Impacts from commercial groundfish fishing decline by $5.527 million (-20.5%) and 101 (-22.3%) total jobs. This represents the second largest decline for this community group in terms of commercial fisheries income impacts, but the largest decline in terms of commercial fisheries employment impacts due to the effects on Tillamook's nearshore open access fishery. Other things being equal, the local unemployment rate would increase by 0.023% to 10.062%. Income impacts from recreational groundfish angling decrease by between $0.299 million (-30.6%) and $0.414 million (-42.4%) from No Action. This is the only alternative for this community group for which recreational impacts are negative. Combined commercial plus recreational income impacts decrease under this alternative in this community group by between $5.826 million (-20.9%) and $5.941 million (-21.3%). This represents the most severe overall impact scenario for this community group among the action alternatives.

Comparing Alternative 4 to the 2005-10 baseline period, groundfish ex-vessel revenue would increase by $4.61 million in Astoria – Tillamook under either suboption, a 40 percent increase. Alternative 4 would result in a smaller increase in ex-vessel revenue from the baseline in Astoria - Tillamook than Alternatives 1, 2, 6 and 7, but greater than Alternatives 3 and 5.

Newport:

Impacts from commercial groundfish fishing decline by $2.030 million (-16.0%) and by 71 (-19.5%) total jobs. Other things being equal, the local unemployment rate would increase by 0.301% to 11.092%. Income impacts from recreational groundfish angling decrease by between $0.150 million (-4.4%) and $1.167 million (-34.6%) from No Action. This is the only alternative for this community group under which recreational impacts are negative. Combined commercial plus recreational income impacts decrease under this alternative in this community group by between $2.180 million (-13.6%).and $3.197 million (-19.9%). This represents the most severe overall impact scenario for this community group among the action alternatives.

Comparing Alternative 4 to the 2005-10 baseline period, groundfish ex-vessel revenue would increase by $1.49 million in Newport under either suboption, a 15 percent increase. Alternative 4 would result in the smallest increase in ex-vessel revenue in Newport from the baseline among all the alternatives.

Coos Bay – Brookings:

Impacts from commercial groundfish fishing decline by $2.270 million (-19.9%) and by 132 (-26.3%) total jobs. Other things being equal, the local unemployment rate would increase by 0.049% to 12.013%. Income impacts from recreational groundfish angling decrease by between $0.183 million (-7.4%) and $0.380 million (-15.3%) from No Action. This is the only alternative for this community group under which recreational impacts are negative. Combined commercial plus recreational income impacts decrease under this alternative in this community group by between $2.453 million (-17.7%) and $2.650 million (-19.1%). This represents the most severe overall impact scenario for this community group among the action alternatives.

Comparing Alternative 4 to the 2005-10 baseline period, groundfish ex-vessel revenue would decline by $750 thousand in Coos Bay – Brookings under either suboption, an 8 percent decline and the largest decline in ex-vessel revenue for this community group from the baseline among the alternatives.

Crescent City – Eureka:

Impacts from commercial groundfish fishing decline by between $0.989 million (-15.2%) and $1.109 million (-17.0%), and by between 41 (-16.1%) and 58 (-22.7%) total jobs. Other things being equal, the local unemployment rate would increase by between 0.056% and 0.079% to between 11.815% and 11.838%. Income impacts from recreational groundfish angling range from an increase of $0.081 million (+5.8%) to a decrease of $0.380 million (-20.7%) from No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by between $0.907 million (-11.4%) and $1.401 million (-17.7%).

Comparing Alternative 4 to the 2005-10 baseline period, groundfish ex-vessel revenue would decline by $1.33 million (suboption A) or $1.50 million (suboption B) in Crescent City – Eureka, a 21-24 percent decline. This decline in ex-vessel revenue from the baseline in Crescent City – Eureka is greater than Alternatives 1, 2, 6, and 7 but less than Alternatives 3 and 5.

Fort Bragg – Bodega Bay:

Impacts from commercial groundfish fishing decline by between $1.286 million (-27.1%) and $1.364 million (-28.7%), and by between 41 (-20.5%) and 54 (-27.1%) total jobs. Other things being equal, the local unemployment rate would increase by between 0.009% and 0.013% to between 9.894% and 9.898%. Income impacts from recreational groundfish angling range from an increase of $0.789 million (+76.3%) to a decrease of $0.042 million (-4.1%) from No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by between $0.496 million (-8.6%) and $1.406 million (-24.3%).

Comparing Alternative 4 to the 2005-10 baseline period, groundfish ex-vessel revenue would decline by $524 thousand (suboption A) or $605,000 (suboption B) in Fort Bragg – Bodega Bay, a 14-16 percent decline. Alternative 4 would result in the largest decline in ex-vessel revenue from the baseline in Fort Bragg – Bodega Bay among the alternatives.

San Francisco Area:

Impacts from commercial groundfish fishing decline by between $0.333 million (-19.4%) and $0.370 million (-21.5%), and by between 17 (-17.2%) and 24 (-24.7%) total jobs. Other things being equal, the local unemployment rate would increase by 0.001% to 10.648%. Income impacts from recreational groundfish angling range from a decrease of between $0.291 million (-4.9%) and $2.272 million (-38.5%) from No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by between $0.624 million (-8.2%) and $2.642 million (-34.7%).

Comparing Alternative 4 to the 2005-10 baseline period, groundfish ex-vessel revenue would decline by $323 thousand (suboption A) or $365 thousand (suboption B) in the San Francisco Area, a 19-22 percent decline. Alternative 4 would result in the largest decline in ex-vessel revenue from the baseline in the San Francisco Area among the alternatives.

Santa Cruz – Monterey – Morro Bay:

Impacts from commercial groundfish fishing range from an increase of $0.081 million (+1.3%) to a decrease of $0.323 million (-5.2%), and by a decrease of between 13 (-2.8%) and 75 (-16.5%) total jobs. Other things being equal, the local unemployment rate would increase by between 0.003% and 0.015% to between 12.056% and 12.068%. Income impacts from recreational groundfish angling range from a decrease of between $1.201 million (-15.5%) and $3.064 million (-39.7%) from No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by between $1.12 million (-8%) and $3.387 million (-24.3%).

Comparing Alternative 1 to the 2005-10 baseline period, groundfish ex-vessel revenue would increase by $2.99 million (suboption A) or $2.50 (suboption B) in Santa Cruz – Monterey – Morro Bay, a 60-72 percent increase. Alternative 4 would result in the smallest increase in ex-vessel revenue from the baseline in Santa Cruz – Monterey – Morro Bay among the alternatives.

Santa Barbara – Los Angeles – San Diego:

Impacts from commercial groundfish fishing range from an increase of $0.025 million (+0.8%) to a decrease of $0.028 million (-0.9%), and by a decrease of between 0 and 7 total jobs (-2.0%). Other things being equal, the local unemployment rate would change negligibly from the No Action level of 11.779%. Income impacts from recreational groundfish angling are unchanged from No Action.

Combined impacts from commercial plus recreational groundfish activities range from an increase of \$0.025 million (+0.0%) to a decrease of \$0.028 million (-0.1%).

Comparing Alternative 1 to the 2005-10 baseline period, groundfish ex-vessel revenue would increase by \$1.12 million (suboption A) or \$1.10 (suboption B) in Santa Barbara – Los Angeles – San Diego, a 44-46 percent increase. Alternative 4 would result in the smallest increase in ex-vessel revenue from the baseline in Santa Barbara – Los Angeles – San Diego among the alternatives.

Alternative 5: Highest Canary Rockfish ACL and Lowest POP ACL

Coastwide impacts and impacts in all community groups under Alternative 5 are the same as under Alternative 3. This is because measures used to manage commercial fisheries to stay within the 76 mt POP ACL under Alternative 5 are the same as those used under Alternative 3. The common 76 mt POP ACL is the main factor limiting commercial fisheries under both Alternatives 3 and 5. Measures used to manage recreational fisheries to stay within the common ACLs and harvest guidelines for cowcod, bocaccio and yelloweye rockfish under the action alternatives do not allow recreational fisheries to exploit the relatively higher canary rockfish ACL under Alternative 5.

Alternative 6: Lower Canary Rockfish ACL and Higher POP ACL

Coastwide:

Impacts from commercial groundfish fishing decline coastwide by between \$8.897 million (-9.8%) and \$9.039 million (-10.0%) income, and between 191 (-6.3%) and 224 (-7.4%) total jobs. Other things being equal, the coastwide unemployment rate would increase by 0.001% to 11.171%. Income impacts from recreational groundfish angling are the same as under Alternative 2, increasing by \$0.087 million (+0.1%). Combined coastwide commercial plus recreational income impacts decrease under this alternative by between \$8.810 million and \$8.952 million (-5.4%).

Comparing Alternative 6 to the 2005-10 baseline period groundfish ex-vessel revenue would increase by \$17.50 million (suboption A) or \$17.30 million (suboption B) coastwide, or 18 percent. Alternative 6 would produce the second largest increase in ex-vessel revenue among the action alternatives relative to the baseline.

Puget Sound:

Impacts from commercial groundfish fishing in Puget Sound are the same as under Alternative 1, declining by \$0.509 million (-21.4%) income and by 12 (-21.5%) total jobs, Other things being equal, the local unemployment rate would increase by 0.001% to 9.245%. Income impacts from recreational groundfish angling in this region are nil, the same as No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by \$0.509 million (-21.4%).

Comparing Alternative 6 to the 2005-10 baseline period, groundfish ex-vessel revenue would decrease by \$2.28 million in Puget Sound under either suboption, a 64 percent decline, which is the same as Alternative 1.

Washington Coast:

Impacts from commercial groundfish fishing on the Washington Coast are the same as under Alternative 1, declining by \$1.952 million (-13.4%) income and by 50 (-16.2%) total jobs. Other things being equal, the local unemployment rate would increase by 0.017% to 13.159%. There is no change in impacts from recreational groundfish angling from No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by $1.952 million (-11.5%).

Comparing Alternative 6 to the 2005-10 baseline period, groundfish ex-vessel revenue would increase by $7.34 million on Washington Coast under either suboption, a 52 percent increase, which is the same as Alternatives 1.

Astoria – Tillamook:

Impacts from commercial groundfish fishing decline by between $1.700 million (-6.3%) and $1.721 million (-6.4%) income, and by between 17 (-3.8%) and 25 (-5.6%) total jobs. Other things being equal, the local unemployment rate would increase by between 0.004% and 0.006% to between 10.043% and 10.045%. There is no change in impacts from recreational groundfish angling from No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by between $1.700 million (-6.1%) and $1.721 million (-6.2%).

Comparing Alternative 6 to the 2005-10 baseline period, groundfish ex-vessel revenue would increase by $7.46 million (suboption A) or $7.44 million (suboption B) in Astoria – Tillamook, a 65-66 percent increase. Alternative 6, suboption A, would result in the largest increase in ex-vessel revenue in Astoria - Tillamook from the baseline among the action alternatives.

Newport:

Impacts from commercial groundfish fishing decline by between $1.526 million and $1.532 million (-12.1%) income, and by between 57 (-15.7%) and 59 (-16.3%) total jobs. Other things being equal, the local unemployment rate would increase by between 0.243% and 0.251% to between 11.034% and 11.042%. There is no change in impacts from recreational groundfish angling from No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by between $1.526 million (-9.5%) and $1.532 million (-9.6%).

Comparing Alternative 6 to the 2005-10 baseline period, groundfish ex-vessel revenue would increase by $1.98 million (suboption A) or $1.97 million (suboption B) in Newport, a 65 percent increase. Alternative 6, suboption A, would result in the largest increase in ex-vessel revenue in Newport from the baseline among the action alternatives.

Coos Bay – Brookings:

Impacts from commercial groundfish fishing are nearly exactly the same as under Alternative 1, declining by between $1.810 million (-15.9%) and $1.924 million (-16.9%) income, and by between 41 (-8.2%) and 64 (-12.8%) total jobs. Other things being equal, the local unemployment rate would increase by between 0.015% and 0.024% to between 11.979% and 11.988%. Income impacts from recreational groundfish angling are unchanged from No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by between $1.810 million (-13%) and $1.924 million (-13.9%), the same under Alternative 6A as under Alternative 1A and just slightly worse under Alternative 6B than under Alternative 1B.

Comparing Alternative 6 to the 2005-10 baseline period, groundfish ex-vessel revenue would decline by $99 thousand (suboption A) or $261 thousand (suboption B) in Coos Bay – Brookings, a 1-3 percent decline depending on suboption. Alternative 6, suboption A, would result in the smallest decline in ex-vessel revenue in Coos Bay – Brookings from the baseline among the action alternatives.

Crescent City – Eureka:

Impacts from commercial groundfish fishing are slightly greater than under Alternative 1, declining by $0.899 million (-13.6%) and by 28 (-10.9%) total jobs. Other things being equal, the local unemployment rate would increase by 0.038% to 11.978%. Income impacts from recreational groundfish angling are unchanged from No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by $0.889 million (-11.2%).

Comparing Alternative 6 to the 2005-10 baseline period, groundfish ex-vessel revenue would decline by $1.2 million in Crescent City – Eureka under both suboptions, a 19 percent decline. This is the smallest decline in ex-vessel revenue from the baseline among all the action alternatives for this community group, but only a slightly smaller decline than under Alternatives 1 and 2.

Fort Bragg – Bodega Bay:

Impacts from commercial groundfish fishing are the same as under Alternative 1, declining by $0.736 million (-15.5%) and by 21 (-10.6%) total jobs. Other things being equal, the local unemployment rate would increase by 0.005% to 9.89%. Income impacts from recreational groundfish angling increase from No Action by $0.087 million (+8.4%), the same as under Alternative 2. Combined commercial plus recreational income impacts decrease under this alternative in this community group by $0.649 million (-11.2%), the same as under Alternative 2.

Comparing Alternative 6 to the 2005-10 baseline period, groundfish ex-vessel revenue would decline by $17 thousand in Fort Bragg – Bodega Bay under both suboptions, a 1 percent decline. This decline in ex-vessel revenue from the baseline in Fort Bragg – Bodega Bay is the same as Alternatives 1, 2, and 7 and less than Alternatives 3-5.

San Francisco Area:

Impacts from commercial groundfish fishing are the same as under Alternative 1, declining by $0.299 million (-17.4%) and by 10 (-10.4%) total jobs. As a result, other things being equal, the local unemployment rate would increase negligibly from 10.647%. Income impacts from recreational groundfish angling are unchanged from No Action. Combined commercial plus recreational income impacts decrease under this alternative in this community group by $0.299 million (-3.9%), the same as under Alternative 1.

Comparing Alternative 6 to the 2005-10 baseline period, groundfish ex-vessel revenue would decline by $285 thousand in the San Francisco Area under both suboptions, a 17 percent decline. This decline in ex-vessel revenue from the baseline in the San Francisco Area is the same as Alternatives 1, 2, and 7 and less than Alternative 4. Alternatives 3 and 5 are not meaningfully different from Alternative 6 with respect to the change in ex-vessel revenue from the baseline.

Santa Cruz – Monterey – Morro Bay:

Impacts from commercial groundfish fishing are the same as under Alternative 1, increasing by $0.453 million (+7.3%) and by 39 (+8.6%) total jobs. Other things being equal, the local unemployment rate would decrease by 0.008% to 12.045%. Income impacts from recreational groundfish angling are unchanged from No Action. Combined commercial plus recreational income impacts increase under this alternative in this community group by $0.453 million (+3.3%), the same as under Alternative 1.

Comparing Alternative 6 to the 2005-10 baseline period, groundfish ex-vessel revenue would increase by $3.43 million in Santa Cruz – Monterey – Morro Bay under both suboptions, an 82 percent increase. This increase in ex-vessel revenue from the baseline in Santa Cruz – Monterey – Morro Bay is the same as Alternatives 1, 2, and 7 and greater than Alternatives 3-5.

Santa Barbara – Los Angeles – San Diego:

Impacts from commercial groundfish fishing are the same as under Alternative 1, increasing by $0.069 million (+2.1%) and by 6 (+1.8%) total jobs. Other things being equal, the local unemployment rate would decrease negligibly from 11.779%. Income impacts from recreational groundfish angling are unchanged from No Action. Combined commercial plus recreational income impacts increase under this alternative in this community group by $0.069 million (+0.1%), the same as under Alternative 1.

Comparing Alternative 6 to the 2005-10 baseline period, groundfish ex-vessel revenue would increase by $1.17 million in Santa Barbara – Los Angeles – San Diego under both suboptions, a 48 percent increase. This increase in ex-vessel revenue from the baseline in Santa Barbara – Los Angeles – San Diego is the same as all the action alternatives except Alternative 4, suboption B, which is slightly lower.

Alternative 7: Higher Canary Rockfish ACL and Lower POP ACL

Coastwide impacts and impacts in all community groups under Alternative 7 are the same as under Alternative 6. This is because measures used to manage commercial fisheries to stay within the 226 mt POP ACL and sector harvest guidelines under Alternative 7 are the same as those used under Alternative 6. The 226 mt POP ACL is the main factor limiting commercial fisheries under both Alternatives 6 and 7. Measures used to manage cowcod, bocaccio and yelloweye rockfish to stay within their common ACLs and harvest guidelines under the action alternatives do not allow recreational fisheries to exploit the relatively higher canary rockfish ACL under Alternative 7.

Table 4-9. Change in commercial fishery income impacts (from No Action) under the action alternatives by community group ($1,000).

Community Groups	*No Action ($,000)*	Alternative 1A	Alternative 2A	Alternative 3A	Alternative 4A	Alternative 5A	Alternative 6A	Alternative 7A
Alternatives including "A" suboptions for Nearshore Open Access Sector:								
Puget Sound	*2,376*	-509	-509	-610	-513	-610	-509	-509
Washington Coast	*14,595*	-1,952	-1,952	-3,019	-2,736	-3,019	-1,952	-1,952
Astoria-Tillamook	*26,899*	-1,888	-1,888	-5,540	-5,527	-5,540	-1,700	-1,700
Newport	*12,653*	-1,558	-1,558	-1,937	-2,030	-1,937	-1,526	-1,526
Coos Bay-Brookings	*11,400*	-1,810	-1,810	-2,026	-2,270	-2,026	-1,810	-1,810
Crescent City-Eureka	*6,523*	-902	-902	-1,735	-989	-1,735	-889	-889
Fort Bragg - Bodega Bay	*4,750*	-736	-736	-765	-1,286	-765	-736	-736
San Francisco Area	*1,720*	-299	-299	-302	-333	-302	-299	-299
Santa Cruz - Monterey - Morro Bay	*6,223*	+453	+453	+431	+81	+431	+453	+453
Santa Barbara - Los Angeles - San Diego	*3,289*	+69	+69	+69	+25	+69	+69	+69
Coastwide Total	*90,429*	-9,132	-9,132	-15,433	-15,577	-15,433	-8,897	-8,897

Community Groups	*No Action ($,000)*	Alternative 1B	Alternative 2B	Alternative 3B	Alternative 4B	Alternative 5B	Alternative 6B	Alternative 7B
Alternatives including "B" suboptions for Nearshore Open Access Sector:								
Puget Sound	*2,376*	-509	-509	-610	-513	-610	-509	-509
Washington Coast	*14,595*	-1,952	-1,952	-3,019	-2,736	-3,019	-1,952	-1,952
Astoria-Tillamook	*26,899*	-1,909	-1,909	-5,561	-5,527	-5,561	-1,721	-1,721
Newport	*12,653*	-1,564	-1,564	-1,943	-2,030	-1,943	-1,532	-1,532
Coos Bay-Brookings	*11,400*	-1,925	-1,925	-2,140	-2,270	-2,140	-1,924	-1,924
Crescent City-Eureka	*6,523*	-902	-902	-1,735	-1,109	-1,735	-889	-889
Fort Bragg - Bodega Bay	*4,750*	-736	-736	-765	-1,364	-765	-736	-736
San Francisco Area	*1,720*	-299	-299	-302	-370	-302	-299	-299
Santa Cruz - Monterey - Morro Bay	*6,223*	+453	+453	+431	-323	+431	+453	+453
Santa Barbara - Los Angeles - San Diego	*3,289*	+69	+69	+69	-28	+69	+69	+69
Coastwide Total	*90,429*	-9,274	-9,274	-15,575	-16,269	-15,575	-9,039	-9,039

Table 4-10. Change in Commercial Fishery Income Impacts (from No Action) under the Action Alternatives by Community Group (%).

Community Groups	*No Action ($,000)*	Alternative 1A	Alternative 2A	Alternative 3A	Alternative 4A	Alternative 5A	Alternative 6A	Alternative 7A
Alternatives including "A" suboptions for Nearshore Open Access Sector:								
Puget Sound	*2,376*	- 21.4%	- 21.4%	- 25.7%	- 21.6%	- 25.7%	- 21.4%	- 21.4%
Washington Coast	*14,595*	- 13.4%	- 13.4%	- 20.7%	- 18.7%	- 20.7%	- 13.4%	- 13.4%
Astoria-Tillamook	*26,899*	- 7.0%	- 7.0%	- 20.6%	- 20.5%	- 20.6%	- 6.3%	- 6.3%
Newport	*12,653*	- 12.3%	- 12.3%	- 15.3%	- 16.0%	- 15.3%	- 12.1%	- 12.1%
Coos Bay-Brookings	*11,400*	- 15.9%	- 15.9%	- 17.8%	- 19.9%	- 17.8%	- 15.9%	- 15.9%
Crescent City-Eureka	*6,523*	- 13.8%	- 13.8%	- 26.6%	- 15.2%	- 26.6%	- 13.6%	- 13.6%
Fort Bragg - Bodega Bay	*4,750*	- 15.5%	- 15.5%	- 16.1%	- 27.1%	- 16.1%	- 15.5%	- 15.5%
San Francisco Area	*1,720*	- 17.4%	- 17.4%	- 17.6%	- 19.4%	- 17.6%	- 17.4%	- 17.4%
Santa Cruz - Monterey - Morro Bay	*6,223*	+ 7.3%	+ 7.3%	+ 6.9%	+ 1.3%	+ 6.9%	+ 7.3%	+ 7.3%
Santa Barbara - Los Angeles - San Diego	*3,289*	+ 2.1%	+ 2.1%	+ 2.1%	+ 0.8%	+ 2.1%	+ 2.1%	+ 2.1%
Coastwide Total	*90,429*	- 10.1%	- 10.1%	- 17.1%	- 17.2%	- 17.1%	- 9.8%	- 9.8%

Community Groups	*No Action ($,000)*	Alternative 1B	Alternative 2B	Alternative 3B	Alternative 4B	Alternative 5B	Alternative 6B	Alternative 7B
Alternatives including "B" suboptions for Nearshore Open Access Sector:								
Puget Sound	*2,376*	- 21.4%	- 21.4%	- 25.7%	- 21.6%	- 25.7%	- 21.4%	- 21.4%
Washington Coast	*14,595*	- 13.4%	- 13.4%	- 20.7%	- 18.7%	- 20.7%	- 13.4%	- 13.4%
Astoria-Tillamook	*26,899*	- 7.1%	- 7.1%	- 20.7%	- 20.5%	- 20.7%	- 6.4%	- 6.4%
Newport	*12,653*	- 12.4%	- 12.4%	- 15.4%	- 16.0%	- 15.4%	- 12.1%	- 12.1%
Coos Bay-Brookings	*11,400*	- 16.9%	- 16.9%	- 18.8%	- 19.9%	- 18.8%	- 16.9%	- 16.9%
Crescent City-Eureka	*6,523*	- 13.8%	- 13.8%	- 26.6%	- 17.0%	- 26.6%	- 13.6%	- 13.6%
Fort Bragg - Bodega Bay	*4,750*	- 15.5%	- 15.5%	- 16.1%	- 28.7%	- 16.1%	- 15.5%	- 15.5%
San Francisco Area	*1,720*	- 17.4%	- 17.4%	- 17.6%	- 21.5%	- 17.6%	- 17.4%	- 17.4%
Santa Cruz - Monterey - Morro Bay	*6,223*	+ 7.3%	+ 7.3%	+ 6.9%	- 5.2%	+ 6.9%	+ 7.3%	+ 7.3%
Santa Barbara - Los Angeles - San Diego	*3,289*	+ 2.1%	+ 2.1%	+ 2.1%	- 0.9%	+ 2.1%	+ 2.1%	+ 2.1%
Coastwide Total	*90,429*	- 10.3%	- 10.3%	- 17.2%	- 18.0%	- 17.2%	- 10.0%	- 10.0%

Table 4-11. Change in commercial fishery employment impacts (from No Action) under the action alternatives by community group (number of jobs).

Community Groups	*No Action*	Alternative 1A	Alternative 2A	Alternative 3A	Alternative 4A	Alternative 5A	Alternative 6A	Alternative 7A
Alternatives including "A" suboptions for Nearshore Open Access Sector:								
Puget Sound	*56*	-12	-12	-14	-12	-14	-12	-12
Washington Coast	*310*	-50	-50	-72	-66	-72	-50	-50
Astoria-Tillamook	*450*	-20	-20	-73	-101	-73	-17	-17
Newport	*362*	-57	-57	-64	-71	-64	-57	-57
Coos Bay-Brookings	*504*	-41	-41	-45	-132	-45	-41	-41
Crescent City-Eureka	*254*	-28	-28	-44	-41	-44	-28	-28
Fort Bragg - Bodega Bay	*198*	-21	-21	-22	-41	-22	-21	-21
San Francisco Area	*98*	-10	-10	-10	-17	-10	-10	-10
Santa Cruz - Monterey - Morro Bay	*457*	+39	+39	+39	-13	+39	+39	+39
Santa Barbara - Los Angeles - San Diego	*339*	+6	+6	+6	+0	+6	+6	+6
Coastwide Total	*3,029*	-195	-195	-298	-492	-298	-191	-191

Community Groups	*No Action*	Alternative 1B	Alternative 2B	Alternative 3B	Alternative 4B	Alternative 5B	Alternative 6B	Alternative 7B
Alternatives including "B" suboptions for Nearshore Open Access Sector:								
Puget Sound	*56*	-12	-12	-14	-12	-14	-12	-12
Washington Coast	*310*	-50	-50	-72	-66	-72	-50	-50
Astoria-Tillamook	*450*	-28	-28	-81	-101	-81	-25	-25
Newport	*362*	-59	-59	-66	-71	-66	-59	-59
Coos Bay-Brookings	*504*	-64	-64	-68	-132	-68	-64	-64
Crescent City-Eureka	*254*	-28	-28	-44	-58	-44	-28	-28
Fort Bragg - Bodega Bay	*198*	-21	-21	-22	-54	-22	-21	-21
San Francisco Area	*98*	-10	-10	-10	-24	-10	-10	-10
Santa Cruz - Monterey - Morro Bay	*457*	+39	+39	+39	-75	+39	+39	+39
Santa Barbara - Los Angeles - San Diego	*339*	+6	+6	+6	-7	+6	+6	+6
Coastwide Total	*3,029*	-228	-228	-331	-599	-331	-224	-224

Table 4-12. Change in commercial fishery employment impacts (from No Action) under the action alternatives by community group (%).

Community Groups	*No Action*	Alternative 1A	Alternative 2A	Alternative 3A	Alternative 4A	Alternative 5A	Alternative 6A	Alternative 7A
Alternatives including "A" suboptions for Nearshore Open Access Sector:								
Puget Sound	*56*	- 21.5%	- 21.5%	- 25.0%	- 21.7%	- 25.0%	- 21.5%	- 21.5%
Washington Coast	*310*	- 16.2%	- 16.2%	- 23.3%	- 21.2%	- 23.3%	- 16.2%	- 16.2%
Astoria-Tillamook	*450*	- 4.4%	- 4.4%	- 16.1%	- 22.3%	- 16.1%	- 3.8%	- 3.8%
Newport	*362*	- 15.9%	- 15.9%	- 17.6%	- 19.5%	- 17.6%	- 15.7%	- 15.7%
Coos Bay-Brookings	*504*	- 8.2%	- 8.2%	- 8.9%	- 26.3%	- 8.9%	- 8.2%	- 8.2%
Crescent City-Eureka	*254*	- 11.0%	- 11.0%	- 17.2%	- 16.1%	- 17.2%	- 10.9%	- 10.9%
Fort Bragg - Bodega Bay	*198*	- 10.6%	- 10.6%	- 10.9%	- 20.5%	- 10.9%	- 10.6%	- 10.6%
San Francisco Area	*98*	- 10.4%	- 10.4%	- 10.4%	- 17.2%	- 10.4%	- 10.4%	- 10.4%
Santa Cruz - Monterey - Morro Bay	*457*	+ 8.6%	+ 8.6%	+ 8.5%	- 2.8%	+ 8.5%	+ 8.6%	+ 8.6%
Santa Barbara - Los Angeles - San Diego	*339*	+ 1.8%	+ 1.8%	+ 1.8%	+ 0.1%	+ 1.8%	+ 1.8%	+ 1.8%
Coastwide Total	*3,029*	- 6.4%	- 6.4%	- 9.8%	- 16.2%	- 9.8%	- 6.3%	- 6.3%

Community Groups	*No Action*	Alternative 1B	Alternative 2B	Alternative 3B	Alternative 4B	Alternative 5B	Alternative 6B	Alternative 7B
Alternatives including "B" suboptions for Nearshore Open Access Sector:								
Puget Sound	*56*	- 21.5%	- 21.5%	- 25.0%	- 21.7%	- 25.0%	- 21.5%	- 21.5%
Washington Coast	*310*	- 16.2%	- 16.2%	- 23.3%	- 21.2%	- 23.3%	- 16.2%	- 16.2%
Astoria-Tillamook	*450*	- 6.2%	- 6.2%	- 18.0%	- 22.3%	- 18.0%	- 5.6%	- 5.6%
Newport	*362*	- 16.4%	- 16.4%	- 18.2%	- 19.5%	- 18.2%	- 16.3%	- 16.3%
Coos Bay-Brookings	*504*	- 12.8%	- 12.8%	- 13.4%	- 26.3%	- 13.4%	- 12.8%	- 12.8%
Crescent City-Eureka	*254*	- 11.0%	- 11.0%	- 17.2%	- 22.7%	- 17.2%	- 10.9%	- 10.9%
Fort Bragg - Bodega Bay	*198*	- 10.6%	- 10.6%	- 10.9%	- 27.1%	- 10.9%	- 10.6%	- 10.6%
San Francisco Area	*98*	- 10.4%	- 10.4%	- 10.4%	- 24.7%	- 10.4%	- 10.4%	- 10.4%
Santa Cruz - Monterey - Morro Bay	*457*	+ 8.6%	+ 8.6%	+ 8.5%	- 16.5%	+ 8.5%	+ 8.6%	+ 8.6%
Santa Barbara - Los Angeles - San Diego	*339*	+ 1.8%	+ 1.8%	+ 1.8%	- 2.0%	+ 1.8%	+ 1.8%	+ 1.8%
Coastwide Total	*3,029*	- 7.5%	- 7.5%	- 10.9%	- 19.8%	- 10.9%	- 7.4%	- 7.4%

Table 4-13. Change in regional unemployment rates* for all industries (from No Action) resulting from commercial fishery employment impacts under the action alternatives by community group.

Community Groups	*No Action*	Alternative 1A	Alternative 2A	Alternative 3A	Alternative 4A	Alternative 5A	Alternative 6A	Alternative 7A
Alternatives including "A" suboptions for Nearshore Open Access Sector:								
Puget Sound	*9.244%*	+0.001%	+0.001%	+0.001%	+0.001%	+0.001%	+0.001%	+0.001%
Washington Coast	*13.142%*	+0.017%	+0.017%	+0.024%	+0.022%	+0.024%	+0.017%	+0.017%
Astoria-Tillamook	*10.039%*	+0.005%	+0.005%	+0.017%	+0.023%	+0.017%	+0.004%	+0.004%
Newport	*10.791%*	+0.245%	+0.245%	+0.272%	+0.301%	+0.272%	+0.243%	+0.243%
Coos Bay-Brookings	*11.964%*	+0.015%	+0.015%	+0.017%	+0.049%	+0.017%	+0.015%	+0.015%
Crescent City-Eureka	*11.759%*	+0.039%	+0.039%	+0.060%	+0.056%	+0.060%	+0.038%	+0.038%
Fort Bragg - Bodega Bay	*9.885%*	+0.005%	+0.005%	+0.005%	+0.009%	+0.005%	+0.005%	+0.005%
San Francisco Area	*10.647%*	+0.000%	+0.000%	+0.000%	+0.001%	+0.000%	+0.000%	+0.000%
Santa Cruz - Monterey - Morro Bay	*12.053%*	-0.008%	-0.008%	-0.008%	+0.003%	-0.008%	-0.008%	-0.008%
Santa Barbara - Los Angeles - San Diego	*11.779%*	-0.000%	-0.000%	-0.000%	-0.000%	-0.000%	-0.000%	-0.000%
Coastwide Total	*11.170%*	+0.001%	+0.001%	+0.002%	+0.003%	+0.002%	+0.001%	+0.001%

Community Groups	*No Action*	Alternative 1B	Alternative 2B	Alternative 3B	Alternative 4B	Alternative 5B	Alternative 6B	Alternative 7B
Alternatives including "B" suboptions for Nearshore Open Access Sector:								
Puget Sound	*9.244%*	+0.001%	+0.001%	+0.001%	+0.001%	+0.001%	+0.001%	+0.001%
Washington Coast	*13.142%*	+0.017%	+0.017%	+0.024%	+0.022%	+0.024%	+0.017%	+0.017%
Astoria-Tillamook	*10.039%*	+0.007%	+0.007%	+0.019%	+0.023%	+0.019%	+0.006%	+0.006%
Newport	*10.791%*	+0.254%	+0.254%	+0.281%	+0.301%	+0.281%	+0.251%	+0.251%
Coos Bay-Brookings	*11.964%*	+0.024%	+0.024%	+0.025%	+0.049%	+0.025%	+0.024%	+0.024%
Crescent City-Eureka	*11.759%*	+0.039%	+0.039%	+0.060%	+0.079%	+0.060%	+0.038%	+0.038%
Fort Bragg - Bodega Bay	*9.885%*	+0.005%	+0.005%	+0.005%	+0.013%	+0.005%	+0.005%	+0.005%
San Francisco Area	*10.647%*	+0.000%	+0.000%	+0.000%	+0.001%	+0.000%	+0.000%	+0.000%
Santa Cruz - Monterey - Morro Bay	*12.053%*	-0.008%	-0.008%	-0.008%	+0.015%	-0.008%	-0.008%	-0.008%
Santa Barbara - Los Angeles - San Diego	*11.779%*	-0.000%	-0.000%	-0.000%	+0.000%	-0.000%	-0.000%	-0.000%
Coastwide Total	*11.170%*	+0.001%	+0.001%	+0.002%	+0.003%	+0.002%	+0.001%	+0.001%

* Based on 2010 county labor force and employment statistics from the Bureau of Labor Statistics http://www.bls.gov/data/

Table 4-14. Change in recreational fishery income impacts (from No Action) by community group ($1,000).

Community Groups	*No Action ($,000)*	Alternative 1	Alternative 2	Alternative 3	Alternative 4A	Alternative 4B	Alternative 5	Alternative 6	Alternative 7
Puget Sound	-	-	-	-	-	-	-	-	-
Washington Coast	*2,310*	-	-	-	-	-	-	-	-
Astoria-Tillamook	*978*	-	-	-	-299	-414	-	-	-
Newport	*3,372*	-	-	-	-150	-1,167	-	-	-
Coos Bay-Brookings	*2,481*	-	-	-	-183	-380	-	-	-
Crescent City-Eureka	*1,414*	-	-	-	+81	-292	-	-	-
Fort Bragg - Bodega Bay	*1,035*	+136	+87	+87	+789	-42	+87	+87	+87
San Francisco Area	*5,896*	-	-	-	-291	-2,272	-	-	-
Santa Cruz - Monterey - Morro Bay	*7,725*	-	-	-	-1,201	-3,064	-	-	-
Santa Barbara - Los Angeles - San Diego	*48,878*	-	-	-	-	-	-	-	-
Coastwide Total	*74,089*	**+ 136**	**+ 87**	**+ 87**	**-1,253**	**-7,632**	**+ 87**	**+ 87**	**+ 87**

Table 4-15. Change in Recreational fishery income impacts (from No Action) by community group (%).

Community Groups	*No Action ($,000)*	Alternative 1	Alternative 2	Alternative 3	Alternative 4A	Alternative 4B	Alternative 5	Alternative 6	Alternative 7
Puget Sound	-	-	-	-	-	-	-	-	-
Washington Coast	*2,310*	-	-	-	-	-	-	-	-
Astoria-Tillamook	*978*	-	-	-	- 30.6%	- 42.4%	-	-	-
Newport	*3,372*	-	-	-	- 4.4%	- 34.6%	-	-	-
Coos Bay-Brookings	*2,481*	-	-	-	- 7.4%	- 15.3%	-	-	-
Crescent City-Eureka	*1,414*	-	-	-	+ 5.8%	- 20.7%	-	-	-
Fort Bragg - Bodega Bay	*1,035*	+ 13.1%	+ 8.4%	+ 8.4%	+ 76.3%	- 4.1%	+ 8.4%	+ 8.4%	+ 8.4%
San Francisco Area	*5,896*	-	-	-	- 4.9%	- 38.5%	-	-	-
Santa Cruz - Monterey - Morro Bay	*7,725*	-	-	-	- 15.5%	- 39.7%	-	-	-
Santa Barbara - Los Angeles - San Diego	*48,878*	-	-	-	-	-	-	-	-
Coastwide Total	*74,089*	+ 0.2%	+ 0.1%	+ 0.1%	- 1.7%	- 10.3%	+ 0.1%	+ 0.1%	+ 0.1%

Table 4-16. Change in combined commercial plus recreational fishery income impacts (from No Action) by community group ($1,000).*

Community Groups	*No Action*	Alternative 1A	Alternative 2A	Alternative 3A	Alternative 4A	Alternative 5A	Alternative 6A	Alternative 7A
Alternatives including "A" suboptions for Nearshore Open Access and Recreational Sectors:								
Puget Sound	*2,376*	-509	-509	-610	-513	-610	-509	-509
Washington Coast	*16,905*	-1,952	-1,952	-3,019	-2,736	-3,019	-1,952	-1,952
Astoria-Tillamook	*27,877*	-1,888	-1,888	-5,540	-5,826	-5,540	-1,700	-1,700
Newport	*16,025*	-1,558	-1,558	-1,937	-2,180	-1,937	-1,526	-1,526
Coos Bay-Brookings	*13,881*	-1,810	-1,810	-2,026	-2,453	-2,026	-1,810	-1,810
Crescent City-Eureka	*7,937*	-902	-902	-1,735	-907	-1,735	-889	-889
Fort Bragg - Bodega Bay	*5,786*	-600	-649	-678	-496	-678	-649	-649
San Francisco Area	*7,616*	-299	-299	-302	-624	-302	-299	-299
Santa Cruz - Monterey - Morro Bay	*13,948*	+453	+453	+431	-1,120	+431	+453	+453
Santa Barbara - Los Angeles - San Diego	*52,167*	+69	+69	+69	+25	+69	+69	+69
Coastwide Total	*164,518*	-8,996	-9,045	-15,346	-16,830	-15,346	-8,810	-8,810
Community Groups	***No Action***	**Alternative 1B**	**Alternative 2B**	**Alternative 3B**	**Alternative 4B**	**Alternative 5B**	**Alternative 6B**	**Alternative 7B**
Alternatives including "B" suboptions for Nearshore Open Access and Recreational Sectors:								
Puget Sound	*2,376*	-509	-509	-610	-513	-610	-509	-509
Washington Coast	*16,905*	-1,952	-1,952	-3,019	-2,736	-3,019	-1,952	-1,952
Astoria-Tillamook	*27,877*	-1,909	-1,909	-5,561	-5,941	-5,561	-1,721	-1,721
Newport	*16,025*	-1,564	-1,564	-1,943	-3,197	-1,943	-1,532	-1,532
Coos Bay-Brookings	*13,881*	-1,925	-1,925	-2,140	-2,650	-2,140	-1,924	-1,924
Crescent City-Eureka	*7,937*	-902	-902	-1,735	-1,401	-1,735	-889	-889
Fort Bragg - Bodega Bay	*5,786*	-600	-649	-678	-1,406	-678	-649	-649
San Francisco Area	*7,616*	-299	-299	-302	-2,642	-302	-299	-299
Santa Cruz - Monterey - Morro Bay	*13,948*	+453	+453	+431	-3,387	+431	+453	+453
Santa Barbara - Los Angeles - San Diego	*52,167*	+69	+69	+69	-28	+69	+69	+69
Coastwide Total	*164,518*	-9,138	-9,188	-15,488	-23,901	-15,488	-8,952	-8,952

* Although strictly speaking, the two measures are not directly additive due to the slightly different estimation procedures used, combined income impacts generated by commercial and recreational fishing activities are displayed here in order to facilitate comparison of the alternatives.

Table 4-17. Change in combined commercial plus recreational fishery income impacts (from No Action) by community group (%).*

Community Groups	*No Action*	Alternative 1A	Alternative 2A	Alternative 3A	Alternative 4A	Alternative 5A	Alternative 6A	Alternative 7A
Alternatives including "A" suboptions for Nearshore Open Access and Recreational Sectors:								
Puget Sound	*2,376*	- 21.4%	*- 21.4%*	*- 25.7%*	*- 21.6%*	*- 25.7%*	*- 21.4%*	*- 21.4%*
Washington Coast	*16,905*	*- 11.5%*	*- 11.5%*	*- 17.9%*	*- 16.2%*	*- 17.9%*	*- 11.5%*	*- 11.5%*
Astoria-Tillamook	*27,877*	*- 6.8%*	*- 6.8%*	*- 19.9%*	*- 20.9%*	*- 19.9%*	*- 6.1%*	*- 6.1%*
Newport	*16,025*	*- 9.7%*	*- 9.7%*	*- 12.1%*	*- 13.6%*	*- 12.1%*	*- 9.5%*	*- 9.5%*
Coos Bay-Brookings	*13,881*	*- 13.0%*	*- 13.0%*	*- 14.6%*	*- 17.7%*	*- 14.6%*	*- 13.0%*	*- 13.0%*
Crescent City-Eureka	*7,937*	*- 11.4%*	*- 11.4%*	*- 21.9%*	*- 11.4%*	*- 21.9%*	*- 11.2%*	*- 11.2%*
Fort Bragg - Bodega Bay	*5,786*	*- 10.4%*	*- 11.2%*	*- 11.7%*	*- 8.6%*	*- 11.7%*	*- 11.2%*	*- 11.2%*
San Francisco Area	*7,616*	*- 3.9%*	*- 3.9%*	*- 4.0%*	*- 8.2%*	*- 4.0%*	*- 3.9%*	*- 3.9%*
Santa Cruz - Monterey - Morro Bay	*13,948*	*+ 3.3%*	*+ 3.3%*	*+ 3.1%*	*- 8.0%*	*+ 3.1%*	*+ 3.3%*	*+ 3.3%*
Santa Barbara - Los Angeles - San Diego	*52,167*	*+ 0.1%*	*+ 0.1%*	*+ 0.1%*	*+ 0.0%*	*+ 0.1%*	*+ 0.1%*	*+ 0.1%*
Coastwide Total	*164,518*	*- 5.5%*	*- 5.5%*	*- 9.3%*	*- 10.2%*	*- 9.3%*	*- 5.4%*	*- 5.4%*

Community Groups	*No Action*	Alternative 1B	Alternative 2B	Alternative 3B	Alternative 4B	Alternative 5B	Alternative 6B	Alternative 7B
Alternatives including "B" suboptions for Nearshore Open Access and Recreational Sectors:								
Puget Sound	*2,376*	- 21.4%	*- 21.4%*	*- 25.7%*	*- 21.6%*	*- 25.7%*	*- 21.4%*	*- 21.4%*
Washington Coast	*16,905*	*- 11.5%*	*- 11.5%*	*- 17.9%*	*- 16.2%*	*- 17.9%*	*- 11.5%*	*- 11.5%*
Astoria-Tillamook	*27,877*	*- 6.8%*	*- 6.8%*	*- 19.9%*	*- 21.3%*	*- 19.9%*	*- 6.2%*	*- 6.2%*
Newport	*16,025*	*- 9.8%*	*- 9.8%*	*- 12.1%*	*- 19.9%*	*- 12.1%*	*- 9.6%*	*- 9.6%*
Coos Bay-Brookings	*13,881*	*- 13.9%*	*- 13.9%*	*- 15.4%*	*- 19.1%*	*- 15.4%*	*- 13.9%*	*- 13.9%*
Crescent City-Eureka	*7,937*	*- 11.4%*	*- 11.4%*	*- 21.9%*	*- 17.7%*	*- 21.9%*	*- 11.2%*	*- 11.2%*
Fort Bragg - Bodega Bay	*5,786*	*- 10.4%*	*- 11.2%*	*- 11.7%*	*- 24.3%*	*- 11.7%*	*- 11.2%*	*- 11.2%*
San Francisco Area	*7,616*	*- 3.9%*	*- 3.9%*	*- 4.0%*	*- 34.7%*	*- 4.0%*	*- 3.9%*	*- 3.9%*
Santa Cruz - Monterey - Morro Bay	*13,948*	*+ 3.3%*	*+ 3.3%*	*+ 3.1%*	*- 24.3%*	*+ 3.1%*	*+ 3.3%*	*+ 3.3%*
Santa Barbara - Los Angeles - San Diego	*52,167*	*+ 0.1%*	*+ 0.1%*	*+ 0.1%*	*- 0.1%*	*+ 0.1%*	*+ 0.1%*	*+ 0.1%*
Coastwide Total	*164,518*	*- 5.6%*	*- 5.6%*	*- 9.4%*	*- 14.5%*	*- 9.4%*	*- 5.4%*	*- 5.4%*

* Although strictly speaking, the two measures are not directly additive due to the slightly different estimation procedures used, combined income impacts generated by commercial and recreational fishing activities are displayed here in order to facilitate comparison of the alternatives.

Table 4-18. Change in groundfish ex-vessel revenue from baseline 2005-10 average annual revenue (2011 $1,000).

	Baseline (2005-10)	No Action	Alternative 1 PPA		Alternative 2		Alternative 3		Alternative 4	
Community Groups / Nearshore Open Access Suboption:			A	B	A	B	A	B	A	B
Puget Sound	*3,580*	-1,927	-2,277		-2,277		-2,351		-2,279	
Washington Coast	*14,039*	10,015	7,337		7,337		6,416		6,666	
Astoria-Tillamook	*11,394*	8,786	7,324	7,301	7,324	7,301	4,594	4,570	4,605	
Newport	*9,944*	3,658	1,948	1,940	1,948	1,940	1,554	1,546	1,439	
Coos Bay-Brookings	*9,862*	1,597	-100	-262	-100	-262	-303	-466	-750	
Crescent City-Eureka	*6,384*	-467	-1,212		-1,212		-1,914		-1,334	-1,499
Fort Bragg - Bodega Bay	*3,712*	657	-17		-17		-45		-524	-605
San Francisco Area	*1,698*	-11	-285		-285		-288		-323	-365
Santa Cruz - Monterey - Morro Bay	*4,175*	2,890	3,433		3,433		3,406		2,985	2,498
Santa Barbara - Los Angeles - San Diego	*2,427*	1,098	1,166		1,166		1,166		1,116	1,056
Shoreside Total	*67,216*	26,297	17,317	17,123	17,317	17,123	12,236	12,042	11,599	10,765

	Alternative 5		Alternative 6		Alternative 7	
Community Groups / Nearshore Open Access Suboption:	A	B	A	B	A	B
Puget Sound	-2,351		-2,277		-2,277	
Washington Coast	6,416		7,337		7,337	
Astoria-Tillamook	4,594	4,570	7,459	7,436	7,459	7,436
Newport	1,554	1,546	1,981	1,973	1,981	1,973
Coos Bay-Brookings	-303	-466	-99	-261	-99	-261
Crescent City-Eureka	-1,914		-1,201		-1,201	
Fort Bragg - Bodega Bay	-45		-17		-17	
San Francisco Area	-288		-285		-285	
Santa Cruz - Monterey - Morro Bay	3,406		3,433		3,433	
Santa Barbara - Los Angeles - San Diego	1,166		1,166		1,166	
Shoreside Total	12,236	12,042	17,498	17,304	17,498	17,304

Table 4-19. Change in groundfish ex-vessel revenue from baseline 2005-10 average annual revenue (%).

	No Action	Alternative 1 PPA		Alternative 2		Alternative 3		Alternative 4	
Community Groups / Nearshore Open Access Suboption:		**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**
Puget Sound	-53.8%	-63.6%		-63.6%		-65.7%		-63.7%	
Washington Coast	71.3%	52.3%		52.3%		45.7%		47.5%	
Astoria-Tillamook	77.1%	64.3%	64.1%	64.3%	64.1%	40.3%	40.1%	40.4%	
Newport	36.8%	19.6%	19.5%	19.6%	19.5%	15.6%	15.5%	14.5%	
Coos Bay-Brookings	16.2%	-1.0%	-2.7%	-1.0%	-2.7%	-3.1%	-4.7%	-7.6%	
Crescent City-Eureka	-7.3%	-19.0%		-19.0%		-30.0%	-30.0%	-20.9%	-23.5%
Fort Bragg - Bodega Bay	17.7%	-0.5%		-0.5%		-1.2%		-14.1%	-16.3%
San Francisco Area	-0.6%	-16.8%		-16.8%		-17.0%		-19.0%	-21.5%
Santa Cruz - Monterey - Morro Bay	69.2%	82.2%		82.2%		81.6%		71.5%	59.8%
Santa Barbara - Los Angeles - San Diego	45.3%	48.1%		48.1%		48.1%		46.0%	43.5%
Shoreside Total	**39.1%**	**25.8%**	**25.5%**	**25.8%**	**25.5%**	**18.2%**	**17.9%**	**17.3%**	**16.0%**

	Alternative 5		Alternative 6		Alternative 7	
Community Groups / Nearshore Open Access Suboption:	**A**	**B**	**A**	**B**	**A**	**B**
Puget Sound	-65.7%		-63.6%		-63.6%	
Washington Coast	45.7%		52.3%		52.3%	
Astoria-Tillamook	40.3%	40.1%	65.5%	65.3%	65.5%	65.3%
Newport	15.6%	15.5%	19.9%	19.8%	19.9%	19.8%
Coos Bay-Brookings	-3.1%	-4.7%	-1.0%	-2.6%	-1.0%	-2.6%
Crescent City-Eureka	-30.0%		-18.8%		-18.8%	
Fort Bragg - Bodega Bay	-1.2%		-0.5%		-0.5%	
San Francisco Area	-17.0%		-16.8%		-16.8%	
Santa Cruz - Monterey - Morro Bay	81.6%		82.2%		82.2%	
Santa Barbara - Los Angeles - San Diego	48.1%		48.1%		48.1%	
Shoreside Total	**18.2%**	**17.9%**	**26.0%**	**25.7%**	**26.0%**	**25.7%**

4.2.2.4 Processors

No Action: 2012 Regulations, 107 mt Canary Rockfish ACL and 187 mt POP ACL

Under No Action, total purchases of groundfish landings by shoreside processors of $93.512 million are projected in 2013. This total includes projected purchases of $23.65 million of whiting, and $69.862 million in deliveries of combined nonwhiting groundfish species.

Alternative 1: (Preliminary Preferred) 116 mt Canary Rockfish ACL and 150 mt POP ACL

Compared with No Action, under Preliminary Preferred Alternative 1 total groundfish purchases by processors are projected to decline by $8.98 million (-9.6%) or $9.174 million (-9.8%) under Alternative 1A or 1B, respectively. These values describe the second highest overall level of total groundfish purchases among the 2013 action alternatives.

Purchases of whiting decrease by $0.278 million (-1.2%), while deliveries of combined nonwhiting groundfish species decrease by $8.702 million (-12.5%) under Alternative 1A and by $8.895 million (-12.7%) under Alternative 1B. These results represent the second highest purchase levels for both whiting and nonwhiting groundfish species projected under the 2013 action alternatives.

Alternative 2: Lower Canary Rockfish ACL

Projected impacts under Alternative 2 are the same as under Alternative 1 for all commercial groundfish sectors. This is because measures used to manage commercial fisheries to stay within the 119 mt canary rockfish ACL and sector harvest guidelines under Alternative 1 are also sufficient to not exceed the 104 mt canary rockfish ACL under Alternative 2. The main factors limiting commercial fisheries under Alternatives 1 and 2 are the common ACLs for POP and the other overfished species.

Alternative 3: Lower POP ACL

Alternative 3 is expected to yield the second lowest total groundfish purchases among the 2013 action alternatives. Under Alternative 3, the total value of ex-vessel purchases declines (compared with No Action) by $14.061 million (-15%) under Alternative 3A, or $14.255 million (-15.2%) under Alternative 3B.

Whiting purchases decrease by $2.296 million (-9.7%), and nonwhiting groundfish purchases decrease by $11.765 million (-16.8%) under Alternative 3A, or $11.959 million (-17.1%) under Alternative 3B. These numbers represent the second lowest purchase levels for both whiting and nonwhiting groundfish species among the 2013 action alternatives.

Alternative 4: Lowest Canary Rockfish ACL and Highest POP ACL

Alternative 4 is expected to produce the lowest total groundfish purchase levels among the 2013 action alternatives. Total groundfish purchases decline by $14.698 million (-15.7%) under Alternative 4A, or $15.531 million (-16.6%) under Alternative 4B.

Whiting purchases decrease by $2.584 million (-10.9%), and nonwhiting groundfish purchases decrease by $12.114 million (-17.3%) under Alternative 4A, or $12.948 million (-18.5%) under Alternative 4B.

These numbers describe the lowest purchase levels for both whiting and nonwhiting groundfish species among the 2013 action alternatives.

Alternative 5: Highest Canary Rockfish ACL and Lowest POP ACL

Projected impacts under Alternative 5 are the same as under Alternative 3 for all commercial groundfish sectors. This is because measures used to manage commercial fisheries to stay within the 76 mt POP ACL and sector harvest guidelines under Alternative 5 are the same as those used under Alternative 3. The 76 mt POP ACL is the main factor limiting commercial fisheries under both Alternatives 3 and 5.

Alternative 6: Lower Canary Rockfish ACL and Higher POP ACL

Alternative 6 is expected to result in the highest total groundfish purchase levels among the 2013 action alternatives. Under Alternative 6, total groundfish purchases decline by $8.798 million (-9.4%) under Alternative 6A, or $8.992 million (-9.6%) under Alternative 6B.

Whiting purchases decrease by $0.110 million (-1.2%), and nonwhiting groundfish purchases decrease by $8.689 million (-12.4%) under Alternative 6A, or $8.883 million (-12.7%) under Alternative 6B. These results describe the highest purchase levels for both whiting and nonwhiting groundfish species among the 2013 action alternatives.

Alternative 7: Higher Canary Rockfish ACL and Lower POP ACL

Projected impacts under Alternative 7 are the same as under Alternative 6 for all commercial groundfish sectors. This is because measures used to manage commercial fisheries to stay within the 226 mt POP ACL and sector harvest guidelines under Alternative 7 are the same as those used under Alternative 6. The 226 mt POP ACL is the main factor limiting commercial fisheries under both Alternatives 6 and 7.

Table 4-20. Change from No Action in shoreside processors' groundfish purchases by species group under the 2013-14 integrated alternatives ($1,000).

Groundfish Sector	No Action	Alternative 1 PPA		Alternative 2		Alternative 3		Alternative 4	
Nearshore OA option:		***A***	***B***	***A***	***B***	***A***	***B***	***A***	***B***
Whiting	*23,650*	- 278		- 278		- 2,296		- 2,584	
Nonwhiting	*69,862*	- 8,702	- 8,895	- 8,702	- 8,895	- 11,765	- 11,959	- 12,114	-12,948
TOTAL CHANGE ($,000)	***93,512***	**-8,980**	**-9,174**	**-8,980**	**-9,174**	**-14,061**	**-14,255**	**-14,698**	**-15,531**

Groundfish Sector	Alternative 5		Alternative 6		Alternative 7	
Nearshore OA option:	***A***	***B***	***A***	***B***	***A***	***B***
Whiting	- 2,296		- 110		- 110	
Nonwhiting	- 11,765	- 11,959	- 8,689	- 8,883	- 8,689	- 8,883
TOTAL CHANGE ($,000)	**-14,061**	**-14,255**	**-8,798**	**-8,992**	**-8,798**	**-8,992**

Note: "A" and "B" identifiers indicate the Nearshore Open Access option included in the Alternative.

Table 4-21. Change from No Action in shoreside processors' groundfish purchases by species group under the 2013-14 integrated alternatives (%).

Groundfish Sector	***No Action ($,000)***	Alternative 1 PPA		Alternative 2		Alternative 3		Alternative 4	
Nearshore OA option:		***A***	***B***	***A***	***B***	***A***	***B***	***A***	***B***
Whiting	*23,650*	- 1.2%		- 1.2%		- 9.7%		- 10.9%	
Nonwhiting	*69,862*	- 12.5%	- 12.7%	- 12.5%	- 12.7%	- 16.8%	- 17.1%	- 17.3%	- 18.5%
TOTAL CHANGE (%)	***93,512***	**- 9.6%**	**- 9.8%**	**- 9.6%**	**- 9.8%**	**- 15.0%**	**- 15.2%**	**- 15.7%**	**- 16.6%**

Groundfish Sector	Alternative 5		Alternative 6		Alternative 7	
Nearshore OA option:	***A***	***B***	***A***	***B***	***A***	***B***
Whiting	- 9.7%		- 0.5%		- 0.5%	
Nonwhiting	- 16.8%	- 17.1%	- 12.4%	- 12.7%	- 12.4%	- 12.7%
TOTAL CHANGE (%)	**- 15.0%**	**- 15.2%**	**- 9.4%**	**- 9.6%**	**- 9.4%**	**- 9.6%**

Note: "A" and "B" identifiers indicate the Nearshore Open Access option included in the Alternative.

4.2.2.5 Effects on the IFQ Fishery of Alternative ACLs for Widow Rockfish and Pacific Whiting

In addition to the No Action and Preliminary Preferred ACL alternatives for widow rockfish of 600 mt and 1,500 mt, respectively, the Council is also considering an alternative widow rockfish ACL of 2,500 mt. Results of the 2,500 mt widow rockfish ACL analysis could be applied to any of the seven integrated action alternatives analyzed above . There are also four alternative intersector allocations under each ACL alternative. Widow rockfish are encountered in the Pacific whiting fishery and have also historically been a midwater trawl target species along with yellowtail rockfish. Consequently, in conjunction with the ACL decision that is ultimately adopted for Pacific whiting (in a separate action), the ACL decision for widow rockfish will help determine to what degree (1) the Pacific whiting fisheries, particularly the at sea catcher processor and mothership sectors, will be able to harvest their Pacific whiting allocations, and (2) the shoreside trawl sector will be able to resume a midwater trawl fishery targeting widow and yellowtail rockfish.

Effects of alternative Pacific whiting ACLs on the trawl fishery

Table 4-22shows a range of possible whiting sector allocations derived from an historical analysis of Pacific whiting ACLs during 2005-2011. Note that during this period widow rockfish was being managed under a rebuilding plan. In addition to the assumed No Action allocations (i.e., the same as under the 2011 whiting ACL), four scenarios are shown including the lowest and highest values observed for each whiting sector during the 2005-2011 period, and two additional scenarios, one derived by subtracting 50 percent from the lowest scenario, and another by adding 50 percent to the highest scenario, respectively. These are based on examination of “final” sector allocations during the 2005-2011 period (i.e., after all in-season reallocations). Consequently the potential sector allocations shown do not necessarily adhere to the Pacific whiting intersector allocation shares specified in the FMP. The whiting sector allocations shown are used (1) to illustrate associated impacts on whiting sector ex-vessel revenues (i.e., the equivalent of what would be paid to catcher vessel operators upon delivery to the processors), and (2) to infer potential ex-vessel revenue impacts generated from a possible renewed shoreside midwater trawl fishery for widow and yellowtail rockfish.

Shoreside sector Pacific whiting allocations shown in Table 4-22 under the alternative U.S. TAC scenarios range from 20,369 mt to 146,204 mt. The highest and lowest final allocations for the shoreside sector were 97,469 mt which occurred in 2005-2006 and 40,738 mt in 2009, respectively. By comparison the allocation for the shoreside sector under No Action is 92,818 mt.

Allocations under the alternative TACs for the whiting mothership sector range from 12,017 mt to 87,131 mt. The highest and lowest final allocations for the sector were 58,087 mt in 2008 and 24,034 mt in 2009, respectively. The allocation for the mothership sector under No Action is 55,039 mt.

Allocations under the alternative TACs for the catcher-processor sector range from 17,688 mt to 173,684 mt. The highest and lowest final allocations for the sector were 115,789 mt recorded in 2008 and 35,376 mt in 2009, respectively. By comparison the allocation for the catcher-processor sector under No Action is 75,138 mt.

Table 4-23 shows the potential whiting sector ex-vessel revenues associated with the range of Pacific whiting TAC alternatives shown in Table 4-22. Estimated potential revenues under the assumed No Action alternative are also shown for comparison. Revenues are projected by assuming all sectors take their entire allocation delivered at average 2011 shoreside ex-vessel prices. Ex-vessel revenues for the catcher-processor sector are imputed to represent the equivalent value for the volume of whiting harvested.

Table 4-23 shows potential ex-vessel revenues for the three combined, non-Tribal commercial whiting sectors ranging from $21.1 million to $98.1 Million, compared with a projected level of $53.3 million under the No Action whiting alternative. Mothership sector revenues under the whiting TAC alternatives are shown to range from $2.9 million to $21 million compared with a No Action level of $12.8 million. Catcher-processor sector revenues under the whiting TAC alternatives range from $4.3 million to $41.9 million compared with a No Action level of $18.1 million. Mothership sector revenues under the whiting TAC alternatives are shown to range from $2.9 million to $21 million compared with a No Action level of $12.8 million.

Shoreside sector revenues under the whiting TAC alternatives range from $4.9 million to $35.2 million compared with a No Action level of about $22.4 million. Based on patterns observed in the 2011 fishery, nearly half of the shoreside whiting revenue (48%) is projected to occur from landings delivered to the Astoria port group, with Newport projected to receive about 28%, and ports on the Washington coast about 22% of shoreside Pacific whiting sector ex-vessel revenues.

Effects of alternative widow rockfish ACLs on the trawl fishery

As mentioned above, the widow rockfish ACL will partially determine whether the shoreside trawl sector is able to resume a midwater trawl fishery targeting widow and yellowtail rockfish following rebuilding of widow rockfish stocks. Another determining factor is the intersector allocation option adopted for widow rockfish. Each commercial whiting sector will leverage its available widow rockfish (and the other bycatch species) to maximize catch up the sector's Pacific whiting harvest guideline/allocation. If, assured that the bycatch requirements of the Pacific whiting harvest will be satisfied, there is sufficient additional widow rockfish quota available to the shoreside sector, then a targeted widow rockfish-yellowtail rockfish fishery may possibly ensue.

Table 4-24 shows potential Pacific whiting catch by the three, non-Tribal commercial whiting sectors under the different widow rockfish ACL and intersector allocation options and two sets of assumed widow rockfish bycatch rates: (1) the average widow rockfish bycatch rate over 2005-2011 (during which period widow rockfish was being managed under a rebuilding plan), and (2) the maximum annual bycatch rate observed during that period. Unshaded cells in Table 4-24 indicate that the widow rockfish ACL and sector allocation are not likely to constrain Pacific whiting harvest even under the "Highest plus 50%" Pacific whiting TAC option for that sector shown in Table 4-22. Conversely the shaded cells indicate for that particular combination of widow rockfish ACL, intersector allocation and assumed bycatch rate, the sector may not be able to harvest up to its "Highest plus 50%" Pacific whiting TAC option. One of the main points to note here is that under the higher widow rockfish bycatch rate, either the mothership or catcher-processor sector may become limited by widow rockfish bycatch under all of the widow rockfish ACL and intersector allocation options. However under the average 2005-2011 widow rockfish bycatch rates, only the mothership sector appears to be potentially limited by widow rockfish under intersector allocation options 2 and 3. This is primarily due to the area and time of year the mothership sector's fishery usually occurs.

Another implication of this analysis is that Table 4-24 indicates the shoreside whiting sector appears to not be limited by widow rockfish bycatch under both the 1,500 mt and 2,500 mt widow rockfish ACL options. Assuming adequate widow bycatch has been allotted to take the shoreside sector's "Highest plus 50%" whiting allocation, Table 4-25 calculates potential harvest and ex-vessel revenue in a directed shoreside widow rockfish-yellowtail rockfish fishery under the range of widow rockfish ACL and intersector allocation options. Table 4-25 shows that assuming the average 2001 widow-yellowtail encounter (landing) rate and 2011 exvessel prices, combined landings of widow and yellowtail rockfish in a directed fishery may be have an exvessel value between approximately $1.2 million and $2.2 million under the 1,500 mt widow ACL option, and between $2.7 million and $4.2 million under the 2,500 mt widow ACL option (depending on the assumed bycatch rate and intersector allocation).

By way of comparison, PacFIN landings data show that the most recent shoreside widow-yellowtail midwater trawl fishery in 2001 landed approximately 1,700 mt of widow rockfish and 1,500 mt of yellowtail rockfish. At an average exvessel price of about $1,000 per metric ton, the total exvessel value of these landings was approximately $3.7 million. Landings from that fishery were widely distributed in ports north of 40°10' N. latitude. The greatest share (35%) was landed in Astoria, with 15% landed in Newport, 15% on the Washington coast, 13% in Puget Sound ports, 6% in Brookings, 6% in Eureka, 5% in Coos Bay and 3% in Crescent City.

Table 4-22. Range of potential whiting sector allocations (mt) based on actual 2005-2011 sector allocations and final commercial fishery harvest guidelines, compared with No Action.*

ACL Scenario	Shoreside Sector mt	year	Mothership Sector mt	year	Catcher-Processor Sector mt	year	Total implied combined commercial whiting sectors' TAC (mt)
Lowest minus 50%	20,369	-	12,017	-	17,688	-	50,074
Lowest	40,738	(2009)	24,034	(2009)	35,376	(2009)	100,148
Highest	97,469	(2005-2006)	58,087	(2008)	115,789	(2008)	271,345
Highest plus 50%	146,204	-	87,131	-	173,684	-	407,019
No Action	92,818	(2011)	55,039	(2011)	75,138	(2011)	222,995

* Based on examination of "final" sector allocations each year during the period (i.e., after all in-season reallocations). Note that the potential sector allocations shown do not necessarily adhere to intersector allocation shares in the FMP.

Table 4-23. Potential Pacific whiting sector exvessel revenues under option commercial fishery ACLs (commercial sector harvest guidelines), compared with No Action ($ million)*

HG Scenario	Shoreside Sector	Mothership Sector	Catcher-Processor Sector	Commercial Whiting Total
Lowest minus 50%	4.9	2.9	4.3	12.1
Lowest	9.8	5.8	8.5	24.1
Highest	23.5	14.0	27.9	65.4
Highest plus 50%	35.2	21.0	41.9	98.1
No Action (2011)	22.4	12.8	18.1	53.3

* Assuming average 2011 shoreside exvessel prices, and all sectors take their entire harvest guideline. Exvessel revenues for the catcher-processor sector represent the equivalent value of raw whiting harvested.

Table 4-24. Projected potential whiting catch at the average and maximum widow bycatch rates for whiting sectors during 2005-2011. Highlighted cells show projected potential whiting catch levels that are below the "Highest plus 50%" whiting harvest guideline, indicating a potential widow rockfish bycatch constraint under that scenario.

Widow ACL Alt.	Widow Alloc. Option	Projected potential whiting catch (mt) at the average widow bycatch rate			Projected potential whiting catch (mt) at the highest widow bycatch rate		
		Shoreside	MS	CP	Shoreside	MS	CP
600	No Action	333,179	59,537	84,344	213,721	38,191	54,104
	Option 1	180,936	122,534	356,860	116,063	78,601	171,152
	Option 2	326,037	62,492	181,999	209,140	40,086	87,287
	Option 3	272,836	84,506	246,110	175,014	54,208	118,036
	Option 4	221,780	105,633	307,638	142,264	67,759	147,545
	Option 5	170,725	126,759	369,166	109,513	81,311	177,053
1,500	No Action	917,247	163,907	477,351	588,379	105,140	228,940
	Option 1	1,017,231	122,534	356,860	652,515	78,601	171,152
	Option 2	1,162,331	62,492	181,999	745,591	40,086	87,287
	Option 3	1,109,131	84,506	246,110	711,465	54,208	118,036
	Option 4	1,058,075	105,633	307,638	678,715	67,759	147,545
	Option 5	1,007,019	126,759	369,166	645,965	81,311	177,053
2,500	No Action	1,566,212	279,873	815,083	1,004,665	179,528	390,918
	Option 1	1,946,447	122,534	356,860	1,248,571	78,601	171,152
	Option 2	2,091,548	62,492	181,999	1,341,648	40,086	87,287
	Option 3	2,038,348	84,506	246,110	1,307,522	54,208	118,036
	Option 4	1,987,292	105,633	307,638	1,274,772	67,759	147,545
	Option 5	1,936,236	126,759	369,166	1,242,021	81,311	177,053

Table 4-25. Potential residual widow and yellowtail rockfish harvest by shoreside trawl sector after assumed "Highest plus 50%" whiting harvest guideline is taken, assuming average and highest whiting-per-widow bycatch rates observed during 2005-2011, average yellowtail-per-widow landings rates observed in 2001, and 2011 widow and yellowtail rockfish ex-vessel prices.

Widow ACL Alt. (mt)	Widow Alloc. Alternative	Using average 2005-2011 whiting-per-widow bycatch rate			Using maximum 2005-2011 whiting-per-widow bycatch rate		
		Widow mt	Yellowtail mt	Revenue $,000	Widow mt	Yellowtail mt	Revenue $,000
600	No Action	251	213	$465	91	77	$168
	Option 1	47	40	$86	-	-	$0
	Option 2	241	205	$447	84	72	$156
	Option 3	170	144	$315	39	33	$72
	Option 4	101	86	$188	-	-	$0
	Option 5	33	28	$61	-	-	$0
1,500	No Action	1,034	880	$1,917	593	505	$1,099
	Option 1	1,168	994	$2,166	679	578	$1,259
	Option 2	1,362	1,159	$2,526	804	684	$1,490
	Option 3	1,291	1,099	$2,394	758	645	$1,405
	Option 4	1,223	1,040	$2,267	714	608	$1,324
	Option 5	1,154	982	$2,140	670	570	$1,243
2,500	No Action	1,904	1,620	$3,531	1,151	980	$2,134
	Option 1	2,414	2,054	$4,476	1,478	1,258	$2,741
	Option 2	2,608	2,220	$4,837	1,603	1,364	$2,972
	Option 3	2,537	2,159	$4,704	1,557	1,325	$2,887
	Option 4	2,468	2,101	$4,577	1,513	1,288	$2,806
	Option 5	2,400	2,043	$4,450	1,469	1,250	$2,724

4.2.2.6 Impacts for Which Socio-economic Differences among the Alternatives Cannot be Discerned

New Management Measures for Commercial Fisheries

New management measures (i.e., measures not yet designated as routine and implemented through full notice and comment rulemaking) are included in all of the action alternatives for the purpose of analysis. These measures and their effects are described below. These measures are described in section 2.3. The performance of these proposals in relation to management objectives is evaluated in Appendix C. The proposals are:

1. Revising waypoints defining the 200 fm and 150 fm RCA lines to improve accuracy and consistency
2. Implementing sorting requirements for aurora, shortraker, and rougheye rockfish north of 40°10 N. latitude and blackgill rockfish south of 40°10 N. latitude
3. Implementing catch accounting provisions between limited entry and open access fishery sectors
4. Changing or eliminating to the current lingcod minimum size limit

5. Changing shorebased IFQ accumulation limits
6. Establishing provisions to allow surplus quota pounds in the shorebased IFQ fishery to be carried over for use in the next year
7. Modifying the retention allowances for shelf rockfish caught in the CCA to reduce regulatory discards by recreational fisheries operating in the CCAs
8. Removing of the 10 inch minimum size limit for bocaccio

These new management measures are not incorporated into the models used to project ex-vessel revenue, net revenue, income impacts, and employment used in the evaluation of the alternatives in section 4.2.2. General socioeconomic impacts of these changes are discussed below.

RCA changes, new sorting requirements, and limited entry-open access catch accounting are technical improvements to the management program. They will have insignificant socioeconomic effects, because although harvesters may also experience somewhat higher costs these measures allow harvesters access to additional fishing grounds while minimizing the risk that fisheries may be closed due to overfished species bycatch.

The lingcod and boccacio size limits are in place mainly to address stock conservation objectives (reducing juvenile mortality). Changes to the lingcod size limit will have an insignificant beneficial socioeconomic impact by allowing fish that were previously discarded to be landed. The bocaccio size limit is being eliminated because it is ineffective in meeting its objective and this change would therefore have an insignificant impact.

The changes to shorebased IFQ fishery provisions (accumulation limits, carryover) are intended to improve program performance. [Summary evaluation to be added].

Changing recreational retention limits for shelf rockfish in the CCA would have a marginal impact on recreational angling effort in Southern California, to the degree that the opportunity to retain fish enhances the recreational experience and therefore motivates greater participation. [Evaluation to be added]

Commercial Fisheries

There is no projected change from No Action in groundfish revenues landed by the Incidental Open Access sector, because management measures applying to nongroundfish fisheries (catching groundfish incidentally) do not change under the proposed action. Therefore, for the purpose of modeling ex-vessel revenue, 2010 ex-vessel revenue is used under all the alternatives.

Projected revenues in the Limited Entry Fixed Gear, Non-nearshore Open Access and Tribal groundfish sectors do not vary under the action alternatives, because the catch projection models for these sectors assume bycatch allowances for incidentally-caught species under the action alternatives are sufficient to allow harvesters to achieve their full allocations of sablefish.

Projections for the At-Sea whiting sectors do not change from No Action under the action alternatives due to a fixed ACL and assumed sector allocations for Pacific whiting (see section 2.X).

Recreational Fisheries

No new recreational management measures are proposed for Washington State. Therefore, the same level of recreational fishing effort and related socioeconomic benefits would accrue from fishing off Washington under all the alternatives, including No Action.

4.3 Cumulative Effects

CEQ regulations at 40 CFR 1508.25 identify three types of impacts that must be considered in an EIS: direct, indirect, and cumulative effects. Direct effects are directly related to the action (occurring at the same time and place); for indirect effects there is some intermediate cause-and-effect between the proposed action and the actual effect being evaluated (occurring at a distance in time and/or place). The regulations also define a cumulative impact as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (Federal or nonfederal) or person undertakes such actions." Although the regulations and guidance identify cumulative effects as a separate, third class of impacts, all effects can be viewed as cumulative to the extent they are part of some causal chain that results in an ultimate effect on an environmental component. Therefore, to arrive at the final, cumulative effect on an environmental component, the effects in a causal chain are traced out and measured qualitatively or quantitatively, in terms of the metrics that have been identified in this EIS. The phenomena contributing to cumulative effects are baseline conditions (e.g., all relevant past and present actions), reasonably foreseeable future actions (RFFAs), the effects of the proposed action, and any mitigation that is proposed separately from the alternatives. Some of the baseline conditions of the affected environment are described in Chapter 3. Sections 4.1 and Section 4. 2 describe the direct and indirect impacts of the alternatives on fish stocks, fishery sectors, fishing communities, protected species, essential fish habitat, and the ecosystem.

4.3.1 The Scope and Types of External Actions and Trends Relevant to the Proposed Action

4.3.1.1 Geographic Boundaries

The analysis of impacts focuses on actions related to the harvest of Pacific Coast groundfish. The core geographic scope for each of the potentially impacted resources is focused on the Eastern Pacific Ocean (Section 1.3). The core geographic scopes for the managed resources are the waters of the EEZ off of the coasts of Washington, Oregon, and California. For non-groundfish species, those ranges may be expanded and would depend on the biological range of each individual non-target species in the Eastern Pacific Ocean. For habitat, the core geographic scope is focused on EFH within the EEZ but includes all habitat utilized by groundfish and other non-groundfish species in the Eastern Pacific Ocean. The core geographic scope for endangered and protected species can be considered the overall range of these species in the Eastern Pacific Ocean. For human communities, the core geographic boundaries are defined as those U.S. fishing communities directly involved in the harvest or processing of the managed resources, which were found to occur in coastal states from Washington through California (section 3.2.2).

4.3.1.2 Temporal Boundaries

The temporal scope of past and present actions for the potentially affected resources is primarily focused on actions that have occurred after FMP implementation {PFMC, 2011 #282, originally implemented on October 5, 1982}. For endangered and other protected resources, the scope of past and present actions is on a species-by-species basis and is largely focused on the 1980s and 1990s through the present, when NMFS began generating stock assessments for marine mammals and sea turtles that inhabit waters of the U.S. EEZ. The temporal scope of future actions for all relevant resources extends five years into the future to provde a reasonable time frame.

4.3.1.3 Past, Present, and Reasonably Foreseeable Future Actions and Ongoing Trends

Section 4.4 in the 2011-12 Groundfish Harvest Specifications FEIS describes the ongoing and reasonably foreseeable "external actions" and "ongoing trends" that contribute to the effects of the proposed action under the different alternatives to produce a cumulative effect. This information is incorporated by reference and summarized here with respect to actions and trends with continuing effects in 2013 and beyond.

Fishing-related Actions (including Past, Present, and Reasonably Foreseeable Future Actions)

Past and future harvest specifications. Groundfish fisheries are managed to prevent total catch exceeding ACLs, which represent a precautionary reduction from the overfishing limit to account for scientific uncertainty and to rebuild overfished and other stocks whose biomass is below the MSY target level (or its proxy). The policy objective is to attain or maintain MSY over the long-term, which depends on the continuous reapplication of ACLs during past, present, and future biennial management cycles. Harvest specifications also indirectly control the amount of fishing effort expended in regulated fisheries and the distribution of effort among groundfish sectors and gear types through the allocation of fishing opportunity. This indirectly affects EFH and the relative level of protected species take, due to the differential effects of different gear types.

Non-groundfish fisheries. Other fisheries contribute to mortality of environmental components also affected by groundfish fisheries, particularly protected species. (Catch of groundfish in non-groundfish fisheries is regulated and accounted for through the biennial management process and therefore directly affected by the proposed action.) Adverse impacts from other gear types may also combine with impacts to EFH from groundfish gear. Fishery removals from all sources also have long-term effects on the trophic structure of the California Current ecosystem.

Section 7 consultation on the Groundfish FMP pursuant to the ESA. NMFS NWR Sustainable Fisheries Division consulted with the Protected Resources Division to determine if fishing authorized under the Groundfish FMP is likely to jeopardize the continued existence of any species listed under the ESA in 2012 {NMFS, 2012 #293}. This consultation concluded that operation of the groundfish fishery in 2012 is not likely to adversely affect ESA-listed species found in the action area. NMFS is planning a consultation on the operation of groundfish fisheries in 2013 and beyond, which will be concluded prior to implementation of the proposed action. NMFS will also consult with the USFWS on the effects of operation of the fishery on listed seabirds. As of this writing it is not known whether this section 7 consultation will be concluded before January 1, 2013. If either of these consultations reaches a jeopardy determination then mitigation measures would need to be implemented in order to avoid jeopardizing the listed species. Past consultations have been done for the groundfish trawl fishery with respect to ESA-listed Chinook salmon ESUs. A bycatch threshold of 11,000 Chinook salmon was established for trawl fisheries targeting Pacific whiting; exceeding the threshold in any one year one year triggers re-initiation of consultations with the objective of identifying any additional mitigation measures that may be needed to prevent the threshold from being exceeded.

Catch share management. IFQ and co-op management in trawl sectors were implemented at the beginning of 2011 based on Groundfish FMP Amendment 20. Regulatory changes to improve program performance and implement cost recovery provisions allowed for in the MSA are ongoing. A regulatory package was implemented on January 1, 2012, and comparable regulatory packages will likely be implemented in future years. The current moratorium on quota share trading is scheduled to expire at the beginning of 2013. [discussion of Pacific Dawn litigation to be added.] The shoreside IFQ fishery may now use any legal groundfish gear (previously they were restricted to using only trawl gear). Although trawl gear is likely to remain the dominant gear type, harvesters may increasingly use fixed gear in certain areas and time periods. Coincident with catch share management fixed allocations between the IFQ and whiting co-op fisheries and other nontrawl groundfish fisheries were established. This makes it easier to determine quota pound and co-op share distributions during each management period but also reduces the scope of decision-making about fishing opportunity among different sectors of the fishery. Cost recovery measures and the end of subsidies to pay for observer coverage in the IFQ fishery will shift some costs from government to fishery participants.

Non-Fishing Actions (including Past, Present, and Reasonably Foreseeable Future Actions)

Non-fishing activities that introduce chemical pollutants, sewage, changes in water temperature, salinity, dissolved oxygen, and suspended sediment into the marine environment pose a risk to all of the identified resources. Human-induced non-fishing activities tend to be localized in nearshore areas and marine project areas where they occur. Examples of these activities include, but are not limited to agriculture, port maintenance, beach nourishment, coastal development, marine transportation, marine mining, dredging, and the disposal of dredged material. Wherever these activities co-occur, they are likely to work additively or synergistically to decrease habitat quality and, as such, may indirectly constrain the sustainability of groundfish species, non-groundfish species, and protected species. Decreased habitat suitability would tend to reduce the tolerance of these resources to the impacts of fishing effort. Mitigation of this outcome through regulations that would reduce fishing effort could then negatively impact human communities. The overall impact to the affected species and their habitats on a population level is unknown, but likely neutral to low negative, since a large portion of these species have a limited or minor exposure to these local non-fishing perturbations.

In addition to guidelines mandated by the MSA, NMFS reviews these types of effects through the review processes required by Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act for certain activities that are regulated by Federal, state, and local authorities. The jurisdiction of these activities is in "waters of the U.S." and includes both riverine and marine habitats.

For many of the proposed non-fishing activities to be permitted under other Federal agencies (such as beach nourishment, offshore tidal and wind power facilities, etc.), those agencies would conduct examinations of potential impacts on the resources. The MSA (50 CFR 600.930) imposes an obligation on other Federal agencies to consult with the Secretary of Commerce on actions that may adversely affect EFH. The eight Fishery Management Councils are engaged in this review process by making comments and recommendations on any Federal or state action that may affect habitat, including EFH, for their managed species and by commenting on actions likely to substantially affect habitat, including EFH.

In addition, under the Fish and Wildlife Coordination Act (Section 662), “whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose whatever, including navigation and drainage, by any department or agency of the U.S., or by any public or private agency under Federal permit or license, such department or agency first shall consult with the U.S. Fish and Wildlife Service (USFWS), Department of the Interior, and with the head of the agency exercising administration over the wildlife resources of the particular state wherein the” activity is taking place. This Act provides another avenue for review of actions by other Federal and state agencies that may impact resources that NMFS manages in the reasonably foreseeable future.

In addition, NMFS and the USFWS share responsibility for implementing the ESA. ESA requires NMFS to designate "critical habitat" for any species it lists under the ESA (i.e., areas that contain physical or biological features essential to conservation, which may require special management considerations or protection) and to develop and implement recovery plans for threatened and endangered species. The ESA provides another avenue for NMFS to review actions by other entities that may impact endangered and protected resources whose management units are under NMFS’ jurisdiction.

Ongoing Trends

Change in the use of ocean areas. Habitat protection measures (e.g., MPAs) and offshore energy projects (e.g., wind and wave power) could further limit the area open to fisheries.

Changes to coastal economies and land use. Increasing population and rising living standards can increase demand for nonfishery-related economic activities and land use in coastal areas. This may increase costs to fishery participants for shoreside infrastructure such as dock space.

Changing demand affecting real prices. Population growth and rising living standards globally are likely to increase demand for fishery products. This could lead to price increases unless aquaculture increases supply at lower cost than wild-caught fish (and consumers consider the two products substitutable). Higher ex-vessel prices would benefit harvesters while higher wholesale prices (depending on changes in ex-vessel prices) would benefit processors.

Increased consumer awareness affecting purchasing decisions. Certification and consumer awareness programs may affect buying decisions. Consumers may become more aware of or form opinions about how effectively a fishery is managed both in terms of the status of target stocks and the effect of a particular fishery on other resources (e.g., protected species). Consumer awareness may have a marginal effect on demand for specific products (based on source) over the long-term.

Changes to stock productivity due to climate forcing or other environmental factors. Stock productivity determines whether a given level of fishing mortality allows a stock to remain at or achieve MSY, but is not under human control. Harvest rates in rebuilding plans account for productivity, but this may change over time due to environmental factors. Periodic stock assessments usually indicate a need to change harvest rates based on stock status. Although policy and practice is to prevent overfishing, undetected changes in stock productivity (due to ocean regime, for example), change in understanding or estimates of stock reference points (e.g., unfished biomass), or assessment of previously unassessed stocks could reveal that overfishing has occurred and catch must be reduced to rebuild the stock and maintain it at the target biomass (B_{MSY} or proxy).

Cyclical and ongoing climate change. Cyclical events (e.g., El Niño-Southern Oscillation, Pacific Decadal Oscillation) and long-term climate change affect the relative productivity of different marine organisms with attendant ecosystem effects. As discussed above, such changes can also affect the allowable level of catch under harvest specifications; it can also influence the relative impact of fisheries on protected species and other ecosystem components (because a less productive stock will be relatively more adversely affected by a given level of fishery take, for example).

4.3.2 Evaluation of the Cumulative Impacts of the Proposed Action

It is not possible to determine if the external actions and ongoing trends described above would differentially affect the alternatives evaluated in this EIS. While the resulting cumulative impact could be greater in intensity and scope, it is likely that any resulting increase in impacts would correlate with the differences between the alternatives with respect to direct and indirect impacts disclosed and evaluated in sections 2.1 and 2.2. Furthermore, some types of impacts which could be reasonably classified as cumulative cannot be separated from the discussion of direct and indirect impacts. The best example of this situation is the rebuilding of overfished species. Short-term measures in 2013-14 (ACLs, management measures) are tied to long-term policy objectives (the target year). To a greater or lesser degree this is the case when managing any renewable resource where measures are tied to long-term objectives (yield, population status, system structure). For this reason, the cumulative effects analysis below describes how the external actions and trends enumerated above interact with the environmental components evaluated in this EIS. Then, in section 4.4, the alternatives are evaluated with respect to combined direct, indirect, and cumulative effects. of s which Intro – why cannot discern CumFX, co-vary w/ direct and indirect. The cumulative effects of the alternatives are detailed.

4.3.2.1 Biological Resources

Groundfish Species

A key policy objective of the Groundfish FMP (and the MSA) is to achieve optimum yield, which the FMP describes as "a decisional mechanism for resolving the Magnuson-Stevens Act's multiple purposes and policies, implementing an FMP's objectives and balancing the various interests that comprise the national welfare" (section 4.1). Harvest specifications and management measures are an integrated mechanism for constraining fishing mortality as necessary to achieve optimum yield over the long-term. ACLs and related management measures in a given biennial period are relevant in terms of their effect on stock status over longer time periods. Achieving optimum yield involves monitoring stock characteristics (fishing mortality, recruitment, etc.) and formally assessing stocks where the data are available. The management framework is adaptive such that the receipt of new information informs decisions about setting harvest limits in future years through each biennial harvest specifications cycle.

Stock rebuilding (whether through an overfished species rebuilding plan or appropriate harvest rates for stocks below B_{MSY}) must account for or adjust to cumulative effects since fishing mortality and stock productivity over time periods longer than the current biennial management cycle affect stock size. Overfished species ACLs for the current management period are evaluated in the context of a long-term strategy based on a target rebuilding year objective. Consistent with the adopted strategy (i.e., an SPR harvest rate) and objective (target year), proposed overfished species ACLs are explicitly related to past harvest specifications (and resulting fishing mortality) and future harvest specifications (and assumed fishing mortality), representing the cumulative effects of all these actions. In principal, this process accounts for all fishing mortality (not just that from directed groundfish fisheries). However, broad environmental trends also affect stock status in combination with fishing mortality. In practice, the current state of science is not sufficiently advanced to formally integrate trends such as the effect of climate forcing on stock productivity into formal stock assessments, except in limited cases. From a stock assessment perspective natural mortality accounts for all of these effects (in other words, all sources of mortality other than fishing) but is not estimated by explicitly accounting for these sources of mortality. Rather, it is usually indirectly estimated from estimates of the age structure of the population and age-specific fishing mortality.

The MSA requires councils to "specify a time period for rebuilding" (sec. 304(e)(4)(A)); this mandate is translated into the identification of a target year (T_{TARGET}) and associated fishing mortality rate (constant SPR harvest rate) estimated to result in the stock biomass reaching the target biomass in that year. Periodically, new information from stock assessments indicates that the current harvest rate policy will not meet the target year objective, in which case it must be changed. This is an ongoing process implemented through successive management cycles. For that reason the principal concern, and impact on the stock, is the cumulative effect of harvest limits (and associated fishing mortality) over the entire rebuilding period, and whether the stock will be rebuilt by T_{TARGET}.

The 2011-12 Groundfish Harvest Specifications FEIS describes the risk of altering the genetic structure of local groundfish populations due to local depletion from fishing or the age-specific selectivity of fisheries. Changing population genetic structure is the result of the cumulative application of harvest limits and the resulting fishing mortality. This is primarily a concern for depleted stocks, if changes in genetic structure alter productivity or overall fitness. There is no new information to determine how the alternatives evaluated for the 2013-14 management period would contribute to this cumulative effect. The information presented in the 2011-12 Harvest Specifications FEIS is incorporated by reference and described here. That analysis reached the following conclusions on the genetic structure effects on overfished stocks:

- Bocaccio south of 40°10 N latitude: There is little evidence for geographic differences in the genetic structure of this population and fishing patterns are unlikely to affect overall population genetic structure.
- Canary rockfish: There is no evidence of geographic difference in the genetic structure of this population and fishing patterns are unlikely to affect overall population genetic structure.
- Cowcod south of 40°10 N latitude: A recent study suggested some separation of the population at Point Conception, California, but there is insufficient information to confirm genetic differences at the population level.
- Darkblotched rockfish: There is no information on geographic differences in the genetic structure of the population.
- Petrale sole: Larvae of this species are well dispersed by currents and it is unlikely that fishing patterns would affect the genetic structure of the population.
- Pacific ocean perch: There is no information on the genetic structure of this stock.
- Widow rockfish (now rebuilt to target biomass): There is no information on the genetic structure of this stock.
- Yelloweye rockfish: There are some data suggesting that the population in Puget Sound, Washington, is genetically different from the population in the PFMC management area.

The 2011-12 Groundfish Harvest Specifications FEIS evaluates the effect of fishing on predator-prey relationships for overfished species. The effect of the proposed action on predator-prey relationships results from cumulative application of harvest specifications and management measures more than one management cycle. No new information is available to determine how the range of alternatives for the 2013-14 management cycle would affect predator-prey relationships. The information in the 2011-12 Groundfish Harvest Specifications FEIS is incorporated by reference and briefly summarized here.

- Bocaccio south of 40°10 N latitude: Juvenile and adult bocaccio are eaten by a variety of other fish species.
- Canary rockfish: Canary rockfish are eaten by lingcod, whose population has been increasing.
- Cowcod south of 40°10 N latitude: Because cowcod are rare they are unlikely to be an important prey species. The effect of the proposed action on cowcod as prey is unknown.
- Darkblotched rockfish: Pelagic young darkblotched rockfish are known to be prey for Chinook salmon and albacore. There is no evidence that darkblotched rockfish are a uniquely important prey item.
- Petrale sole: Eggs and larvae are eaten by planktivorous invertebrates and pelagic fishes. Juveniles are preyed upon by adult Petrale and other flatfish. Adults are prey for a variety of fishes and demersally feeding marine mammals.
- Pacific ocean perch: Pelagic juveniles are eaten by salmon and benthic juveniles are eaten by lingcod and other large demersal fish. Adults are eaten by sablefish, Pacific halibut, Pacific cod, and arrowtooth flounder.
- Widow rockfish (now rebuilt to target biomass): No information.
- Yelloweye rockfish: Yelloweye rockfish eaten by lingcod, whose population has been increasing.

Section 4.1.1.5 in the 2011-12 Harvest Specifications FEIS presents information on the role of juvenile rockfish as prey for seabirds. It concludes that fishery removals have a limited effect on prey availability compared to environmental factors.

The 2011-12 Groundfish Harvest Specifications FEIS concludes that fishing mortality, considering the range of ACLs considered, is unlikely to affect the availability of these species as prey in the short term. Since 2013-14 ACLs under consideration are similar the same conclusion is reasonable for the effects of the proposed action. Over the long-term these populations will increase under the Groundfish FMP's optimum yield management framework, which should increase their availability as prey. There is not enough information to determine the effect of changes in food availability on these species' fitness.

Nongroundfish Species

Groundfish fisheries catch various nongroundfish species, for the most part in small amounts compared to groundfish management unit species. Generally, the same management objectives apply as described above for groundfish and cumulative effects to nongroundfish stocks result from the combined and ongoing effect of all sources of fishing mortality along with environmental influences such as the effects of climate forcing on stock productivity. However, since those species that are not groundfish management unit species are not directly managed under the Groundfish FMP, different authorities are applied to address stock conservation objectives.

Pacific halibut receives the most attention as a nongroundfish species caught incidentally in groundfish fisheries because of their importance to commercial and recreational fisheries that target them. Pacific halibut are managed by the IPHC and the west coast is part of management area 2A. The IPHC periodically sets a catch limit (called a TAC) for the management area, consistent with management objectives. A catch sharing plan allocates harvest opportunity among target fisheries while accounting for bycatch in other fisheries, where retention is prohibited. Bycatch in the shoreside IFQ fishery is constrained by IBQ, which is similar to IFQ except that it is credited against bycatch mortality. Retention is generally prohibited in commercial groundfish fixed gear fisheries, except in limited circumstances. The catch sharing plan accounts for this bycatch mortality with respect to directed fishery allocations.

Incidental harvest of Pacific halibut in groundfish fisheries is accounted for under the IPHC's CEY policy framework.

Marine Ecosystem including EFH

The California Current Large Marine Ecosystem may be described in terms of the web of trophic relationships and environmental influences on system conditions. As described above, the 2011-12 groundfish harvest specifications FEIS {PFMC, 2011 #285} summarized information on predator-prey relationships and concluded that fishery removals have insignificant effects. Fishing gear can adversely affect EFH and periodic harvest specifications, management measures, and related regulations authorize fishing for groundfish, contributing to any long-term effects the result from the adverse impacts of fishing gear. The EIS for groundfish FMP Amendment 19 evaluated adverse impacts to EFH resulting from fishing and the amendment implemented a variety of mitigation measures. Past harvest specifications EISs [cite] have evaluated the effects of fishing on EFH. The Council is currently conducting a 5-year review of the current EFH designation and mitigation measures implemented through Amendment 19. Through this process the Council may propose new or different measures in response to any new scientific information identified through this review process.

Currently, no models have been developed to forecast the long-term effect of particular harvest management policies on EFH. Very generally, the effects are expected to correlate with the intensity and distribution of fishing by gear type. Trawl gear is likely to adversely affect EFH more than fixed gear. However, both mitigation measures implemented through Amendment 19 (gear restriction and gear-specific closed areas) are intended to address the adverse impact from trawl gear. In addition, although their objective is not to mitigate habitat impacts, trawl RCAs likely have some ancillary mitigation effect, because they close areas to fishing. Although the extent of the RCAs has varied by year and bimonthly period within years, there is a core area that has been continuously closed since their implementation in 2003 (generally between xx and xx fm).

Protected Species

The Biological Opinion referenced above {NMFS, 2012 #293} discusses cumulative effects to ESA-listed species as consequence of operation of the fishery in 2012. Although the operation of the fishery in 2013-14, as regulated by the proposed action, may result in cumulative effects that are different in scope and intensity, there is not information to determine what these differences may be. For that reason the cumulative effects analysis in the 2012 Biological Opinion is incorporated by reference and summarized here.[1] Many of the cumulative impacts are related to, or represent the ongoing effects of, activities described in the biological opinion environmental baseline. The environmental baseline describes Federally authorized activities affecting listed species as well as non-Federal activities. Contributors to cumulative impacts are:

- Bycatch in fishing gear (eulachon, green sturgeon)
- Entrapment and entanglement in fishing gear (humpback whale, stellar sea lion, leatherback sea turtle)
- Ship collisions (humpback whale)
- Acoustic disturbance (humpback whale)
- Prey availability due to fisheries harvest (humpback whale)
- Subsistence harvest (stellar sea lion)
- Ingestion of marine debris (leatherback sea turtle)
- Marine pollution
- Adverse effects to designated critical habitat of listed species

ESA-listed seabirds are also known to be hooked or entangled in fishing gear. The effect of the groundfish fishery on these species is the subject of a pending consultation between NMFS and USFWS.

Marine mammals not listed under the ESA are protected under the MMPA. [evaluate against potential biological removal (PBR) estimated]

4.3.2.2 Socioeconomic Components

Fishery Sectors

Generally, for harvesters a variety of external factors affect costs and revenues, which determine financial profits. The discussion of cumulative impacts in the 2011-12 Groundfish Harvest Specifications FEIS describes factors affecting costs and revenues. On the revenue side, harvest opportunity and real prices determine overall revenues. Ex-vessel prices for many target species have been increasing recently (see

[1] Note, however, that cumulative effects are defined somewhat differently under the ESA than under NEPA as described in the biological opinion "'Cumulative effects' are those effects of future state or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation (50 CFR 402.02). Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. For purposes of this analysis, the action area includes all marine waters of the U.S. west coast EEZ.

Figure 3-x). Costs for many inputs, especially fuel, have also increased over time (see Figure 3-x). These general trends in prices have not changed significantly since the previous EIS was prepared.

The implementation of catch share management in the groundfish trawl sectors is an important external action that has been discussed extensively in previous EISs. IFQ management in the shoreside fishery may allow greater flexibility to time fishing activities based on revenue opportunities. (For example, the Dungeness crab fishery is the largest West coast fishery by revenue and is fairly seasonal. Operators could stage participation in the IFQ fishery around opportunities to participate in the crab fishery.) IFQ management is also expected to favor more efficient operators (because they can use excess profits to purchase quota pounds or quota shares) resulting in fewer participants in this sector. Individual accountability encourages harvesters to avoid overfished species, whose low ACLs have traditionally constrained overall harvest opportunity. As a result, target species allocations are more likely to be fully attained (depending on market demand) and as a result may become the primary constraints on overall fishing opportunity. For example, in 2011 under IFQ management, 93 percent of the allocation for sablefish, which accounts for about half of total groundfish ex-vessel revenue, was harvested while the average attainment rate for overfished species other than peterale sole (which is a target species) was 22 percent.

The discussion of cumulative impacts in the 2011-12 Groundfish Harvest Specifications FEIS reviews historical revenue trends in groundfish fisheries. Generally, total revenue (adjusted for inflation) declined substantially when comparing the years after 1997 to previous years, mainly due to regulatory constraints imposed to rebuild overfished stocks. However, total groundfish ex-vessel revenue has increased modestly from a low point of \$50.6 million in 2002 to \$67.5 million in 2010.

The states of California and Oregon are currently designating MPAs in state waters. This may have a moderate impact on access to fishing grounds for nearshore fisheries.

Communities

The historical revenue trends described in the 2011-12 Groundfish Harvest Specifications FEIS have affected coastal economies along with trends in other economic sectors and the economy at large. At the national level the financial crisis beginning in 2008 has had a pervasive impact on income and employment. Rural counties, such those on the Washington Coast, Southern Oregon, and Northern California may be relatively more affected by local economic trends. Some coastal economies, particularly in Southern Oregon, have been adversely affected economically by the long-term decline in timber harvests. However, the natural amenities in coastal area attract tourists and retirees, who generate revenue for various—primarily service—economic sectors.

4.4 Summary of the Direct, Indirect, and Cumulative Impacts of the Alternatives

4.4.1 Methods Used to Summarize Impacts

Where differential impacts across the alternatives can be discerned they are discussed in section 4.4.2. For some environmental components it is not possible to tell how they would be affected differently across the alternatives, because there is insufficient information to project these types of effects, the differences among the alternatives are not great enough to produce contrasting effects, or the effects are not of sufficient magnitude to identify them. Section 4.4.3 discusses these effects. In these cases, effects that occurred during the baseline period have been described in Chapter 3 and the likelihood of similar effects under the proposed action evaluated in Chapter 4. This information is summarized here.

Methods used to summarize the effects of the alternatives on groundfish, groundfish fisheries, and fishing communities are described below.

4.4.1.1 Groundfish

Are the ACLs consistent with the Groundfish FMP's optimum yield harvest management policies including being based on the best available science? If not, does the ACL exceed the value determined using the best available science? For overfished species is the target year consistent with MSA §304(e)(4)?

One way to evaluate the target year proposed for a rebuilding plan is reflected in Table 4-26. (Since only the rebuilding plan target years for canary rockfish and POP are proposed for change under the alternatives, only these two species are evaluated.) The table shows how many years beyond $T_{F=0}$ (zero harvest) the target year is for each overfished species and, for comparison, what this represents as a percentage of the time (or the number of years) between $T_{F=0}$ and T_{MAX}. A smaller value can be equated to "faster" rebuilding and used to consider the tradeoff established in MSA §304(e)(4) between rebuilding in a time "as short as possible" while, among other things, taking into account the "needs of fishing communities."

Another way to compare the alternatives in terms of overfished species rebuilding is to look at how they rank in terms of the amount of the period between $T_{F=0}$ and T_{MAX} the target years represent across overfished species. Table 4-26 presents this information. (Since only the target years for canary rockfish and POP vary among the alternatives, it is only these species that are subject to comparative evaluation.) This approach should be treated with caution, however, because different overfished species have different tradeoffs between short-term benefits (the size of the ACL) and any conservation benefits realized by rebuilding the stock sooner. This is illustrated in Figure 4-1, which plots the ACLs against the corresponding number of years the target year (or median time to rebuild) is beyond $T_{F=0}$ (note the ACL values are in reverse order) for canary rockfish and POP. The information for this plot comes from Table 2-7. It can be seen that the slope of the line for canary is generally shallower than that for POP, indicating that comparatively larger increases in the ACL can be made relative to the tradeoff in lengthening the rebuilding time. This can also be expressed more generally by dividing the ACL at T_{MAX} (which represents the total increase in the ACL from zero harvest at $T_{F=0}$) by the number of years between $T_{F=0}$ and T_{MAX}. This provides a rough accounting of these tradeoffs for the two species in question: for canary it amounts to 34 mt per year while for POP it is 12 mt per year (recognizing that the relationship between the target year and the corresponding ACL is nonlinear as shown in Figure 4-1).

4.4.1.2 Nongroundfish

Impacts to nongroundfish are negligible but it is not possible to distinguish among the alternatives in terms of differential effects. Impacts are likely to similar to those that have occurred during past management cycles.

The effects of the proposed action on nongroundfish fish species are negligible, because fishing mortality is modest and for many species accounted for through other Federal and state management programs. As a result, if fishing mortality in groundfish fisheries increased to a level to trigger a conservation concern management measures would be implemented through these programs. Nongroundfish catches are not projected in current models so it is not possible to distinguish among the alternatives in terms of differential effects. Impacts are likely to similar to those that have occurred during past management cycles.

4.4.1.3 Marine Ecosystem including Essential Fish Habitat

As noted previously, currently there are no methods to project the distribution of fishing effort as affected authorized under past, present and reasonably foreseeable future harvest specifications, or the intensity of resulting impacts to EFH. Past EISs {PFMC, 2004 #171;PFMC, 2006 #284;PFMC, 2008 #7;PFMC, 2011 #285;PFMC, 2010 #177} have evaluated impacts by describing the distribution of different habitat types and using catch as a proxy for the distribution of fishing effort.

Ecosystem impacts may correlate with changes in the size and structure of fish populations due to fishing authorized under past, present and reasonably foreseeable future harvest specifications, which could affect trophic relationships. Environmental forcing (cyclical and long-term climate change) has a much greater effect on ecosystem structure. As summarized in section 4.3.2.1, the FEIS for the 2011-12 harvest specifications {PFMC, 2011 #285} concluded that the effects of fishing authorized under the proposed action are insignificant.

4.4.1.4 Protected Species

Correlated with catch There is not enough information to discern the differential effects of the alternatives on these environmental components. These impacts are discussed in section 4.4.3.

4.4.1.5 Groundfish Fisheries and Fishing Communities

What is the relative magnitude of the change in ex-vessel revenue and net revenues from No Action? How are impacts distributed across fishery sectors?

What is the relative magnitude of the change in personal income and employment from No Action? Are certain communities disproportionately affected? What is the effect on communities that are especially vulnerable to adverse socioeconomic impacts?

Potentially disproportionate impacts to community groups are considered by identifying cases where the percent change in combined commercial and recreational income impacts from No Action (taken from Table 4-12) is greater than one standard deviation below the mean (adverse impact) or one standard deviation above the mean (a relatively beneficial impact). By using percent change, the relative magnitude—rather than the actual magnitude in dollars—of the change in income impacts is considered. Put another way, a community group historically receiving a comparatively may small amount of income from groundfish fishing could show a relatively large impact in terms of the change from No Action.

The results show that the proportional fall in income is more than one standard deviation below the mean for the Puget Sound community group under all the alternatives and Astoria-Tillamook under Alternative 4 (this evaluation just looks at the “A” suboption under each alternative). Using this metric, under all the action alternatives Puget Sound is disproportionately adversely affected, with declines in income from No Action ($2.4 million in personal income from groundfish annually) between 21 and 26 percent. Under Alternative 4 Astoria-Tillamook is also disproportionately adversely affected, with the decline from No Action ($28.9 million) of 21 percent. Under all the action alternatives Santa Barbara-Los Angeles-San Diego shows a relatively large beneficial impact with essentially no change from No Action (under which $52.2 million in groundfish personal income annually is estimated). Santa Cruz-Monterey-Morro Bay shows a gain in personal income from No Action ($14.0 million) under all the alternatives except Alternative 4, which would result in a decline in personal income for this community.

Table 4-28 shows the primary fishery in each community group (with a plus "+" sign indicating that the primary fishery accounts for more than 50 percent of total groundfish ex-vessel revenue in the port during the baseline period); and several socioeconomic indicators: social vulnerability (SoVI® score, see section 3.3.2.1), vulnerability as assessed in previous harvest specifications EISs, groundfish dependence, and groundfish engagement. For these indicators, community groups were ranked by score and the three highest ranking were assigned a "+" plus value, the bottom 3 rankings a "-" value, and the remainder a "0" value.[2]

Table 4-29 shows the ranking of each action alternative with respect to the change in personal income from No Action. (The ranking function skips the next number rank in the case of ties so, for example, if two values rank 1, the next assigned rank is 3.) The alternatives were ranked for each community group (i.e., across the row).

Astoria-Tillamook, Newport, and Crescent City-Eureka ranked high for social vulnerability, and Newport and Crescent City Eureka ranked high for vulnerability to groundfish fisheries regulation. Coos Bay-Brookings and Fort Bragg-Bodega Bay are ranked high for vulnerability to fisheries regulations but not for their SoVI scores. Adverse impacts to these community groups, especially if they are disproportionate, receive special attention in the evaluation.

4.4.2 Summary by Alternative

4.4.2.1 No Action

Groundfish Species

With respect to biological impacts, the ACL represents a limit on total fishing mortality for each stock and is determined based on the optimum yield harvest management framework described in Chapter 4 of the Groundfish FMP {PFMC, 2011 #282}. Under No Action the ACLs applied in 2012 would be carried over for 2013-14. In many cases these ACLs would not reflect the application of the best available science as represented by projections from stock assessments completed since the 2012 specifications were set or a new projection based on the most recent stock assessment information available.

For all overfished species except canary rockfish and POP the ACLs are estimated to rebuild the stock by the target year established in the rebuilding plan. New stock assessments and rebuilding analyses for canary and POP resulted in revised rebuilding schedules that show the current target years are not likely to be achieved even with zero mortality (a 48% probability for canary and 25% probability for POP). However, the No Action ACL for canary, 107 mt, is intermediate between the Alternative 1 2013 ACL (116 mt) and the Alternative 2 2013 ACL (101 mt) so applying the No Action ACL in 2013 is estimated to rebuild the stock by about the same target year as under those two alternatives (2029 or 2030). The No Action ACL for POP is 183 mt, which would correspond to a rebuilding plan objective of rebuilding the stock by 2054, or 3 years later than the target year associated with the Alternative 1 ACL.

[2] Since the social vulnerability scores are at the county level (see section 3.3.2.1) they were averaged for the community groupings created for the evaluation. Both unweighted and weighted averages were examined, using weightings by county population and the number of counties in a community group. These weights did not substantially affect the rankings and weighting by the number of counties was used for this assessment. Community vulnerability to adverse impacts of groundfish regulations were evaluated in the 2005-06 and 2011-12 EISs. Each time a county was rated vulnerable it was assigned 1 point and if rated most vulnerable 1.5 points. These scores were summed for the counties and the average score was determined for each community group. These scores were then ranked to arrive at the ratings in the table.

Under No Action the fraction of the $T_{F=0}$–T_{MAX} rebuilding period taken up by the target year across all seven overfished species ranges from zero (there is no discernible difference in the time to rebuild between no harvest and the proposed ACL) to 55 percent for yelloweye rockfish, reflecting the very low productivity of that stock (see Table 4-26). Note that for this comparison the No Action target years for canary and POP are derived by finding the median year from the most recent rebuilding analysis that most closely corresponds to the 2012 ACL.) The target year for canary is the same as Alternatives 2 and 6, 1 year sooner than Alternatives 1, 3, and 7; 3 years sooner than Alternative 5, and 1 year later than Alternative 4. The No Action target year for POP is 6 years sooner than Alternative 4, 3 years sooner than Alternatives 6 and 7, and 8 years later than Alternatives 3 and 5, and 3 years later than Alternatives 1 and 2. (see Table 4-26.)

It is also noteworthy to point out that new scientific information indicates that bocaccio, darkblotched rockfish, petrale sole, and yelloweye rockfish will reach the target rebuilt biomass earlier than the current target years in their rebuilding plans. However, as outlined in section 4.6.3.4 of the Groundfish FMP ({PFMC, 2011 #282} this does not require a change in the rebuilding plan to that earlier year, it just means there is a greater likelihood that rebuilding will occur by the established target year.

Ranking the alternatives by the fractional amount of the $T_{F=0}$–T_{MAX} rebuilding period used for these two species (as discussed above), the No Action Alternative ranks fifth, ahead of Alternative 6 and 7.

For non-overfished groundfish one can ask whether a No Action (2012) ACL is higher or lower than the corresponding ACL determined using the best available science, and proposed under the action alternatives. From a biological standpoint if the 2012 ACL is equal to or lower than the action alternative ACL then it would not impair the MSY management objective. However, it might not be consistent with the optimum yield harvest policy, which takes into account socioeconomic objectives. If the No Action ACL is higher than the action alternative ACL then it is inconsistent with these objectives. There are 15 No Action ACLs greater than the corresponding action alternative ACLs (see Table 2-XX).

Non-groundfish Species

Impacts to nongroundfish from the proposed action (combined with past and future fishing mortality in the groundfish fishery and other fisheries) are negligible but it is not possible to distinguish among the alternatives in terms of differential effects. Impacts are likely to similar to those that have occurred during past management cycles.

Marine Ecosystem

Protected Species

Groundfish Fisheries

No Action shows the largest gain in ex-vessel revenue from the 2005-10 baseline baseline among all the alternatives, a 39 percent increase. The shoreside non-nearshore open access fishery shows the largest proportional gain at 115 percent above the baseline, about $3.9 million in dollar terms. Shoreside whiting shows the largest dollar gain at $11.9 million (+110%). Shoreside non-whiting trawl is projected to decline by $2.6 million (-3%). Differences among the alternatives in estimated ex-vessel revenue earned by the shoreside whiting sector are due to the effects of variation in POP and canary rockfish ACLs, which are bycatch species that limit attainment of the whiting allocation.

Note however that revenue projections for the non-whiting trawl fishery are likely to be somewhat lower than actual achievement due to incomplete data and preliminary nature of the model being used. The accelerated schedule of this EIS process meant that the model necessarily had to rely on incomplete catch data for 2011. Also since 2011 was only the first year of operation under transferrable individual fishing quotas, only an incomplete and very limited picture of the scope for trading of quota pounds between fishery participants was incorporated into the model. For these reasons it is very likely that the model will underestimate actual catch levels of many of the individual quota species during the 2012 (No Action) and 2013-14 fisheries.

Fishing Communities

Because baseline period estimates of personal income are not available, for this metric No Action can only be compared with the action alternatives. No Action is projected to result in personal income and employment gains in most communities compared to the action alternatives. Only the Santa Cruz-Monterey-Morro Bay and Santa Barbara-Los Angeles-San Diego community groups show income gains under the action alternatives compared to No Action. Likewise, only these two community groups show employment gains under the action alternatives compared to No Action. However, these gains are tiny at this geographic scale, affecting the regions’ unemployment rates by less than one-one thousandth of a percent.

Section 4.2 also presents a comparison of the change in groundfish ex-vessel revenue under each alternative from the 2005-10 baseline period by community group, which is another way to comparatively evaluate the No Action estimates. Puget Sound shows a 54 percent decline, Crescent City-Eureka shows a 7 percent decline, and the San Francisco Area shows a 1 percent decline; all other community groups show revenue gains from the baseline. As shown in Table 4-28 of the community groups showing revenue declines, Crescent City-Eureka exhibits several indicators that it is vulnerable to the adverse socioeconomic impacts of the proposed action.

4.4.2.2 Alternative 1

Groundfish Species

Except for canary rockfish and POP, the Alternative 1 rebuilding plan objectives for overfished species are the same as No Action. ACLs for bocaccio, darkblotched, petrale sole, and yelloweye rockfish differ from No Action but using the best available science it is estimated they would rebuild by, or earlier than, the rebuilding plan target year. The canary rockfish target year under Alternative 1 is 2 years beyond $T_{F=0}$, a little less than a tenth of the total $T_{F=0}$–T_{MAX} rebuilding period (see Table 4-26). This target year is earlier than Alternative 5, equal to Alternative 7 and 1 year longer than the target year for No Action, and Alternatives 2, 4, and 6. The target year for POP is 8 years greater than $T_{F=0}$, about a third of the permissible rebuilding time. This target year is less than the target year under No Action, and Alternatives 4, 6, and 7. The target year for canary accounts for 9 percent of the permissible rebuilding time and for POP 29 percent.

Using the approach discussed above of ranking alternatives by the fractional use of $T_{F=0}$–T_{MAX} rebuilding period for canary and POP Alternative 1 ranks fourth, ahead of No Action, and Alternatives 6 and 7.

The Alternative 1 ACLs for non-overfished groundfish are consistent with the Groundfish FMP’s optimum yield harvest management policies, using the best available science to compute them.

Non-groundfish Species

Impacts to nongroundfish from the proposed action (combined with past and future fishing mortality in the groundfish fishery and other fisheries) are negligible but it is not possible to distinguish among the alternatives in terms of differential effects. Impacts are likely to similar to those that have occurred during past management cycles.

Marine Ecosystem

Protected Species

Groundfish Fisheries

Compared to No Action Alternative 1 shows a 10 percent decline in coastwide ex-vessel revenue (between -$9.0 million and -$9.2 million). This is primarily due to the decline in the sablefish ACLs, which under No Action sum to 6,813 mt versus 5,451 mt under the action alternatives (a 20 percent decline in the ACL). (During the baseline period sablefish accounted for about half of coastwide groundfish ex-vessel revenue.) It should be noted that ex-vessel revenue projections are based on inflation adjusted actual 2010 prices. PacFIN data show that the average price per pound for sablefish increased from $2.38 in 2010 to $3.18 in 2011, a 34 percent increase.[3] If this price trend holds up in 2013-14 it could compensate for the decline in landings and ex-vessel revenue projections may therefore be low. Sablefish prices are largely determined by external factors, such as export demand. The March 2011 tsunami in Japan, which destroyed much of the fisheries infrastructure in the northern part of the country, may have increased demand for imports. To the degree that this influenced demand, and Japan is able to restore their fisheries, this may put downward pressure on future prices.

The limited entry fixed gear sector shows both the largest relative and absolute decline in revenues from No Action, at -20 percent or -$3.8 million. The non-nearshore open access fishery follows in terms of relative change, at -19 percent but this represents only -$1.4 million, because of the smaller size of this fishery, 5 percent of coastwide landings during the baseline period according to Table 4-x(3). The only sector showing a gain is the nearshore open access sector, between 13 and 17 percent or $539 thousand to $733 thousand.

Declines in accounting net revenue are estimated to be relatively greater under Alternative 1 compared to No Action. Coastwide, this change is 14-15 percent.

Fishing Communities

Puget Sound is disproportionately adversely affected under Alternative 1. All communities show declines in personal income from No Action except Santa Cruz-Monterey-Morro Bay and Santa Barbara-Los Angeles-San Diego. As shown in Table 4-28 Puget Sound has a relatively high concentration in the limited entry fixed gear sector (based on its Gini coefficient, see section 3.3).

[3] PacFIN accessed Feb. 4, 2012. The 2011 data should be considered provisional because of the time lag in state data feeds to the PacFIN system.

4.4.2.3 Alternative 2

Groundfish Species

Under Alternative 2 canary rockfish is projected to rebuild by the same target year as under No Action and Alternative 6, 1 year sooner than Alternatives 1, 3, and 7, and 3 years sooner than Alternative 5 (see Table 4-26). POP is projected to rebuild by the same target year as Alternative 1, later than Alternative 3 and 5 (by 5 years), and sooner than Alternative 4 (by 9 years), and Alternatives 6 and 7 (6 years). The target year for canary accounts for 5 percent of the $T_{F=0}$–T_{MAX} rebuilding period.

Using the approach discussed under No Action of ranking alternatives by the fractional use of $T_{F=0}$–T_{MAX} rebuilding period for canary and POP Alternative 2 ranks third, ahead of No Action, and Alternatives 1, 6, and 7.

ACLs for nonoverfished groundfish are the same under all the action alternatives. These effects have been described under Alternative 1.

Non-groundfish Species

Impacts to nongroundfish from the proposed action (combined with past and future fishing mortality in the groundfish fishery and other fisheries) are negligible but it is not possible to distinguish among the alternatives in terms of differential effects. Impacts are likely to similar to those that have occurred during past management cycles.

Marine Ecosystem

Protected Species

Groundfish Fisheries and Fishing Communities

The socioeconomic impacts of Alternative 2 are same as those under Alternative 1.

4.4.2.4 Alternative 3

Groundfish Species

Under Alternative 3 canary rockfish is projected to rebuild by the same target year as under Alternatives 1 and 7, 2 years sooner than under Alternative 5, 1 year later than No Action, Alternatives 2 and 6, and 2 years later than Alternative 4 (see Table 4-26). The target year for POP accounts for 11 percent of the $T_{F=0}$–T_{MAX} rebuilding period.

Using the approach discussed above of ranking alternatives by the fractional use of $T_{F=0}$–T_{MAX} rebuilding period for canary and POP Alternative 3 ranks first.

ACLs for nonoverfished groundfish are the same under all the action alternatives. These effects have been described under Alternative 1.

Non-groundfish Species

Impacts to nongroundfish from the proposed action (combined with past and future fishing mortality in the groundfish fishery and other fisheries) are negligible but it is not possible to distinguish among the alternatives in terms of differential effects. Impacts are likely to similar to those that have occurred during past management cycles.

Marine Ecosystem

Protected Species

Groundfish Fisheries

Alternative 3 shows a 15 percent decline in groundfish ex-vessel revenues compared to No Action. Nonwhiting trawl shows the largest decline, -$6.3 million or 23 percent. As shown in Table 4-27, Alternative 3 ranks has greater adverse impacts to the IFQ sector (or shoreside trawl) than Alternatives 1, 2, 6, and 7 (and ranks behind these alternatives overall in terms of projected groundfish ex-vessel revenue). Projected groundfish ex-vessel revenue does not vary across the action alternatives for limited entry fixed gear, non-nearshore open access, incidental open access, and tribal groundfish. The nearshore open access sector, evaluated under two management scenarios (A and B suboptions) shows the same gain in ex-vessel revenue as under Alternative 1 and 2, $539 thousand to $733,000, or 13-17 percent.

Fishing Communities

Puget Sound is disproportionately adversely affected under Alternative 3. All communities show declines in personal income from No Action except Santa Cruz-Monterey-Morro Bay and Santa Barbara-Los Angeles-San Diego. Alternative 3 is projected to have greater adverse impacts to personal income, compared to No Action, than Alternatives 1, 2, 6, and 7.

4.4.2.5 Alternative 4

Groundfish Species

Under Alternative 4 the target year is the same as $T_{F=0}$ (or zero percent of the $T_{F=0}$–T_{MAX} rebuilding period), although the ACL is 48 mt in 2013. This is the earliest target year among the alternatives by between 1 and 4 years (see Table 4-26). The target year for POP is the later than all the other alternatives by between 6 and 14 years, or 61 percent of the $T_{F=0}$–T_{MAX} rebuilding period.

Using the approach discussed above of ranking alternatives by the fractional use of $T_{F=0}$–T_{MAX} rebuilding period for canary and POP Alternative 4 ranks last, but as discussed above, this is strongly influenced by the relationship between target year and ACLs in the short term. The increase in the ACL resulting from a later rebuilding time is smaller for POP compared to canary rockfish (see Figure 4-1).

ACLs for nonoverfished groundfish are the same under all the action alternatives. These effects have been described under Alternative 1.

Non-groundfish Species

Impacts to nongroundfish from the proposed action (combined with past and future fishing mortality in the groundfish fishery and other fisheries) are negligible but it is not possible to distinguish among the alternatives in terms of differential effects. Impacts are likely to similar to those that have occurred during past management cycles.

Marine Ecosystem

Protected Species

Groundfish Fisheries

Under Alternative 4 coastwide groundfish ex-vessel revenue is expected to decline by 16-17 percent, the largest decline under all the alternatives. This reflects the influence of the low ACL for canary rockfish, which to date has been unavoidably caught across a range of fisheries. Nonwhiting trawl shows a smaller decline than under Alternative 3, because of the higher ACL for POP under Alternative 4. Under Alternative 4 whiting trawl and nearshore open access show the largest projected declines in ex-vessel revenue from No Action among all the alternatives. Nearshore open access under suboption B shows the largest relative decline from No Action—36 percent—of any fishery under any action alternative. Coastwide, Alternative 4 has the largest adverse impacts in terms of the change in ex-vessel revenue from No Action.

Fishing Communities

In addition to Puget Sound, under Alternative 4 Astoria-Tillamook is also disproportionately adversely affected, with a decline from No Action of $28.9 million, or 21 percent. Astoria-Tillamook is identified as a community group that is particularly vulnerable to adverse socioeconomic impacts. Coastwide Alternative 4 has the largest adverse impacts in terms of the change in personal income from No Action. For Crescent City-Eureka adverse impacts are less severe than under Alternatives 3 and 5 (comparing suboption A across the alternatives). Adverse impacts to Fort Bragg-Bodega Bay are the least severe among the action alternatives (see Table 4-29).

4.4.2.6 Alternative 5

Groundfish Species

Under Alternative 5 the target rebuilding year for canary rockfish is 4 years beyond $T_{F=0}$ which is later than under any of the other alternatives; this represents 18 percent of the $T_{F=0}$–T_{MAX} rebuilding period (see Table 4-26). The target year for POP is the same as under Alternative 3.

Using the approach discussed above of ranking alternatives by the fractional use of $T_{F=0}$–T_{MAX} rebuilding period for canary and POP Alternative 5 ranks second, behind Alternative 3. This rating is influenced by the relatively aggressive rebuilding target for POP, which results in a 2013 ACL about half of that under Alternative 1.

ACLs for nonoverfished groundfish are the same under all the action alternatives. These effects have been described under Alternative 1.

Non-groundfish Species

Impacts to nongroundfish from the proposed action (combined with past and future fishing mortality in the groundfish fishery and other fisheries) are negligible but it is not possible to distinguish among the alternatives in terms of differential effects. Impacts are likely to similar to those that have occurred during past management cycles.

Marine Ecosystem

Protected Species

Groundfish Fisheries and Fishing Communities

The socioeconomic impacts of Alternative 5 are same as those under Alternative 3. Only Alternative 4 results in more severe adverse impacts.

4.4.2.7 Alternative 6

Groundfish Species

Alternative 6 has the same canary rockfish target rebuilding year as No Action and Alternative 2; a shorter rebuilding period than Alternatives 1, 3, 5, and 7; and a later rebuilding target year than Alternative 4 (see Table 4-26). Alternative 6 has the second longest rebuilding period for POP among the alternatives (which is the same target year as under Alternative 7).

Using the approach discussed above of ranking alternatives by the fractional use of $T_{F=0}$–T_{MAX} rebuilding period for canary and POP Alternative 6 ranks sixth, ahead of Alternative 7 and Alternative 4.

ACLs for nonoverfished groundfish are the same under all the action alternatives. These effects have been described under Alternative 1.

Non-groundfish Species

Impacts to nongroundfish from the proposed action (combined with past and future fishing mortality in the groundfish fishery and other fisheries) are negligible but it is not possible to distinguish among the alternatives in terms of differential effects. Impacts are likely to similar to those that have occurred during past management cycles.

Marine Ecosystem

Protected Species

Groundfish Fisheries

Alternative 6 has the smallest adverse impact on fishery sectors based on the change in ex-vessel revenue from No Action. Whiting trawl ex-vessel revenue declines from No Action by -$110 thousand (-0.5%) and nonwhiting trawl by -$3.2 million (-12%). These differences in estimated ex-vessel revenue earned by the shoreside whiting sector are due to the effects of variation in POP and canary rockfish ACLs, which are bycatch species that limit attainment of the whiting allocation. Coastwide, the projected change in ex-vessel revenue is -$8.8 million to -$9.0 million, which is comparable to Alternatives 1 and 2 (certainly within the margin of error for these projections).

Fishing Communities

Adverse impacts to personal income and employment under Alternative 6 are very similar to Alternatives 1 and 2. Puget Sound, the Washington Coast, Coos Bay-Brookings, the San Francisco Area, Santa Cruz-Monterey-Morro Bay, and Santa Barbara-Los Angeles-San Diego show the same change in personal income as under Alternatives 1 and 2. Astoria-Tillamook, Newport, and Crescent City-Eureka show smaller declines in personal income compared to No Action (although perhaps within the margin of error for these projections). Fort Bragg-Bodega Bay shows the same decline as Alternatives 1 and 2 under suboption B but slightly larger decline compared to those alternatives under suboption A.

4.4.2.8 Alternative 7

Groundfish Species

The target rebuilding year for canary rockfish is the same as under Alternatives 1, and 3, but this Alternative allows more harvest (a 2013 ACL of 147 mt versus 116 mt), which entails a slightly higher risk of not achieving rebuilding objectives. The target rebuilding year for POP is the same as under Alternative 6.

Using the approach discussed above of ranking alternatives by the fractional use of $T_{F=0}$–T_{MAX} rebuilding period for canary and POP Alternative 7 ranks seventh, ahead of Alternative 4.

ACLs for nonoverfished groundfish are the same under all the action alternatives. These effects have been described under Alternative 1.

Non-groundfish Species

Impacts to nongroundfish from the proposed action (combined with past and future fishing mortality in the groundfish fishery and other fisheries) are negligible but it is not possible to distinguish among the alternatives in terms of differential effects. Impacts are likely to similar to those that have occurred during past management cycles.

Marine Ecosystem

Protected Species

Groundfish Fisheries and Fishing Communities

The socioeconomic impacts of Alternative 7 are same as those under Alternative 6.

4.4.2.9 Differences between Suboptions A and B

These suboptions present two ways of achieving the groundfish management objectives through the application of different management measures to the nearshore fixed gear fishery. Under suboption A, the fishery is managed using the status quo non-trawl RCA configuration and trip limits. Under Suboption B, the nontrawl RCA would be reduced in size but trip limits would then have to be lower so the protected species bycatch does not exceed the open access allocation.

Within any of the action alternatives, the impacts of these two suboptions with respect to stock management objectives do not substantially differ. Both suboptions are consistent with the overall objective of keeping total catch below ACLs. Suboption A implements a larger RCA compared to suboption B, which could affect the spatial distribution of fishing effort. While this may result in different impacts to protected species and habitat, these differential effects cannot be discerned.

Table 4-30 compares the two suboptions by alternative and community group. The table shows the difference in ex-vessel revenue between suboption B and suboption A to highlight these differences. The difference in impact is the same for all of the action alternatives except for Alternative 4. Puget Sound and the Washington Coast are unaffected, because there is effectively no nearshore fishery in the state. In Alternatives 1-3 and 5-7, the different measures under suboption B would only apply to the Oregon Coast; coastwide application of suboption B results in $194 thousand less in ex-vessel revenue compared to suboption A. Coos Bay-Brookings is the most adversely affected under suboption B compared to suboption A, with Under Alternative 4 suboption B management measures would be applied instead in California. Suboption B would produce $833,000 less ex-vessel revenue than suboption A. Santa Cruz-Monterey-Morro Bay would be the most adversely affected community group. As can be seen from the table, which shows average annual nearshore revenue during the 2005-10 baseline period, adverse effects generally correlate with the size of the nearshore fishery in a community group. Taking the ratio between the baseline level of ex-vessel revenue and the difference in revenue between the B and A suboptions under the alternatives allows an assessment of the proportionality of these effects. Under Alternatives 1-3 and 5-7 Newport shows the biggest ratio between historical revenue and the impact of suboption B; the difference between suboption B and suboption A is 38 percent of baseline revenue. Under Alternative 4 this ratio is largest for Santa Cruz-Monterey-Morro Bay at 44 percent.

4.4.3 Impacts not Discerned in the Integrated Alternatives

This EIS discloses and evaluates various impacts of the proposed action where differences cannot be discerned between the integrated alternatives (No Action, Action Alternatives 1-7).

4.4.3.1 Impacts not expected to Differ Substantially across all of the Action Alternatives

Summary of the impacts of new mew management measures

4.4.3.2 Impacts of Measures Evaluated Outside of the Integrated Alternatives

Summary of impacts of the alternative ACLs and allocations for Pacific whiting and widow rockfish

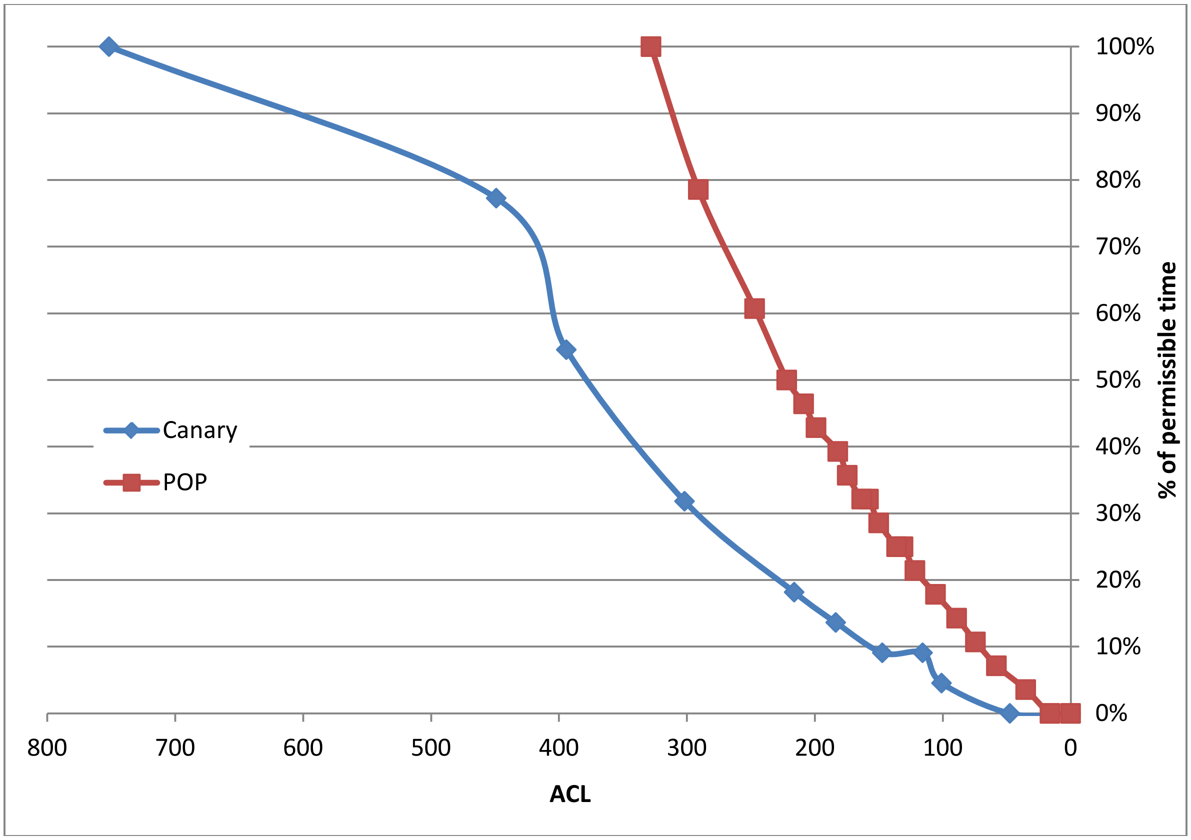


Figure 4-1. Relationship between ACL and target year (as percent of $T_{F=0}$–T_{MAX} rebuilding period) for canary rockfish and POP.

Table 4-26. Number of years the target year is beyond $T_{F=0}$ and percentage of $T_{F=0}$–T_{MAX} rebuilding period. (No Action values for canary rockfish and POP based on the target year corresponding to applying the 2012 to the revised rebuilding schedule.)

	No Action	1	2	3	4	5	6	7
Bocaccio	2 (17%)							
Canary	1 (5%)	2 (9%)	1	2	0	4 (18%)	1	2
Cowcod	8 (22%)							
Darkblotched	1 (5%)							
POP	11 (39%)	8 (29%)	8	3 (11%)	17 (61 %)	3	14 (50%)	14
Petrale	0							
Yelloweye	21 (55%)							

Table 4-27. Summary of the relative impact of the alternatives ("A" suboption) on groundfish fishery sectors based on projected ex-vessel revenue.

Sector	A1a_PPA	A2a	A3a	A4a	A5a	A6a	A7a
Shoreside Whiting	3	3	5	7	5	1	1
Shoreside Nonwhiting Trawl	3	3	6	5	6	1	1
Shoreside LE Fixed Gear	1	1	1	1	1	1	1
Shoreside Nearshore OA	1	1	1	7	1	1	1
Shoreside Non-nearshore OA	1	1	1	1	1	1	1
Shoreside Incidental OA	1	1	1	1	1	1	1
Shoreside Tribal (incl. whiting)	1	1	1	1	1	1	1
Total	3	3	5	7	5	1	1

Table 4-28. Summary of community indicators.

	Primary Fishery	Sector Concentration	SoVI	Vulnerability	Dependence	Engagement
Puget Sound	Limited Entry Fixed Gear (+)	+	0	-	-	-
Washington Coast	Treaty Nonwhiting Groundfish	-	0	0	0	+
Astoria-Tillamook	Shoreside Nonwhiting Trawl (+)	+	+	-	0	+
Newport	Shoreside Nonwhiting Trawl	-	+	+	+	+
Coos Bay-Brookings	Shoreside Nonwhiting Trawl (+)	0	0	+	+	0
Crescent City-Eureka	Shoreside Nonwhiting Trawl (+)	0	+	+	0	0
Fort Bragg - Bodega Bay	Shoreside Nonwhiting Trawl (+)	0	-	+	0	0
San Francisco Area	Shoreside Nonwhiting Trawl (+)	0	-	-	-	-
Santa Cruz - Monterey - Morro Bay	Directed Open Access (+)	-	-	-	+	0
S. Barbara - Los Angeles - San Diego	Limited Entry Fixed Gear (+)	+	0	-	-	-
Coastwide						

*A plus sign "+" under Primary Fishery indicates that the primary fishery accounts for more than 50 percent of total groundfish ex-vessel revenue in the community group during the baseline period. Community Socioeconomic Indicators: Social Vulnerability (SoVI® score, see section 3.3.2.1), Vulnerability as assessed in previous harvest specifications EISs, groundfish Dependence, and groundfish Engagement. The three highest rankings in each category were assigned a "+" plus value, the 3 bottom ranked a "-" value, and the remainder a "0" value.

Table 4-29. Relative impacts of the alternatives ("A" suboption) based on projected groundfish-related income

Community Groups	Alternative 1A	Alternative 2A	Alternative 3A	Alternative 4A	Alternative 5A	Alternative 6A	Alternative 7A
Puget Sound	1	1	6	5	6	1	1
Washington Coast	1	1	6	5	6	1	1
Astoria-Tillamook	3	3	5	7	5	1	1
Newport	3	3	5	7	5	1	1
Coos Bay-Brookings	1	1	5	7	5	1	1
Crescent City-Eureka	3	3	6	3	6	1	1
Fort Bragg - Bodega Bay	2	3	6	1	6	3	3
San Francisco Area	1	1	5	7	5	1	1
Santa Cruz - Monterey - Morro Bay	1	1	5	7	5	1	1
Santa Barbara - Los Angeles - San Diego	1	1	1	7	1	1	1
Coastwide Total	3	3	5	7	5	1	1

Table 4-30. Average annual 2005-10 ex-vessel revenue by the nearshore fishery (dollars and percent of total groundfish ex-vessel revenue for community group) and difference in income impacts ($,000) between suboption B and suboption A by community group.

	Nearshore		Action Alternatives						
A versus B	**$,000**	**Pct.**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Puget Sound		0%							
Washington Coast	<1	<1%							
Astoria-Tillamook	125	1%	-23	-23	-23	0	-23	-23	-23
Newport	23	0%	-8	-8	-8	0	-8	-8	-8
Coos Bay-Brookings	854	9%	-163	-163	-163	0	-163	-163	-163
Crescent City-Eureka	479	8%	0	0	0	-164	0	0	0
Fort Bragg - Bodega Bay	248	7%	0	0	0	-81	0	0	0
San Francisco Area	136	9%	0	0	0	-41	0	0	0
Santa Cruz - Monterey - Morro Bay	1,116	30%	0	0	0	-486	0	0	0
Santa Barbara - Los Angeles - San Diego	226	10%	0	0	0	-61	0	0	0
Coastwide Total			-194	-194	-194	-833	-194	-194	-194

4.4.4 Environmental Justice Considerations

Past groundfish harvest specifications EISs {PFMC, 2002 #168;PFMC, 2004 #171;PFMC, 2006 #284;PFMC, 2008 #7;PFMC, 2011 #285} have discussed environmental justice and the impact of the proposed action on communities of concern. This information is incorporated by reference and summarized here. EO 12898 on environmental justice obligates Federal agencies to identify and address "disproportionately high adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations in the United States" as part of any overall environmental impact analysis associated with an action. NOAA guidance, NAO 216-6, at sec. 7.02, states that "consideration of EO 12898 should be specifically included in the NEPA documentation for decision-making purposes."

The environmental justice analysis must identify minority and low-income groups that live in the project area and may be affected by the action. If there are disproportionately high adverse impacts to these communities they should be disclosed and mitigation should be proposed. The 2005-06 groundfish harvest specifications included an analysis of 2000 census data to address the question of which communities have comparatively high proportions of minority and low income groups. The evaluation of communities with respect to their socioeconomic vulnerability to the adverse impacts of the proposed action also partially addresses this question, because these analyses take into account the level of economic distress found in communities (counties or Census Designated Places). Results of the vulnerability analyses conducted in 2006 and 2010, along with similar information in this EIS (e.g., the SoVI index), have been used in evaluating the impacts of the alternatives. The analysis of 2000 census data found that the metrics (percent nonwhite, percent Native American, percent Hispanic, median family income, and poverty rate) indicated that the Washington coast and the Southern Oregon-Northern California Coast were areas that exceeded evaluation thresholds. The more recent vulnerability analyses, as summarized in this EIS and supplemented with additional data, support those findings in that the whole of the Oregon coast and Northern California appear more vulnerable to adverse socioeconomic impacts. The identification of the Washington coast as a community of concern under EO 12898 is likely influenced by the comparatively high fraction of the population that is Native American, which is not a metric used in the vulnerability analyses.

Appendix C ANALYSIS OF THE INTEGRATED ALTERNATIVES

Table of Contents

This section provides more detailed information behind the analysis of the integrated alternatives, compared to what was presented in Chapter 2, Section 2.4. The impacts of implementing the strategic combination of overfished species ACLs along with the management measures necessary to stay within those ACLs or achieve other management objectives outlined in the GFMP are presented by fishery and alternative.

C.1 Shorebased IFQ

Predictions of total catch were made for a suite of alternatives with varying allocation structures, using a new catch-projection model for the shorebased IFQ fishery, to compare predicted impacts across the range of alternatives and enable community-level economic analyses, for the biennial groundfish harvest specifications environmental impact statement (See Appendix A for more information on the modeling platform). The species-specific allocations that varied the most among alternatives were those of canary rockfish and Pacific ocean perch, the levels of which varied in different combinations, in and out of phase, in order to elucidate potential constraints of each on predicted target catch. Variation in allocations of other species was either comparatively very low, or occurred only between the No Action alternative and all others.

Alternative 1, the Preferred Alternative, and Alternative 2 with canary and Pacific ocean perch (POP) allocations in the middle of the range that was analyzed, are predicted to produce lower levels of constraint (< 6 percent, measured as proportion of vessels which caught 100 percent of one or more rebuilding species QPs, and whose predicted target catch was limited as a result) than the other alternatives, except for Alternatives 6, and 7, which had allocations of canary in the middle of the range, and POP allocations at the high end of the range. Alternatives 3, 4, and 5, with different combinations of a low allocation for either canary or POP, with a medium or high allocation for the other species of those two, were predicted to produce higher levels of constraint (near 20 percent) on target catch. The term "constrained" is defined for this analysis as a vessel catching 100% of its QP for a particular rebuilding or other bycatch species, at which point it would be prevented from catching further target species, for which QP of the limiting bycatch species would be needed; this is more fully explained later in this document. The level of constraint was quantified as percent of the total vessels, which were limited by their QP of bycatch species (among those which caught IFQ species in the fishery). Alternative 2 is the same as Alternative 1.

In those alternatives where constraint levels were low (< 6 percent under Alternatives 1 and 2), higher numbers of vessels were predicted to attain their full quota pounds for target species categories such as sablefish north of 36° N. lat., or Pacific whiting, and where constraint levels were higher, there were corresponding negative differences in numbers vessels attaining full QP of target species categories.

Predicted catch of rebuilding species under all alternatives was less than No Action. Predicted catch of target species categories rose and fell predictably among alternatives, negatively covarying with levels of constraint by rebuilding species.

From an absolute standpoint, catch estimates for several species in this analysis are likely to be biased low for several reasons. Due to the rapid timeline for production of the DEIS, input data had to be truncated at less than one full year. This meant that December catch was imputed, based on monthly catch trends from 2010 and 2011, and vessel account input data (amount of QP available for each vessel) was frozen at November 28. Outcomes of this included that actual December catch was higher than expected, likely due delays in the winter crab season, which was shown to distract participation from IFQ, early in 2011. The results also cannot account for additional QP trading which happened between November 28 and December 15 (the closing date for QP trading); trading during this time period would theoretically enable purchase of QP for potentially constraining bycatch species, and thus enable more target catch.

From a relative standpoint, although the aforementioned assumptions need to be noted, the current analysis still allows for fair comparison among the proposed alternatives, in terms of relative catch and bycatch constraint. Modeling is always limited by the available data, and this analysis utilized the best data which were available at the time the analysis needed to be performed. In short, substantial differences were apparent among the alternatives, which should allow an informed choice of the appropriate alternative among them by the Council.

Variation in allocations among alternatives

Across the range of alternatives, the only fleet allocations that vary substantially are those of canary rockfish, Pacific ocean perch (POP), Petrale sole, widow rockfish, English sole, arrowtooth flounder, and sablefish, north of 36° N. lat. The allocation levels of canary rockfish and POP vary among individual alternatives, while Petrale sole, widow rockfish, English sole, arrowtooth flounder, and sablefish, north of 36° N. lat. only vary between the No Action Alternatives and all others. Petrale sole and widow rockfish allocations are more than twice that of the No Action Alternative, in the other alternatives analyzed. Sablefish allocations are approximately 20 percent lower in all other alternatives than the No Action Alternative (Table C-2). Arrowtooth flounder allocations for alternatives other than No Action are less than half of No Action, and English sole allocations are approximately one third less.

Levels of the proposed allocations for canary rockfish and POP vary between low, medium, and high levels, in and out of phase with one another, among alternatives (Figure C-1, Table C-1). This approach could reveal which species or combination of allocation levels for these species is responsible for projected differences in target catch, attainment, or number of constrained vessels. See Table C-2 for the range of proposed allocations analyzed, for all IFQ species categories.

Catch of lingcod was projected coastwide using the model, because that is how the allocations and QP distribution was structured in the observed data (2011). Distribution of catch and north and south of 40°10' N. lat. , as well as north and south of 42° N. lat. was estimated using haul-level catch data from the West Coast Groundfish Observer Program, of the Northwest Fisheries Science Center. Those distributions were then applied to the coastwide model projections. Lingcod catch estimates are presented north and south of 40°10' N. lat. for Alternatives 1 through 7, and north and south of 42° N. lat. for the No Action Alternative. See Table C-2 for the specific levels of lingcod allocations and Table C-5, Table C-8, Table C-9, Table C-12, Table C-14, Table C-16, Table C-18, Table C-20, Table C-22, and Table C-23 for predicted catch by area, for lingcod and the remaining species categories.

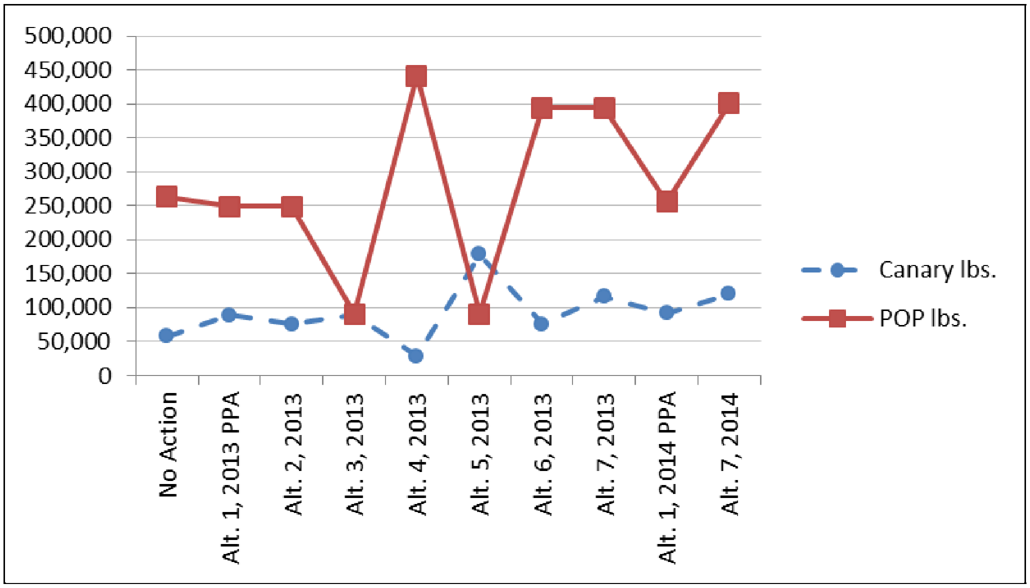


Figure C-1. Illustration of how allocations of canary rockfish and Pacific ocean perch (POP) vary across the range of alternatives.

Table C-1. Variation in IFQ fishery allocation level for canary rockfish and Pacific ocean perch, in pounds, nominally, and percentage of the No Action Alternative, among the alternatives.

Alternative	Canary lbs.	Canary nom.	POP lbs.	POP nom.	Can. % of No Action	POP % of No Action
No action	57,761	med-low	263,452	med	100%	100%
Alt. 1, 2013 Preferred	88,846	med	249,122	med	154%	95%
Alt. 2, 2013	75,398	med	249,122	med	131%	95%
Alt. 3, 2013	88,846	med	90,390	low	154%	34%
Alt. 4, 2013	28,219	low	440,925	high	49%	167%
Alt. 5, 2013	178,354	high	90,390	low	309%	34%
Alt. 6, 2013	75,398	med	394,627	high	131%	150%
Alt. 7, 2013	116,625	med-high	394,627	high	202%	150%
Alt. 1, 2014 PPA	91,492	med	255,736	med	158%	97%
Alt. 7, 2014	120,152	med-high	401,241	high	208%	152%

Table C-2. Range of allocations for the shorebased IFQ fishery, in pounds, used to inform model-based catch projections, for the 2013-2014 groundfish harvest specifications.

IFQ Species a/	No Action, 2012	Alt. 1, 2013 PPA	Alt. 2, 2013	Alt. 3, 2013	Alt. 4, 2013	Alt. 5, 2013	Alt. 6, 2013	Alt. 7, 2013	Alt. 1, 2014	Alt. 7, 2014	2011 obs.
Bocaccio S. of 40°10	132,277	169,535	169,535	169,535	169,535	169,535	169,535	169,535	175,929	175,929	132,277
Canary rockfish	57,761	88,846	75,398	88,846	28,219	178,354	75,398	116,625	91,492	120,152	57,100
Cowcod S. of 40°10	3,968	4,189	4,189	4,189	4,189	4,189	4,189	4,189	4,189	4,189	3,968
Darkblotched rockfish	548,819	590,839	590,839	590,839	590,839	590,839	590,839	590,839	615,090	615,090	552,997
POP N. of 40°10	263,452	249,122	249,122	90,390	440,925	90,390	394,627	394,627	255,736	401,241	263,148
Petrale sole	2,324,995	5,460,850	5,460,850	5,460,850	5,460,850	5,460,850	5,460,850	5,460,850	5,593,128	5,593,128	1,920,226
Yelloweye rockfish	1,323	2,205	2,205	2,205	2,205	2,205	2,205	2,205	2,205	2,205	1,323
Arrowtooth flounder	20,861,131	8,496,616	8,496,616	8,496,616	8,496,616	8,496,616	8,496,616	8,496,616	7,661,064	7,661,064	27,406,105
Chilipepper S. of 40°10	2,934,904	2,440,517	2,440,517	2,440,517	2,440,517	2,440,517	2,440,517	2,440,517	2,369,969	2,369,969	3,252,370
Dover sole	49,018,682	49,019,784	49,019,784	49,019,784	49,019,784	49,019,784	49,019,784	49,019,784	49,019,784	49,019,784	49,018,682
English sole	21,037,611	14,032,423	14,032,423	14,032,423	14,032,423	14,032,423	14,032,423	14,032,423	11,587,496	11,587,496	41,166,808
Lingcod	3,991,800	3,791,951	3,791,951	3,791,951	3,791,951	3,791,951	3,791,951	3,791,951	3,589,126	3,589,126	4,107,873
N of 40°10	-	2,702,867	2,702,867	2,702,867	2,702,867	2,702,867	2,702,867	2,702,867	2,546,339	2,546,339	-
S of 40°10	-	1,089,084	1,089,084	1,089,084	1,089,084	1,089,084	1,089,084	1,089,084	1,042,786	1,042,786	-
N of 42°	1,851,883	-	-	-	-	-	-	-	-	-	-
S of 42°	2,139,917	-	-	-	-	-	-	-	-	-	-
Longspine thornyheads N. of 34°27	4,219,648	4,100,598	4,100,598	4,100,598	4,100,598	4,100,598	4,100,598	4,100,598	3,992,572	3,992,572	4,334,839
Minor shelf rockfish N. of 40°10	1,150,813	1,157,206	1,157,206	1,157,206	1,157,206	1,157,206	1,157,206	1,157,206	1,157,206	1,157,206	1,150,813
Minor shelf rockfish S. of 40°10	189,598	179,897	179,897	179,897	179,897	179,897	179,897	179,897	179,897	179,897	189,598
Minor slope rockfish N. of 40°10	1,828,779	1,715,196	1,715,196	1,715,196	1,715,196	1,715,196	1,715,196	1,715,196	1,715,196	1,715,196	1,828,779
Minor slope rockfish S. of 40°10	831,958	824,529	824,529	824,529	824,529	824,529	824,529	824,529	831,143	831,143	831,958
Other flatfish	9,253,683	9,237,369	9,237,369	9,237,369	9,237,369	9,237,369	9,237,369	9,237,369	9,237,369	9,237,369	9,253,683
Pacific cod	2,502,247	2,495,633	2,495,633	2,495,633	2,495,633	2,495,633	2,495,633	2,495,633	2,495,633	2,495,633	2,502,247
Pacific halibut (IBQ) N. of 40°10	257,524	257,524	257,524	257,524	257,524	257,524	257,524	257,524	257,524	257,524	257,524
Pacific whiting	204,628,442	204,628,442	204,628,442	204,628,442	204,628,442	204,628,442	204,628,442	204,628,442	204,628,442	204,628,442	204,628,442
Sablefish N. of 36°	5,438,804	4,023,436	4,023,436	4,023,436	4,023,436	4,023,436	4,023,436	4,023,436	4,376,176	4,376,176	5,613,719
Sablefish S. of 36°	1,133,352	1,327,183	1,327,183	1,327,183	1,327,183	1,327,183	1,327,183	1,327,183	1,439,619	1,439,619	1,170,390
Shortspine thornyheads N. of 34°27'	3,120,533	3,084,267	3,084,267	3,084,267	3,084,267	3,084,267	3,084,267	3,084,267	3,053,402	3,053,402	3,156,138
Shortspine thornyheads	110,231	110,231	110,231	110,231	110,231	110,231	110,231	110,231	110,231	110,231	110,231

IFQ Species a/	No Action, 2012	Alt. 1, 2013 PPA	Alt. 2, 2013	Alt. 3, 2013	Alt. 4, 2013	Alt. 5, 2013	Alt. 6, 2013	Alt. 7, 2013	Alt. 1, 2014	Alt. 7, 2014	2011 obs.
S. of 34°27											
Splitnose rockfish S. of 40°10	3,206,513	3,351,026	3,351,026	3,351,026	3,351,026	3,351,026	3,351,026	3,351,026	3,476,690	3,476,690	3,045,245
Starry flounder	1,480,404	1,657,876	1,657,876	1,657,876	1,657,876	1,657,876	1,657,876	1,657,876	1,666,695	1,666,695	1,471,586
Widow rockfish	755,348	2,204,623	2,204,623	2,204,623	2,204,623	2,204,623	2,204,623	2,204,623	2,204,623	2,204,623	755,348
Yellowtail rockfish N. of 40°10	6,850,556	6,148,692	6,148,692	6,148,692	6,148,692	6,148,692	6,148,692	6,148,692	6,155,306	6,155,306	6,821,455

a/ All area designiations are north latitude.

C.1.1 IFQ: No Action Alternative

Under the No Action Alternative, Table C-3 and Table C-4 list the Rockfish Conservation Area boundaries that with no changes would be in effect, for trawl gear and fixed gear, respectively, in 2013 and 2014. For the trawl boundaries, it should be noted that the seaward line during March to April from 45°46' to 48°10' was changed from 200 fm to 150 fm, to take effect in 2012. Model-based catch projections were made under the RCA structure that was in place during 2011, since those are the current data which exist to inform the model of catch under IFQ; this includes the 200 fm seaward line during March and April, from 45°46' to 48°10'. As explained in the November 2011 GMT statement, we examined time-weighted average bycatch rates from WCGOP, from 2005 to 2010, data which are available for this area, during this period (Table C-5). It generally shows increased bycatch rates of rebuilding species in Period 2, in the area seaward of 150 fm, versus the area seaward of 200 fm, indicating that if the seaward RCA were moved from 200 fm to 150 fm during periods 1 and 2 of 2012, that the probability of encountering darkblotched rockfish, Pacific ocean perch, widow rockfish and yelloweye rockfish will likely be slightly higher than if the No Action seaward boundaries remained in place. However, this fishery is now managed under IFQ, attainment of these rebuilding species is currently very low (NMFS report under Agenda Item E.6.b., Status Report on the 2011 Rationalized Trawl Fishery), at 17%, 19%, 35% and 6% respectively, as of October 11, 2011. Fishing behavior, and bycatch rates, could potentially be different than those observed during pre-IFQ. We also note that the request was made for a relatively small area of the coast (45°46' to 48°10' N. lat.).

Table C-3. Rockfish Conservation Area (RCA) boundaries for trawl gear, under the No Action Alternative.

<table>
<tr><th>Area</th><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>Jun</th><th>Jul</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
<tr><td>North of 48°10'</td><td colspan="2">shore – ^{m}200</td><td colspan="2">shore - 200</td><td colspan="4">shore - 150</td><td colspan="2">shore - 200</td><td colspan="2">shore - ^{m}200</td></tr>
<tr><td>48°10' - 45°46'</td><td colspan="2" rowspan="2">75 - ^{m}200</td><td colspan="2">75 - 150*</td><td colspan="2">75 - 150</td><td colspan="2">100 - 150</td><td colspan="4">75 - 150</td></tr>
<tr><td>45°46' - 40°10'</td><td colspan="2">75 - 200</td><td colspan="2">75 - 200</td><td colspan="2">100 - 200</td><td colspan="2">75 - 200</td><td colspan="2">75 - ^{m}200</td></tr>
<tr><td>40°10' - 34°27'</td><td colspan="12" rowspan="2">100 - 150</td></tr>
<tr><td>South 34°27' (mainland)</td></tr>
<tr><td>South 34°27' (islands)</td><td colspan="12">shore - 150</td></tr>
</table>

^{m} Superscript “m” designates the modified 200 fm seaward line.
* This 150 fm line was not in place for 2011, rather it was 200 fm.

Table C-4. Rockfish Conservation Area (RCA) boundaries for fixed gear (applies to vessels under the gear switching provision, under the No Action Alternative.

<table>
<tr><th>Area</th><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>Jun</th><th>Jul</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
<tr><td>North of 46° 16'</td><td colspan="12">shore - 100 fm</td></tr>
<tr><td>45° 03’ 83” - 46° 16’</td><td colspan="12">30 - 100 fm</td></tr>
<tr><td>43° - 45° 03’ 83”</td><td colspan="12">30 - 125 fm (125 line reduced to 100 fm during directed halibut season)</td></tr>
<tr><td>42° - 43°</td><td colspan="12">20 - 100 fm</td></tr>
<tr><td>40° 10’ - 42°</td><td colspan="12">20 fm depth contour - 100 fm</td></tr>
<tr><td>34° 27’ - 40° 10’</td><td colspan="12">30 fm - 150 fm line</td></tr>
<tr><td>South of 34° 27’ (w/islands)</td><td colspan="12">m - 150 fm line</td></tr>
</table>

Table C-5. Time-weighted average, pre-IFQ bycatch rates of rebuilding species, seaward of 150 fm and 200 fm, for Period 2, over the years 2005-2010, in the area north of 40°10'N. lat.

Species	> 150 fm	> 200 fm
Bocaccio rockfish	0.0001%	0.0001%
Canary rockfish	0.0030%	0.0044%
Cowcod rockfish	0.0000%	0.0000%
Darkblotched rockfish	0.7734%	0.5875%
POP	0.5384%	0.3041%
Widow rockfish	0.0084%	0.0061%
Yelloweye rockfish	0.0002%	0.0001%

No Action Alternative (2012), allocations and projections
Allocations to the IFQ fleet, projected total catch, and projected attainment under the No Action Alternative (2012) are listed in Table C-2, along with those for 2011, for comparison. Inclusion of 2011 estimates also gives the opportunity for discussion of methods and assumptions of this analysis. Total catch for December of 2011 was imputed, as described in the model section, since this analysis was begun in early December of 2011. Most allocations differed little between No Action and 2011, except the Petrale sole allocation was 17% higher for 2012, and the allocations for arrowtooth flounder and English sole were substantially lower in 2012. More vessels were predicted to be constrained by rebuilding species in 2011 (39%) than in 2012 (14%). For instance, 23% of vessels were predicted to be constrained by Petrale sole, compared with <6% in 2012. Also, 13% of vessels were predicted to be constrained by canary rockfish in 2011, compared with <6% of vessels in 2012, although the canary rockfish allocation was only approximately 700 pounds smaller in 2011 than 2012. See Table C-2 for the allocation levels of those alternatives analyzed.

The relatively sharp projected differences in the number of vessels constrained by a bycatch species between 2011 and 2012 (and the other alternatives) is primarily due to the Petrale sole allocation being smaller in 2011 than 2012 (and the other alternatives). In addition, the estimated number of vessels constrained in 2011 could be amplified somewhat, due to a potential artifact which would stem from the incomplete 2011 catch data used as an input for the analysis. Specifically, to accommodate the schedule for the DEIS, the expected attainment of target species was adjusted without an available mechanism for a concomitant redistribution of QP; the model uses a snapshot of QP distribution (from early December, in this analysis), a routine for dynamic redistribution of QP is not yet part of the model. Use of a final snapshot of vessel QP-distribution may have allowed for vessel operators to make further bycatch allowances for their anticipated December catch. Nonetheless, the same assumptions were applied to all alternatives, and these model projections should enable a fair comparison among them. This projection model and all of the inputs represent the best scientific information available at the time the analysis was performed.

The term "constrained" is defined for this analysis as a vessel catching 100% of its QP for a particular rebuilding or other bycatch species. For a particular vessel-specific catch estimate to be labeled as bycatch-constrained within the model, the amount of target species catch estimated according to the amount of rebuilding species QP available to that vessel, and its bycatch rates of that particular rebuilding species, must be smaller than the estimate of target catch made using the target species attainment rates and QP amounts. That is, the projection of target catch which was produced by the bycatch limited routine in the model was smaller than that of the target QP limited routine.

As noted in the model description, catch projections for target species with a strong relationship between 2011 catch and 2011 QP, such as Pacific whiting, sablefish, chilipepper rockfish, and thornyheads are likely to be more reliable when allocations change dramatically than those with weak relationships between these two variables, such as English sole, minor slope rockfish, and arrowtooth flounder. Thus, for the projection for English sole catch to drop dramatically, proportionate with the allocation, although it is dramatically underutilized, is not necessarily realistic, as its catch levels are weakly related to vessel QP of this species. Other factors are likely more important for predicting the catch of such a species, such as market factors, and/or processor limits.

For target species, catch estimates and expected attainments, as well as numbers of vessels predicted to attain 100% of their target QP varied little between the No Action Alternative (2012) and 2011 (Table C-6 and Table C-7).

Table C-6. Allocations (lbs.), predicted total catch (lbs.), attainment (%) and comparison between the No Action Alternative and early estimates for 2011 (as % of No Action), in the Shorebased IFQ Fishery, by species category.

IFQ species category	Allocation No action	Catch No action	Attainment No action	Allocation 2011	Catch 2011	Attainment 2011	Allocation comparison	Catch comparison	Attainment comparison
Bocaccio rockfish south of 40°10' N.	132,277	7,314	6%	132,277	7,507	6%	100%	103%	103%
Canary rockfish	57,761	7,651	13%	57,100	7,886	14%	99%	103%	104%
Cowcod south of 40°10' N.	3,968	39	1%	3,968	40	1%	100%	103%	103%
Darkblotched rockfish	548,819	121,713	22%	552,997	123,411	22%	101%	101%	101%
Pacific ocean perch north of 40°10' N.	263,452	69,945	27%	263,148	71,893	27%	100%	103%	103%
Petrale sole	2,324,995	1,334,856	57%	1,920,226	1,380,462	72%	83%	103%	125%
Yelloweye rockfish	1,323	102	8%	1,323	106	8%	100%	104%	104%
Arrowtooth flounder	20,861,131	4,096,046	20%	27,406,105	5,216,797	19%	131%	127%	97%
Chilipepper rockfish south of 40°10' N.	2,934,904	648,477	22%	3,252,370	699,533	22%	111%	108%	97%
Dover sole	49,018,682	16,668,724	34%	49,018,682	16,359,774	33%	100%	98%	98%
English sole	21,037,611	152,809	1%	41,166,808	287,762	1%	196%	188%	96%
Lingcod coastwide	3,991,800	526,447	13%	4,107,873	528,701	13%	103%	100%	98%
Lingcod north of 40°10' N.	-	-	-	-	525,000	-	-	-	-
Lingcod south of 40°10' N.	-	-	-	-	3,701	-	-	-	-
Lingcod north of 42° N.	1,851,883	522,762	28%	-	-	-	-	-	-
Lingcod south of 42° N.	2,139,917	3,685	0.2%	-	-	-	-	-	-
Longspine thornyheads north of 34°27' N.	4,219,648	2,059,067	49%	4,334,839	2,082,564	48%	103%	101%	98%
Minor shelf rockfish north of 40°10' N.	1,150,813	29,526	3%	1,150,813	28,529	2%	100%	97%	97%
Minor shelf rockfish south of 40°10' N.	189,598	4,953	3%	189,598	4,880	3%	100%	99%	99%
Minor slope rockfish north of 40°10' N.	1,828,779	298,443	16%	1,828,779	290,473	16%	100%	97%	97%
Minor slope rockfish south of 40°10' N.	831,958	91,797	11%	831,958	90,356	11%	100%	98%	98%
Other flatfish	9,253,683	1,528,418	17%	9,253,683	1,480,532	16%	100%	97%	97%
Pacific cod	2,502,247	576,976	23%	2,502,247	558,302	22%	100%	97%	97%
Pacific halibut (IBQ) north of 40°10' N.	257,524	68,872	27%	257,524	66,733	26%	100%	97%	97%
Pacific whiting	204,628,442	201,597,130	99%	204,628,442	201,631,339	99%	100%	100%	100%
Sablefish north of 36° N.	5,438,804	4,836,978	89%	5,613,719	4,914,623	88%	103%	102%	98%
Sablefish south of 36° N.	1,133,352	812,079	72%	1,170,390	831,938	71%	103%	102%	99%
Shortspine thornyheads north of 34°27' N.	3,120,533	1,465,666	47%	3,156,138	1,454,071	46%	101%	99%	98%
Shortspine thornyheads south of 34°27' N.	110,231	15,346	14%	110,231	15,346	14%	100%	100%	100%
Splitnose rockfish south of 40°10' N.	3,206,513	58,185	2%	3,045,245	54,965	2%	95%	94%	99%
Starry flounder	1,480,404	28,135	2%	1,471,586	27,370	2%	99%	97%	98%
Widow rockfish	755,348	295,502	39%	755,348	297,163	39%	100%	101%	101%
Yellowtail rockfish north of 40°10' N.	6,850,556	1,324,649	19%	6,821,455	1,306,405	19%	100%	99%	99%

Table C-7. Percentages of vessels in the shorebased IFQ fishery predicted to attain 100% of their QP, by species and alternative.

IFQ species category	No action	2011	Difference
Bocaccio rockfish south of 40°10' N.	< 6%	< 6%	-
Canary rockfish	< 6%	13%	≥ 7%
Cowcod south of 40°10' N.	< 6%	< 6%	-
Darkblotched rockfish	< 6%	9%	≥ 3%
Pacific ocean perch north of 40°10' N.	< 6%	11%	≥ 5%
Petrale sole	< 6%	23%	≥ 17%
Yelloweye rockfish	< 6%	< 6%	-
Arrowtooth flounder	10%	< 6%	(-) ≥ 4%
Chilipepper rockfish south of 40°10' N.	< 6%	< 6%	-
Dover sole	11%	< 6%	(-) ≥ 5%
English sole	< 6%	< 6%	-
Lingcod	8%	< 6%	(-) ≥ 2%
Longspine thornyheads north of 34°27' N.	11%	6%	-5%
Minor shelf rockfish north of 40°10' N.	7%	< 6%	(-) ≥ 1%
Minor shelf rockfish south of 40°10' N.	< 6%	< 6%	-
Minor slope rockfish north of 40°10' N.	6%	< 6%	-
Minor slope rockfish south of 40°10' N.	< 6%	< 6%	-
Other flatfish	10%	< 6%	(-) ≥ 4%
Pacific cod	< 6%	< 6%	≥ 2%
Pacific halibut (IBQ) north of 40°10' N.	9%	< 6%	(-) ≥ 3%
Pacific whiting	28%	22%	-6%
Sablefish north of 36° N.	41%	25%	-16%
Sablefish south of 36° N.	< 6%	< 6%	-
Shortspine thornyheads north of 34°27' N.	14%	< 6%	(-) ≥ 8%
Shortspine thornyheads south of 34°27' N.	< 6%	< 6%	-
Splitnose rockfish south of 40°10' N.	< 6%	< 6%	-
Starry flounder	< 6%	< 6%	-
Widow rockfish	< 6%	11%	(-) ≥ 5%
Yellowtail rockfish north of 40°10' N.	< 6%	< 6%	-

Projected catch and attainment of allocations for rebuilding species were slightly higher for 2011 (1 to 4 percent higher), with the exception of attainment for Petrale sole, which was 25% higher in 2011 than under No Action, coinciding with a lower allocation in 2011. Projected catch differed very little between 2011 and No Action, with the exception of arrowtooth flounder (88 percent higher in 2011) and English sole (27 percent higher in 2011), which were driven primarily by expected vessel attainment. As discussed earlier in this section, these two projections are not particularly informative.

C.1.2 IFQ: Alternative 1 (Preferred)

The Preliminary Preferred Alternative differs from the No Action Alternative in that the allocation of canary rockfish is 154% of that for No Action; the POP allocation is nearly the same, at 95% of No Action. This alternative is considered a medium level for canary rockfish, and medium for POP, considering the range of alternatives. Allocations under Alternative 1 for both widow rockfish and Petrale sole are more than double than the No Action alternative, and the same can be said of Alternatives 2 through 7. The arrowtooth flounder allocation is less than half in Alternatives 1 through 7 (including the PPA) than the No Action Alternative, and the sablefish allocation north of 36° N. lat. is approximately 20% less in Alternatives 1 through 7 than under No Action. Thus, projected catch and attainment will often differ to the same degree between the PPA and the other alternatives, except where canary rockfish or POP are predicted to limit access to target species for some fishermen.

Projected catch varies predictably along with allocation levels in the PPA (Table C-8 and Table C-9), revealing the relative low level of bycatch constraints on target catch in this alternative (Table C-10). The percentage of vessels constrained by rebuilding species was less than 6% under the PPA for 2013, while that number was 14% for the No Action Alternative. This difference is likely due to the higher allocation of canary rockfish under the PPA.

The percentage of vessels predicted to attain 100% of their target QP was higher for a few species in the PPA than No Action, including sablefish north of 36° N. lat. (9%), Pacific whiting (6%), and minor slope rockfish north of 40°10' N. (4%). The predicted numbers of vessels to reach their target species QP limits are equal under the 2013 and 2014 PPAs. Other metrics vary little between the PPA and No Action.

When examining the range of proposed alternatives, comparing numbers of vessels constrained by rebuilding species, one sees higher levels of constraint for the No Action Alternative, and Alternatives 3, 4, and 5, than for the PPA (Alt. 1, 2013 or 2014), Alternative 2, Alternative 6, and Alternative 7 for 2013 or 2014 (Figure C-2, Table C-8). It implies a threshold of constraint for canary rockfish (within this range of allocations) of approximately 75,000 to 80,000 pounds, below which, the predicted number of constrained vessels increases. The resolution of a threshold for POP is less precise, due to the difference between the medium and low levels of allocation, but it appears to lie somewhere beneath 250,000 pounds. When the POP allocation was at the low level, at approximately 90,000 pounds, and the canary allocation was at either the low or high levels, the number of constrained vessels was relatively equal, at 19% of the fleet (alternatives 3 and 5). With the low canary allocation and the high POP allocation (Alternative 4), the constraint level was still at 17 percent of vessels. When the POP allocation was higher, but the canary rockfish allocation was at the medium level, of higher than 75,000 pounds (Alternative 6), the constraint level was much lower, at less than 6%. In 2011, the predicted number of vessels constrained by QP of rebuilding species was much higher, but as discussed earlier, most of the difference in predicted constraint between 2011 and 2012 was due to the lower Petrale sole allocation in 2011.

Predicted attainment levels are lower for rebuilding species under the PPA, than for No Action, ranging between 38 percent and 90 percent of No Action. Predicted attainment for target species under the PPA is generally equal to No Action levels, except for widow rockfish, which is only 33 percent of No Action. Widow rockfish catch was predicted in the model as a rebuilding species, using bycatch rates, and operating under an assumption of no targeting. Predicted attainment under the PPA in 2014 is essentially equal to that of the 2013 PPA, and does not warrant specific discussion, yet the results are listed in Table C-9 for completeness. Nine percent more vessels are expected to catch their full QP amount of sablefish north of 36° N. lat. under the PPA than No Action, due to the lower allocation for all alternatives other than No Action.

Table C-8. Allocations (lbs.), predicted total catch (lbs.), attainment (%) and comparison between the PPA for 2013 and the No Action Alternative (as % of No Action), in the Shorebased IFQ Fishery, by species category.

IFQ species category	Allocation No action	Catch No action	Attainment No action	Allocation 2013 PPA	Catch 2013 PPA	Attainment 2013 PPA	Allocation comparison	Catch comparison	Attainment comparison
Bocaccio rockfish south of 40°10' N.	132,277	7,314	6%	169,535	6,705	4%	128%	92%	72%
Canary rockfish	57,761	7,651	13%	88,846	6,885	8%	154%	90%	59%
Cowcod south of 40°10' N.	3,968	39	1%	4,189	37	1%	106%	94%	89%
Darkblotched rockfish	548,819	121,713	22%	590,839	108,170	18%	108%	89%	83%
Pacific ocean perch north of 40°10' N.	263,452	69,945	27%	249,122	59,791	24%	95%	85%	90%
Petrale sole	2,324,995	1,334,856	57%	5,460,850	1,188,096	22%	235%	89%	38%
Yelloweye rockfish	1,323	102	8%	2,205	88	4%	167%	86%	52%
Arrowtooth flounder	20,861,131	4,096,046	20%	8,496,616	1,670,572	20%	41%	41%	100%
Chilipepper rockfish south of 40°10' N.	2,934,904	648,477	22%	2,440,517	546,509	22%	83%	84%	101%
Dover sole	49,018,682	16,668,724	34%	49,019,784	16,734,220	34%	100%	100%	100%
English sole	21,037,611	152,809	1%	14,032,423	102,213	1%	67%	67%	100%
Lingcod coastwide	3,991,800	526,447	13%	3,791,951	500,810	13%	95%	95%	100%
Lingcod north of 40°10' N.	-	-	-	2,702,867	497,304	18%	-	-	-
Lingcod south of 40°10' N.	-	-	-	1,089,084	3,506	0%	-	-	-
Lingcod north of 42° N.	1,851,883	522,762	28%	-	-	-	-	-	-
Lingcod north of 42° N.	2,139,917	3,685	0.2%	-	-	-	-	-	-
Longspine thornyheads north of 34°27' N.	4,219,648	2,059,067	49%	4,100,598	2,009,498	49%	97%	98%	100%
Minor shelf rockfish north of 40°10' N.	1,150,813	29,526	3%	1,157,206	29,760	3%	101%	101%	100%
Minor shelf rockfish south of 40°10' N.	189,598	4,953	3%	179,897	4,711	3%	95%	95%	100%
Minor slope rockfish north of 40°10' N.	1,828,779	298,443	16%	1,715,196	280,055	16%	94%	94%	100%
Minor slope rockfish south of 40°10' N.	831,958	91,797	11%	824,529	91,956	11%	99%	100%	101%
Other flatfish	9,253,683	1,528,418	17%	9,237,369	1,528,626	17%	100%	100%	100%
Pacific cod	2,502,247	576,976	23%	2,495,633	575,476	23%	100%	100%	100%
Pacific halibut (IBQ) north of 40°10' N.	257,524	68,872	27%	257,524	69,068	27%	100%	100%	100%
Pacific whiting	204,628,442	201,597,130	99%	204,628,442	200,218,033	98%	100%	99%	99%
Sablefish north of 36° N.	5,438,804	4,836,978	89%	4,023,436	3,589,688	89%	74%	74%	100%
Sablefish south of 36° N.	1,133,352	812,079	72%	1,327,183	951,519	72%	117%	117%	100%
Shortspine thornyheads north of 34°27' N.	3,120,533	1,465,666	47%	3,084,267	1,453,189	47%	99%	99%	100%
Shortspine thornyheads south of 34°27' N.	110,231	15,346	14%	110,231	15,346	14%	100%	100%	100%
Splitnose rockfish south of 40°10' N.	3,206,513	58,185	2%	3,351,026	61,094	2%	105%	105%	100%
Starry flounder	1,480,404	28,135	2%	1,657,876	31,509	2%	112%	112%	100%
Widow rockfish	755,348	295,502	39%	2,204,623	287,374	13%	292%	97%	33%
Yellowtail rockfish north of 40°10' N.	6,850,556	1,324,649	19%	6,148,692	1,182,477	19%	90%	89%	99%

Table C-9. Allocations (lbs.), predicted total catch (lbs.), attainment (%) and comparison between the PPA for 2014, and the No Action Alternative (as % of No Action), in the Shorebased IFQ Fishery, by species category.

IFQ species category	Allocation No action	Catch No action	Attainment No action	Allocation 2014 PPA	Catch 2014 PPA	Attainment 2014 PPA	Allocation comparison	Catch comparison	Attainment comparison
Bocaccio rockfish south of 40°10' N.	132,277	7,314	6%	175,929	6,644	4%	133%	91%	68%
Canary rockfish	57,761	7,651	13%	91,492	6,862	7%	158%	90%	57%
Cowcod south of 40°10' N.	3,968	39	1%	4,189	36	1%	106%	93%	88%
Darkblotched rockfish	548,819	121,713	22%	615,090	107,966	18%	112%	89%	79%
Pacific ocean perch north of 40°10' N.	263,452	69,945	27%	255,736	59,413	23%	97%	85%	88%
Petrale sole	2,324,995	1,334,856	57%	5,593,128	1,182,762	21%	241%	89%	37%
Yelloweye rockfish	1,323	102	8%	2,205	90	4%	167%	88%	53%
Arrowtooth flounder	20,861,131	4,096,046	20%	7,661,064	1,506,454	20%	37%	37%	100%
Chilipepper rockfish south of 40°10' N.	2,934,904	648,477	22%	2,369,969	530,711	22%	81%	82%	101%
Dover sole	49,018,682	16,668,724	34%	49,019,784	16,741,680	34%	100%	100%	100%
English sole	21,037,611	152,809	1%	11,587,496	84,407	1%	55%	55%	100%
Lingcod coastwide	3,991,800	526,447	13%	3,589,126	474,054	13%	90%	90%	100%
Lingcod north of 40°10' N.	-	-	-	2,546,339	470,735	18%	-	-	-
Lingcod south of 40°10' N.	-	-	-	1,042,786	3,318	0%	-	-	-
Lingcod north of 42° N.	1,851,883	522,762	28%	-	-	-	-	-	-
Lingcod south of 42° N.	2,139,917	3,685	0.2%	-	-	-	-	-	-
Longspine thornyheads north of 34°27' N.	4,219,648	2,059,067	49%	3,992,572	1,958,461	49%	95%	95%	101%
Minor shelf rockfish north of 40°10' N.	1,150,813	29,526	3%	1,157,206	29,763	3%	101%	101%	100%
Minor shelf rockfish south of 40°10' N.	189,598	4,953	3%	179,897	4,711	3%	95%	95%	100%
Minor slope rockfish north of 40°10' N.	1,828,779	298,443	16%	1,715,196	280,197	16%	94%	94%	100%
Minor slope rockfish south of 40°10' N.	831,958	91,797	11%	831,143	92,694	11%	100%	101%	101%
Other flatfish	9,253,683	1,528,418	17%	9,237,369	1,528,753	17%	100%	100%	100%
Pacific cod	2,502,247	576,976	23%	2,495,633	575,485	23%	100%	100%	100%
Pacific halibut (IBQ) north of 40°10' N.	257,524	68,872	27%	257,524	69,101	27%	100%	100%	100%
Pacific whiting	204,628,442	201,597,130	99%	204,628,442	200,928,317	98%	100%	100%	100%
Sablefish north of 36° N.	5,438,804	4,836,978	89%	4,376,176	3,905,913	89%	80%	81%	100%
Sablefish south of 36° N.	1,133,352	812,079	72%	1,439,619	1,032,130	72%	127%	127%	100%
Shortspine thornyheads north of 34°27' N.	3,120,533	1,465,666	47%	3,053,402	1,439,593	47%	98%	98%	100%
Shortspine thornyheads south of 34°27' N.	110,231	15,346	14%	110,231	15,346	14%	100%	100%	100%
Splitnose rockfish south of 40°10' N.	3,206,513	58,185	2%	3,476,690	63,385	2%	108%	109%	100%
Starry flounder	1,480,404	28,135	2%	1,666,695	31,677	2%	113%	113%	100%
Widow rockfish	755,348	295,502	39%	2,204,623	289,045	13%	292%	98%	34%
Yellowtail rockfish north of 40°10' N.	6,850,556	1,324,649	19%	6,155,306	1,187,145	19%	90%	90%	100%

Table C-10. Percentages of vessels in the shorebased IFQ fishery predicted to attain 100% of their QP, by species and alternative, for No Action, the 2013 PPA, and the 2014 PPA.

IFQ species category	No action	2013 PPA	2014 PPA	2013 dif.	2014 dif.
Bocaccio rockfish south of 40°10' N.	< 6%	< 6%	< 6%	-	-
Canary rockfish	< 6%	< 6%	< 6%	-	-
Cowcod south of 40°10' N.	< 6%	< 6%	< 6%	-	-
Darkblotched rockfish	< 6%	< 6%	< 6%	-	-
Pacific ocean perch north of 40°10' N.	< 6%	< 6%	< 6%	-	-
Petrale sole	< 6%	< 6%	< 6%	-	-
Yelloweye rockfish	< 6%	< 6%	< 6%	-	-
Arrowtooth flounder	10%	12%	12%	2%	2%
Chilipepper rockfish south of 40°10' N.	< 6%	< 6%	< 6%	-	-
Dover sole	11%	11%	11%	0%	0%
English sole	< 6%	< 6%	< 6%	-	-
Lingcod	8%	9%	9%	1%	1%
Longspine thornyheads north of 34°27' N.	11%	12%	12%	1%	1%
Minor shelf rockfish north of 40°10' N.	7%	9%	9%	2%	2%
Minor shelf rockfish south of 40°10' N.	< 6%	< 6%	< 6%	-	-
Minor slope rockfish north of 40°10' N.	6%	10%	10%	4%	4%
Minor slope rockfish south of 40°10' N.	< 6%	< 6%	< 6%	-	-
Other flatfish	10%	9%	9%	-1%	-1%
Pacific cod	< 6%	6%	6%	-	-
Pacific halibut (IBQ) north of 40°10' N.	9%	12%	12%	3%	3%
Pacific whiting	28%	33%	33%	6%	6%
Sablefish north of 36° N.	41%	50%	50%	9%	9%
Sablefish south of 36° N.	< 6%	< 6%	< 6%	-	-
Shortspine thornyheads north of 34°27' N.	14%	15%	15%	1%	1%
Shortspine thornyheads south of 34°27' N.	< 6%	< 6%	< 6%	-	-
Splitnose rockfish south of 40°10' N.	< 6%	< 6%	< 6%	-	-
Starry flounder	< 6%	< 6%	< 6%	-	-
Widow rockfish	< 6%	< 6%	< 6%	-	-
Yellowtail rockfish north of 40°10' N.	< 6%	< 6%	< 6%	-	-

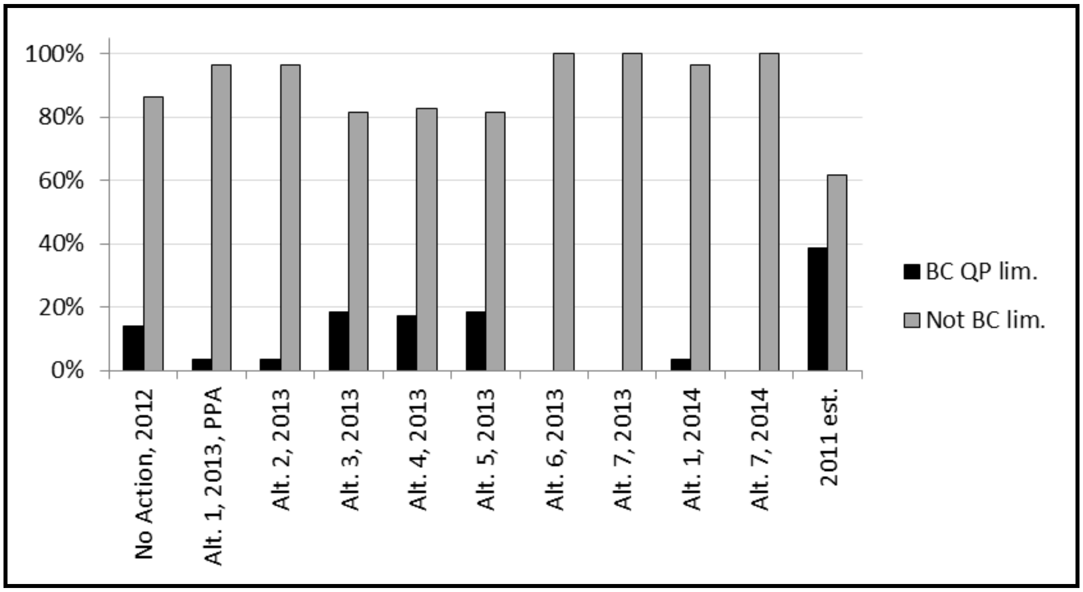


Figure C-2. Percent of vessels in the fleet, whose target attainment was predicted to be limited by QP of bycatch species, versus those not limited by QP of bycatch species, by alternative.

Table C-11. Percent of vessels in the fleet, whose target attainment was predicted to be limited by QP of bycatch species, versus those not limited by QP of bycatch species, by alternative.

Alternative	BC QP limited %	Not BC limited %
No action, 2012	14%	86%
Alt. 1, 2013, PPA	< 6%	> 94%
Alt. 2, 2013	< 6%	> 94%
Alt. 3, 2013	19%	81%
Alt. 4, 2013	17%	83%
Alt. 5, 2013	19%	81%
Alt. 6, 2013	0%	100%
Alt. 7, 2013	0%	100%
Alt. 1, 2014	< 6%	> 94%
Alt. 7. 2014	0%	100%
2011 est.	39%	61%

C.1.3 IFQ: Alternative 2 (2013)

Alternative 2 differs from the No Action Alternative in that the allocation of canary rockfish is 131% of that for No Action, only slightly lower than in the PPA. The POP allocation is nearly the same (95% of No Action). The other differences between Alternative 2 allocations and No Action are all the same as described between the PPA and No Action, and are described in that section. Predicted catch of canary rockfish under Alternative 2 is 90 percent of that under No Action, the same as under the PPA. This alternative is considered to have a medium level of allocation for canary rockfish and for POP, considering the range of alternatives.

Other projected catch results are also essentially the same as for the PPA. Catch of rebuilding species is predicted to be slightly lower than the No Action Alternative, although the allocations are slightly higher (Table C-12). This is due to predicted catch of target species remaining very similar in aggregate, by vessel, since rebuilding species are predicted as bycatch.

The slightly lower canary rockfish allocation also did not result in additional numbers of vessels predicted to be constrained by rebuilding species. Predicted numbers of vessels constrained by rebuilding species are all less than 6%, thus enabling a higher proportion of vessels to catch 100 percent of their QP for target species such as sablefish north of 36° N., whiting, and minor slope rockfish north of 40°10' N. (Table C-13). Other metrics vary little between the Alternative 2 and No Action, including predicted attainment. Where they do differ, these differences are essentially the same as between the PPA and No Action (see the PPA section).

Table C-12. Allocations (lbs.), predicted total catch (lbs.), attainment (%) and comparison between Alternative 2 for 2013, and the No Action Alternative (as % of No Action), in the Shorebased IFQ Fishery, by species category.

IFQ species category	Allocation No action	Catch No action	Attainment No action	Allocation Alt. 2, 2013	Catch Alt. 2, 2013	Attainment Alt.2, 2013	Allocation comparison	Catch comparison	Attainment comparison
Bocaccio rockfish south of 40°10' N.	132,277	7,314	6%	169,535	6,705	4%	128%	92%	72%
Canary rockfish	57,761	7,651	13%	75,398	6,885	9%	131%	90%	69%
Cowcod south of 40°10' N.	3,968	39	1%	4,189	37	1%	106%	94%	89%
Darkblotched rockfish	548,819	121,713	22%	590,839	108,170	18%	108%	89%	83%
Pacific ocean perch north of 40°10' N.	263,452	69,945	27%	249,122	59,791	24%	95%	85%	90%
Petrale sole	2,324,995	1,334,856	57%	5,460,850	1,188,096	22%	235%	89%	38%
Yelloweye rockfish	1,323	102	8%	2,205	88	4%	167%	86%	52%
Arrowtooth flounder	20,861,131	4,096,046	20%	8,496,616	1,670,572	20%	41%	41%	100%
Chilipepper rockfish south of 40°10' N.	2,934,904	648,477	22%	2,440,517	546,509	22%	83%	84%	101%
Dover sole	49,018,682	16,668,724	34%	49,019,784	16,734,220	34%	100%	100%	100%
English sole	21,037,611	152,809	1%	14,032,423	102,213	1%	67%	67%	100%
Lingcod coastwide	3,991,800	526,447	13%	3,791,951	500,810	13%	95%	95%	100%
Lingcod north of 40°10' N.	-	-	-	2,702,867	497,304	18%	-	-	-
Lingcod south of 40°10' N.	-	-	-	1,089,084	3,506	0%	-	-	-
Lingcod N of 42° N.	1,851,883	522,762	28%	-	-	-	-	-	-
Lingcod S of 42° N.	2,139,917	3,685	0.2%	-	-	-	-	-	-
Longspine thornyheads north of 34°27' N.	4,219,648	2,059,067	49%	4,100,598	2,009,498	49%	97%	98%	100%
Minor shelf rockfish north of 40°10' N.	1,150,813	29,526	3%	1,157,206	29,760	3%	101%	101%	100%
Minor shelf rockfish south of 40°10' N.	189,598	4,953	3%	179,897	4,711	3%	95%	95%	100%
Minor slope rockfish north of 40°10' N.	1,828,779	298,443	16%	1,715,196	280,055	16%	94%	94%	100%
Minor slope rockfish south of 40°10' N.	831,958	91,797	11%	824,529	91,956	11%	99%	100%	101%
Other flatfish	9,253,683	1,528,418	17%	9,237,369	1,528,626	17%	100%	100%	100%
Pacific cod	2,502,247	576,976	23%	2,495,633	575,476	23%	100%	100%	100%
Pacific halibut (IBQ) north of 40°10' N.	257,524	68,872	27%	257,524	69,068	27%	100%	100%	100%
Pacific whiting	204,628,442	201,597,130	99%	204,628,442	200,218,033	98%	100%	99%	99%
Sablefish north of 36° N.	5,438,804	4,836,978	89%	4,023,436	3,589,688	89%	74%	74%	100%
Sablefish south of 36° N.	1,133,352	812,079	72%	1,327,183	951,519	72%	117%	117%	100%
Shortspine thornyheads north of 34°27' N.	3,120,533	1,465,666	47%	3,084,267	1,453,189	47%	99%	99%	100%
Shortspine thornyheads south of 34°27' N.	110,231	15,346	14%	110,231	15,346	14%	100%	100%	100%
Splitnose rockfish south of 40°10' N.	3,206,513	58,185	2%	3,351,026	61,094	2%	105%	105%	100%
Starry flounder	1,480,404	28,135	2%	1,657,876	31,509	2%	112%	112%	100%
Widow rockfish	755,348	295,502	39%	2,204,623	287,374	13%	292%	97%	33%
Yellowtail rockfish north of 40°10' N.	6,850,556	1,324,649	19%	6,148,692	1,182,477	19%	90%	89%	99%

Table C-13. Percentages of vessels in the shorebased IFQ fishery predicted to attain 100% of their QP, by species and alternative, for Alternative 2 for 2013, and the No Action Alternative.

IFQ species category	No action	Alt. 2, 2013	Difference
Bocaccio rockfish south of 40°10' N.	< 6%	< 6%	-
Canary rockfish	< 6%	< 6%	-
Cowcod south of 40°10' N.	< 6%	< 6%	-
Darkblotched rockfish	< 6%	< 6%	-
Pacific ocean perch north of 40°10' N.	< 6%	< 6%	-
Petrale sole	< 6%	< 6%	-
Yelloweye rockfish	< 6%	< 6%	-
Arrowtooth flounder	10%	12%	2%
Chilipepper rockfish south of 40°10' N.	< 6%	< 6%	-
Dover sole	11%	11%	0%
English sole	< 6%	< 6%	-
Lingcod	8%	9%	1%
Longspine thornyheads north of 34°27' N.	11%	12%	1%
Minor shelf rockfish north of 40°10' N.	7%	9%	2%
Minor shelf rockfish south of 40°10' N.	< 6%	< 6%	-
Minor slope rockfish north of 40°10' N.	6%	10%	4%
Minor slope rockfish south of 40°10' N.	< 6%	< 6%	-
Other flatfish	10%	9%	-1%
Pacific cod	< 6%	6%	-
Pacific halibut (IBQ) north of 40°10' N.	9%	12%	3%
Pacific whiting	28%	33%	6%
Sablefish north of 36° N.	41%	50%	9%
Sablefish south of 36° N.	< 6%	< 6%	-
Shortspine thornyheads north of 34°27' N.	14%	15%	1%
Shortspine thornyheads south of 34°27' N.	< 6%	< 6%	-
Splitnose rockfish south of 40°10' N.	< 6%	< 6%	-
Starry flounder	< 6%	< 6%	-
Widow rockfish	< 6%	< 6%	-
Yellowtail rockfish north of 40°10' N.	< 6%	< 6%	-

C.1.4 IFQ: Alternative 3 (2013)

Alternative 3 differs from the No Action Alternative in that the allocation of canary rockfish is 154% of that for No Action, the same as the PPA. The POP allocation is only 34 percent of the No Action level. The other differences between Alternative 2 allocations and No Action are all the same as described between the PPA and No Action, and are described in that section. This alternative is considered to have a medium level of allocation for canary rockfish and a low level for POP, considering the range of alternatives.

Catch of rebuilding species is predicted to be lower than the No Action Alternative (Table C-14). The same is true for attainment, except for POP, which has higher attainment due to a combination of the low allocation in this alternative (Alternative 3), and bycatch-driven prediction of catch for this rebuilding species.

The lower POP allocation of Alternative 3 resulted in a predicted 19 percent of vessels being constrained by this species, compared with less than 6 percent under no action (Table C-15). Catch of POP under Alternative 3 was 55 percent of that under No Action. Catch of canary rockfish was 80 percent of that predicted under the No Action Alternative.

Table C-14. Allocations (lbs.), predicted total catch (lbs.), attainment (%) and comparison between Alternative 3 for 2013, and the No Action Alternative (as % of No Action), in the Shorebased IFQ Fishery, by species category.

IFQ species category	Allocation No action	Catch No action	Attainment No action	Allocation Alt. 3, 2013	Catch Alt. 3, 2013	Attainment Alt. 3, 2013	Allocation comparison	Catch comparison	Attainment comparison
Bocaccio rockfish south of 40°10' N.	132,277	7,314	6%	169,535	6,705	4%	128%	92%	72%
Canary rockfish	57,761	7,651	13%	88,846	6,098	7%	154%	80%	52%
Cowcod south of 40°10' N.	3,968	39	1%	4,189	37	1%	106%	94%	89%
Darkblotched rockfish	548,819	121,713	22%	590,839	85,823	15%	108%	71%	65%
Pacific ocean perch north of 40°10' N.	263,452	69,945	27%	90,390	38,363	42%	34%	55%	160%
Petrale sole	2,324,995	1,334,856	57%	5,460,850	1,029,418	19%	235%	77%	33%
Yelloweye rockfish	1,323	102	8%	2,205	78	4%	167%	77%	46%
Arrowtooth flounder	20,861,131	4,096,046	20%	8,496,616	1,319,875	16%	41%	32%	79%
Chilipepper rockfish south of 40°10' N.	2,934,904	648,477	22%	2,440,517	546,509	22%	83%	84%	101%
Dover sole	49,018,682	16,668,724	34%	49,019,784	14,272,816	29%	100%	86%	86%
English sole	21,037,611	152,809	1%	14,032,423	94,502	1%	67%	62%	93%
Lingcod coastwide	3,991,800	526,447	13%	3,791,951	429,835	11%	95%	82%	86%
Lingcod north of 40°10' N.	-	-	-	2,702,867	426,826	16%	-	-	-
Lingcod south of 40°10' N.	-	-	-	1,089,084	3,009	0%	-	-	-
Lingcod north of 42° N.	1,851,883	522,762	28%	-	-	-	-	-	-
Lingcod south of 42° N.	2,139,917	3,685	0.2%	-	-	-	-	-	-
Longspine thornyheads north of 34°27' N.	4,219,648	2,059,067	49%	4,100,598	1,674,247	41%	97%	81%	84%
Minor shelf rockfish north of 40°10' N.	1,150,813	29,526	3%	1,157,206	24,712	2%	101%	84%	83%
Minor shelf rockfish south of 40°10' N.	189,598	4,953	3%	179,897	4,711	3%	95%	95%	100%
Minor slope rockfish north of 40°10' N.	1,828,779	298,443	16%	1,715,196	202,183	12%	94%	68%	72%
Minor slope rockfish south of 40°10' N.	831,958	91,797	11%	824,529	90,074	11%	99%	98%	99%
Other flatfish	9,253,683	1,528,418	17%	9,237,369	1,368,547	15%	100%	90%	90%
Pacific cod	2,502,247	576,976	23%	2,495,633	503,501	20%	100%	87%	87%
Pacific halibut (IBQ) north of 40°10' N.	257,524	68,872	27%	257,524	55,120	21%	100%	80%	80%
Pacific whiting	204,628,442	201,597,130	99%	204,628,442	182,256,102	89%	100%	90%	90%
Sablefish north of 36° N.	5,438,804	4,836,978	89%	4,023,436	3,074,980	76%	74%	64%	86%
Sablefish south of 36° N.	1,133,352	812,079	72%	1,327,183	946,940	71%	117%	117%	100%
Shortspine thornyheads north of 34°27' N.	3,120,533	1,465,666	47%	3,084,267	1,185,802	38%	99%	81%	82%
Shortspine thornyheads south of 34°27' N.	110,231	15,346	14%	110,231	15,346	14%	100%	100%	100%
Splitnose rockfish south of 40°10' N.	3,206,513	58,185	2%	3,351,026	61,085	2%	105%	105%	100%
Starry flounder	1,480,404	28,135	2%	1,657,876	30,714	2%	112%	109%	97%
Widow rockfish	755,348	295,502	39%	2,204,623	237,628	11%	292%	80%	28%
Yellowtail rockfish north of 40°10' N.	6,850,556	1,324,649	19%	6,148,692	1,043,894	17%	90%	79%	88%

Table C-15. Percentages of vessels in the shorebased IFQ fishery predicted to attain 100% of their QP, by species and alternative, for Alternative 3 for 2013, and the No Action Alternative.

IFQ species category	No action	Alt. 3, 2013	Difference
Bocaccio rockfish south of 40°10' N.	< 6%	< 6%	-
Canary rockfish	< 6%	< 6%	-
Cowcod south of 40°10' N.	< 6%	< 6%	-
Darkblotched rockfish	< 6%	< 6%	-
Pacific ocean perch north of 40°10' N.	< 6%	19%	≥ 12%
Petrale sole	< 6%	< 6%	-
Yelloweye rockfish	< 6%	< 6%	-
Arrowtooth flounder	10%	6%	-4%
Chilipepper rockfish south of 40°10' N.	< 6%	< 6%	-
Dover sole	11%	6%	-5%
English sole	< 6%	< 6%	-
Lingcod	8%	< 6%	(-) ≥ 2%
Longspine thornyheads north of 34°27' N.	11%	8%	-3%
Minor shelf rockfish north of 40°10' N.	7%	< 6%	(-) ≥ 1%
Minor shelf rockfish south of 40°10' N.	< 6%	< 6%	-
Minor slope rockfish north of 40°10' N.	6%	< 6%	-
Minor slope rockfish south of 40°10' N.	< 6%	< 6%	-
Other flatfish	10%	< 6%	(-) ≥ 4%
Pacific cod	< 6%	< 6%	-
Pacific halibut (IBQ) north of 40°10' N.	9%	6%	-3%
Pacific whiting	28%	26%	-2%
Sablefish north of 36° N.	41%	40%	-1%
Sablefish south of 36° N.	< 6%	< 6%	-
Shortspine thornyheads north of 34°27' N.	14%	8%	-6%
Shortspine thornyheads south of 34°27' N.	< 6%	< 6%	-
Splitnose rockfish south of 40°10' N.	< 6%	< 6%	-
Starry flounder	< 6%	< 6%	-
Widow rockfish	< 6%	< 6%	-
Yellowtail rockfish north of 40°10' N.	< 6%	< 6%	-

C.1.5 IFQ: Alternative 4 (2013)

Alternative 4 differs from the No Action Alternative in that the allocation of canary rockfish is 49 percent of that for No Action, and the POP allocation is only 167 percent of the No Action level. This alternative is considered to have a low allocation of canary rockfish, and a high allocation of POP, considering the range of alternatives. The other differences between Alternative 4 allocations and No Action are all the same as described between the PPA and No Action, and are described in that section.

Catch of rebuilding species is predicted to be lower for Alternative 4 than the No Action Alternative (Table C-16). The same is true for attainment, except of course for canary rockfish, which has higher attainment due to the low allocation in this alternative (Alternative 4).

The lower canary allocation of Alternative 4 resulted in a predicted 18 percent of vessels being constrained by this species, compared with less than 6 percent under no action (Table C-17). Catch of canary rockfish under Alternative 4 was 70 percent of that under No Action. The higher allocation of POP resulted in less than 6 percent of vessels being constrained by this species. Predicted catch of POP under Alternative 4 was 71 percent of that under No Action.

Table C-16. Allocations (lbs.), predicted total catch (lbs.), attainment (%) and comparison between Alternative 4 for 2013, and the No Action Alternative (as % of No Action), in the Shorebased IFQ Fishery, by species category.

IFQ species category	Allocation No action	Catch No action	Attainment No action	Allocation Alt. 4, 2013	Catch Alt. 4, 2013	Attainment Alt. 4, 2013	Allocation comparison	Catch comparison	Attainment comparison
Bocaccio rockfish south of 40°10' N.	132,277	7,314	6%	169,535	6,529	4%	128%	89%	70%
Canary rockfish	57,761	7,651	13%	28,219	5,325	19%	49%	70%	142%
Cowcod south of 40°10' N.	3,968	39	1%	4,189	37	1%	106%	94%	89%
Darkblotched rockfish	548,819	121,713	22%	590,839	94,749	16%	108%	78%	72%
Pacific ocean perch north of 40°10' N.	263,452	69,945	27%	440,925	49,959	11%	167%	71%	43%
Petrale sole	2,324,995	1,334,856	57%	5,460,850	1,036,690	19%	235%	78%	33%
Yelloweye rockfish	1,323	102	8%	2,205	68	3%	167%	67%	40%
Arrowtooth flounder	20,861,131	4,096,046	20%	8,496,616	1,481,265	17%	41%	36%	89%
Chilipepper rockfish south of 40°10' N.	2,934,904	648,477	22%	2,440,517	447,956	18%	83%	69%	83%
Dover sole	49,018,682	16,668,724	34%	49,019,784	15,347,281	31%	100%	92%	92%
English sole	21,037,611	152,809	1%	14,032,423	87,841	1%	67%	57%	86%
Lingcod coastwide	3,991,800	526,447	13%	3,791,951	442,388	12%	95%	84%	88%
Lingcod north of 40°10' N.	-	-	-	2,702,867	439,291	16%	-	-	-
Lingcod south of 40°10' N.	-	-	-	1,089,084	3,097	0%	-	-	-
Lingcod north of 42° N.	1,851,883	522,762	28%	-	-	-	-	-	-
Lingcod south of 42° N.	2,139,917	3,685	0.2%	-	-	-	-	-	-
Longspine thornyheads north of 34°27' N.	4,219,648	2,059,067	49%	4,100,598	1,822,354	44%	97%	89%	91%
Minor shelf rockfish north of 40°10' N.	1,150,813	29,526	3%	1,157,206	22,439	2%	101%	76%	76%
Minor shelf rockfish south of 40°10' N.	189,598	4,953	3%	179,897	4,544	3%	95%	92%	97%
Minor slope rockfish north of 40°10' N.	1,828,779	298,443	16%	1,715,196	249,414	15%	94%	84%	89%
Minor slope rockfish south of 40°10' N.	831,958	91,797	11%	824,529	75,053	9%	99%	82%	82%
Other flatfish	9,253,683	1,528,418	17%	9,237,369	1,375,737	15%	100%	90%	90%
Pacific cod	2,502,247	576,976	23%	2,495,633	457,552	18%	100%	79%	80%
Pacific halibut (IBQ) north of 40°10' N.	257,524	68,872	27%	257,524	60,562	24%	100%	88%	88%
Pacific whiting	204,628,442	201,597,130	99%	204,628,442	179,508,151	88%	100%	89%	89%
Sablefish north of 36° N.	5,438,804	4,836,978	89%	4,023,436	3,313,775	82%	74%	69%	93%
Sablefish south of 36° N.	1,133,352	812,079	72%	1,327,183	930,577	70%	117%	115%	98%
Shortspine thornyheads north of 34°27' N.	3,120,533	1,465,666	47%	3,084,267	1,302,196	42%	99%	89%	90%
Shortspine thornyheads south of 34°27' N.	110,231	15,346	14%	110,231	15,346	14%	100%	100%	100%
Splitnose rockfish south of 40°10' N.	3,206,513	58,185	2%	3,351,026	57,356	2%	105%	99%	94%
Starry flounder	1,480,404	28,135	2%	1,657,876	27,797	2%	112%	99%	88%
Widow rockfish	755,348	295,502	39%	2,204,623	242,608	11%	292%	82%	28%
Yellowtail rockfish north of 40°10' N.	6,850,556	1,324,649	19%	6,148,692	1,017,591	17%	90%	77%	86%

Table C-17. Percentages of vessels in the shorebased IFQ fishery predicted to attain 100% of their QP, by species and alternative, for Alternative 4 for 2013, and the No Action Alternative.

Species	No action	Alt. 4, 2013	Difference
Bocaccio rockfish south of 40°10' N.	< 6%	< 6%	-
Canary rockfish	< 6%	18%	≥ 12%
Cowcod south of 40°10' N.	< 6%	< 6%	-
Darkblotched rockfish	< 6%	< 6%	-
Pacific ocean perch north of 40°10' N.	< 6%	< 6%	-
Petrale sole	< 6%	< 6%	-
Yelloweye rockfish	< 6%	< 6%	-
Arrowtooth flounder	10%	8%	-2%
Chilipepper rockfish south of 40°10' N.	< 6%	< 6%	-
Dover sole	11%	8%	-3%
English sole	< 6%	< 6%	-
Lingcod	8%	6%	(-) ≥ 2%
Longspine thornyheads north of 34°27' N.	11%	10%	-1%
Minor shelf rockfish north of 40°10' N.	7%	< 6%	(-) ≥ 1%
Minor shelf rockfish south of 40°10' N.	< 6%	< 6%	-
Minor slope rockfish north of 40°10' N.	6%	< 6%	-
Minor slope rockfish south of 40°10' N.	< 6%	< 6%	-
Other flatfish	10%	< 6%	(-) ≥ 4%
Pacific cod	< 6%	< 6%	-
Pacific halibut (IBQ) north of 40°10' N.	9%	8%	-1%
Pacific whiting	28%	26%	-2%
Sablefish north of 36° N.	41%	41%	0%
Sablefish south of 36° N.	< 6%	< 6%	-
Shortspine thornyheads north of 34°27' N.	14%	12%	-2%
Shortspine thornyheads south of 34°27' N.	< 6%	< 6%	-
Splitnose rockfish south of 40°10' N.	< 6%	< 6%	-
Starry flounder	< 6%	< 6%	-
Widow rockfish	< 6%	< 6%	-
Yellowtail rockfish north of 40°10' N.	< 6%	< 6%	-

C.1.6 IFQ: Alternative 5 (2013)

Alternative 5 differs from the No Action Alternative in that the allocation of canary rockfish is 309 percent of that for No Action, and the POP allocation is only 34 percent of the No Action level. This alternative is considered to have a high allocation of canary rockfish, and a low allocation of POP, considering the range of alternatives. The other differences between Alternative 5 allocations and No Action are all the same as described between the PPA and No Action, and are described in that section.

Catch of rebuilding species is predicted to be lower for Alternative 5 than the No Action Alternative (Table C-18). The same is true for attainment, except for POP, which has higher attainment due to the low allocation in this alternative.

The lower POP allocation of Alternative 5 resulted in a predicted 19 percent of vessels being constrained by this species, compared with less than 6 percent under No Action (Table C-19). Catch of canary rockfish under Alternative 5 was 80 percent of that under No Action. The higher allocation of canary rockfish resulted in less than 6 percent of vessels being constrained by this species. Predicted catch of POP under Alternative 5 was 55 percent of that under No Action.

Table C-18. Allocations (lbs.), predicted total catch (lbs.), attainment (%) and comparison between Alternative 5 for 2013, and the No Action Alternative (as % of No Action), in the Shorebased IFQ Fishery, by species category.

IFQ species category	Allocation No action	Catch No action	Attainment No action	Allocation Alt. 5, 2013	Catch Alt. 5, 2013	Attainment Alt. 5, 2013	Allocation comparison	Catch comparison	Attainment comparison
Bocaccio rockfish south of 40°10' N.	132,277	7,314	6%	169,535	6,705	4%	128%	92%	72%
Canary rockfish	57,761	7,651	13%	178,354	6,098	3%	309%	80%	26%
Cowcod south of 40°10' N.	3,968	39	1%	4,189	37	1%	106%	94%	89%
Darkblotched rockfish	548,819	121,713	22%	590,839	85,823	15%	108%	71%	65%
Pacific ocean perch north of 40°10' N.	263,452	69,945	27%	90,390	38,363	42%	34%	55%	160%
Petrale sole	2,324,995	1,334,856	57%	5,460,850	1,029,418	19%	235%	77%	33%
Yelloweye rockfish	1,323	102	8%	2,205	78	4%	167%	77%	46%
Arrowtooth flounder	20,861,131	4,096,046	20%	8,496,616	1,319,875	16%	41%	32%	79%
Chilipepper rockfish south of 40°10' N.	2,934,904	648,477	22%	2,440,517	546,509	22%	83%	84%	101%
Dover sole	49,018,682	16,668,724	34%	49,019,784	14,272,816	29%	100%	86%	86%
English sole	21,037,611	152,809	1%	14,032,423	94,502	1%	67%	62%	93%
Lingcod coastwide	3,991,800	526,447	13%	3,791,951	429,835	11%	95%	82%	86%
Lingcod north of 40°10' N.	-	-	-	2,702,867	426,826	16%	-	-	-
Lingcod south of 40°10' N.	-	-	-	1,089,084	3,009	0%	-	-	-
Lingcod north of 42° N.	1,851,883	522,762	28%	-	-	-	-	-	-
Lingcod south of 42° N.	2,139,917	3,685	0.2%	-	-	-	-	-	-
Longspine thornyheads north of 34°27' N.	4,219,648	2,059,067	49%	4,100,598	1,674,247	41%	97%	81%	84%
Minor shelf rockfish north of 40°10' N.	1,150,813	29,526	3%	1,157,206	24,712	2%	101%	84%	83%
Minor shelf rockfish south of 40°10' N.	189,598	4,953	3%	179,897	4,711	3%	95%	95%	100%
Minor slope rockfish north of 40°10' N.	1,828,779	298,443	16%	1,715,196	202,183	12%	94%	68%	72%
Minor slope rockfish south of 40°10' N.	831,958	91,797	11%	824,529	90,074	11%	99%	98%	99%
Other flatfish	9,253,683	1,528,418	17%	9,237,369	1,368,547	15%	100%	90%	90%
Pacific cod	2,502,247	576,976	23%	2,495,633	503,501	20%	100%	87%	87%
Pacific halibut (IBQ) north of 40°10' N.	257,524	68,872	27%	257,524	55,120	21%	100%	80%	80%
Pacific whiting	204,628,442	201,597,130	99%	204,628,442	182,256,102	89%	100%	90%	90%
Sablefish north of 36° N.	5,438,804	4,836,978	89%	4,023,436	3,074,980	76%	74%	64%	86%
Sablefish south of 36° N.	1,133,352	812,079	72%	1,327,183	946,940	71%	117%	117%	100%
Shortspine thornyheads north of 34°27' N.	3,120,533	1,465,666	47%	3,084,267	1,185,802	38%	99%	81%	82%
Shortspine thornyheads south of 34°27' N.	110,231	15,346	14%	110,231	15,346	14%	100%	100%	100%
Splitnose rockfish south of 40°10' N.	3,206,513	58,185	2%	3,351,026	61,085	2%	105%	105%	100%
Starry flounder	1,480,404	28,135	2%	1,657,876	30,714	2%	112%	109%	97%
Widow rockfish	755,348	295,502	39%	2,204,623	237,628	11%	292%	80%	28%
Yellowtail rockfish north of 40°10' N.	6,850,556	1,324,649	19%	6,148,692	1,043,894	17%	90%	79%	88%

Table C-19. Percentages of vessels in the shorebased IFQ fishery predicted to attain 100% of their QP, by species and alternative, for Alternative 5 for 2013, and the No Action Alternative.

IFQ species category	No action	Alt. 5 2013	Difference
Bocaccio rockfish south of 40°10' N.	< 6%	< 6%	-
Canary rockfish	< 6%	< 6%	-
Cowcod south of 40°10' N.	< 6%	< 6%	-
Darkblotched rockfish	< 6%	< 6%	-
Pacific ocean perch north of 40°10' N.	< 6%	19%	≥ 13%
Petrale sole	< 6%	< 6%	-
Yelloweye rockfish	< 6%	< 6%	-
Arrowtooth flounder	10%	6%	-4%
Chilipepper rockfish south of 40°10' N.	< 6%	< 6%	-
Dover sole	11%	6%	-5%
English sole	< 6%	< 6%	-
Lingcod	8%	< 6%	(-) ≥ 2%
Longspine thornyheads north of 34°27' N.	11%	8%	-3%
Minor shelf rockfish north of 40°10' N.	7%	< 6%	(-) ≥ 1%
Minor shelf rockfish south of 40°10' N.	< 6%	< 6%	-
Minor slope rockfish north of 40°10' N.	6%	< 6%	-
Minor slope rockfish south of 40°10' N.	< 6%	< 6%	-
Other flatfish	10%	< 6%	(-) ≥ 4%
Pacific cod	< 6%	< 6%	-
Pacific halibut (IBQ) north of 40°10' N.	9%	6%	-3%
Pacific whiting	28%	26%	-2%
Sablefish north of 36° N.	41%	40%	-1%
Sablefish south of 36° N.	< 6%	< 6%	-
Shortspine thornyheads north of 34°27' N.	14%	8%	-6%
Shortspine thornyheads south of 34°27' N.	< 6%	< 6%	-
Splitnose rockfish south of 40°10' N.	< 6%	< 6%	-
Starry flounder	< 6%	< 6%	-
Widow rockfish	< 6%	< 6%	-
Yellowtail rockfish north of 40°10' N.	< 6%	< 6%	-

C.1.7 IFQ: Alternative 6 (2013)

Alternative 6 differs from the No Action Alternative in that the allocation of canary rockfish is 131 percent of that for No Action, and the POP allocation is 150 percent of the No Action level. This alternative is considered to have a medium allocation of canary rockfish, and a high allocation of POP, considering the range of alternatives. The other differences between Alternative 6 allocations and No Action are all the same as described between the PPA and No Action, and are described in that section.

Catch of rebuilding species is predicted to be lower for Alternative 6 than the No Action Alternative. The same is true for attainment (Table C-20).

Predicted numbers of vessels constrained by rebuilding species are all less than 6%, thus enabling a higher proportion of vessels to catch 100 percent of their QP for target species such as sablefish north of 36° N., whiting, and minor slope rockfish north of 40°10' N. (Table C-21).

Catch of canary rockfish under Alternative 6 was 90 percent of that under No Action. The higher allocation of canary rockfish under Alternative 6, compared to No Action, resulted in less than 6 percent of vessels being constrained by this species. Predicted catch of POP under Alternative 6 was 85 percent of that under No Action.

Table C-20. Allocations (lbs.), predicted total catch (lbs.), attainment (%) and comparison between Alternative 6 for 2013, and the No Action Alternative (as % of No Action), in the Shorebased IFQ Fishery, by species category.

IFQ species category	Allocation No action	Catch No action	Attainment No action	Allocation Alt. 6, 2013	Catch Alt. 6, 2013	Attainment Alt. 6, 2013	Allocation comparison	Catch comparison	Attainment comparison
Bocaccio rockfish south of 40°10' N.	132,277	7,314	6%	169,535	6,705	4%	128%	92%	72%
Canary rockfish	57,761	7,651	13%	75,398	6,900	9%	131%	90%	69%
Cowcod south of 40°10' N.	3,968	39	1%	4,189	37	1%	106%	94%	89%
Darkblotched rockfish	548,819	121,713	22%	590,839	108,176	18%	108%	89%	83%
Pacific ocean perch north of 40°10' N.	263,452	69,945	27%	394,627	59,793	15%	150%	85%	57%
Petrale sole	2,324,995	1,334,856	57%	5,460,850	1,188,565	22%	235%	89%	38%
Yelloweye rockfish	1,323	102	8%	2,205	88	4%	167%	86%	52%
Arrowtooth flounder	20,861,131	4,096,046	20%	8,496,616	1,670,869	20%	41%	41%	100%
Chilipepper rockfish south of 40°10' N.	2,934,904	648,477	22%	2,440,517	546,509	22%	83%	84%	101%
Dover sole	49,018,682	16,668,724	34%	49,019,784	16,745,565	34%	100%	100%	100%
English sole	21,037,611	152,809	1%	14,032,423	102,219	1%	67%	67%	100%
Lingcod coastwide	3,991,800	526,447	13%	3,791,951	500,879	13%	95%	95%	100%
Lingcod north of 40°10' N.	-	-	-	2,702,867	497,373	18%	-	-	-
Lingcod south of 40°10' N.	-	-	-	1,089,084	3,506	0%	-	-	-
Lingcod north of 42° N.	1,851,883	522,762	28%	-	-	-	-	-	-
Lingcod south of 42° N.	2,139,917	3,685	0.2%	-	-	-	-	-	-
Longspine thornyheads north of 34°27' N.	4,219,648	2,059,067	49%	4,100,598	2,012,468	49%	97%	98%	101%
Minor shelf rockfish north of 40°10' N.	1,150,813	29,526	3%	1,157,206	29,766	3%	101%	101%	100%
Minor shelf rockfish south of 40°10' N.	189,598	4,953	3%	179,897	4,711	3%	95%	95%	100%
Minor slope rockfish north of 40°10' N.	1,828,779	298,443	16%	1,715,196	280,348	16%	94%	94%	100%
Minor slope rockfish south of 40°10' N.	831,958	91,797	11%	824,529	91,956	11%	99%	100%	101%
Other flatfish	9,253,683	1,528,418	17%	9,237,369	1,528,820	17%	100%	100%	100%
Pacific cod	2,502,247	576,976	23%	2,495,633	575,494	23%	100%	100%	100%
Pacific halibut (IBQ) north of 40°10' N.	257,524	68,872	27%	257,524	69,121	27%	100%	100%	100%
Pacific whiting	204,628,442	201,597,130	99%	204,628,442	201,720,185	99%	100%	100%	100%
Sablefish north of 36° N.	5,438,804	4,836,978	89%	4,023,436	3,591,809	89%	74%	74%	100%
Sablefish south of 36° N.	1,133,352	812,079	72%	1,327,183	951,519	72%	117%	117%	100%
Shortspine thornyheads north of 34°27' N.	3,120,533	1,465,666	47%	3,084,267	1,454,645	47%	99%	99%	100%
Shortspine thornyheads south of 34°27' N.	110,231	15,346	14%	110,231	15,346	14%	100%	100%	100%
Splitnose rockfish south of 40°10' N.	3,206,513	58,185	2%	3,351,026	61,094	2%	105%	105%	100%
Starry flounder	1,480,404	28,135	2%	1,657,876	31,509	2%	112%	112%	100%
Widow rockfish	755,348	295,502	39%	2,204,623	291,333	13%	292%	99%	34%
Yellowtail rockfish north of 40°10' N.	6,850,556	1,324,649	19%	6,148,692	1,189,649	19%	90%	90%	100%

Table C-21. Percentages of vessels in the shorebased IFQ fishery predicted to attain 100% of their QP, by species and alternative, for Alternative 6 for 2013, and the No Action Alternative.

IFQ species category	No action	Alt. 6, 2013	Difference
Bocaccio rockfish south of 40°10' N.	< 6%	< 6%	-
Canary rockfish	< 6%	< 6%	-
Cowcod south of 40°10' N.	< 6%	< 6%	-
Darkblotched rockfish	< 6%	< 6%	-
Pacific ocean perch north of 40°10' N.	< 6%	< 6%	-
Petrale sole	< 6%	< 6%	-
Yelloweye rockfish	< 6%	< 6%	-
Arrowtooth flounder	10%	12%	2%
Chilipepper rockfish south of 40°10' N.	< 6%	< 6%	-
Dover sole	11%	12%	1%
English sole	< 6%	< 6%	-
Lingcod	8%	10%	2%
Longspine thornyheads north of 34°27' N.	11%	13%	2%
Minor shelf rockfish north of 40°10' N.	7%	11%	4%
Minor shelf rockfish south of 40°10' N.	< 6%	< 6%	-
Minor slope rockfish north of 40°10' N.	6%	11%	5%
Minor slope rockfish south of 40°10' N.	< 6%	< 6%	-
Other flatfish	10%	11%	1%
Pacific cod	< 6%	8%	≥ 2%
Pacific halibut (IBQ) north of 40°10' N.	9%	13%	4%
Pacific whiting	28%	37%	9%
Sablefish north of 36° N.	41%	53%	12%
Sablefish south of 36° N.	< 6%	< 6%	-
Shortspine thornyheads north of 34°27' N.	14%	16%	2%
Shortspine thornyheads south of 34°27' N.	< 6%	< 6%	-
Splitnose rockfish south of 40°10' N.	< 6%	< 6%	-
Starry flounder	< 6%	< 6%	-
Widow rockfish	< 6%	< 6%	-
Yellowtail rockfish north of 40°10' N.	< 6%	< 6%	-

C.1.8 IFQ: Alternative 7 (2013 and 2014)

Alternative 7 for 2013 differs from the No Action Alternative in that the allocation of canary rockfish is 202 percent of that for No Action, and the POP allocation is 150 percent of the No Action level. For 2014, the canary allocation is 208 percent of No Action, and the POP allocation is 152 percent of No Action. The other differences between Alternative 7 allocations and No Action are all the same as described between the PPA and No Action, and are described in that section. These two alternatives are considered to have medium and medium-high allocations of canary rockfish, respectively, and medium and high allocations of POP, respectively, considering the range of alternatives.

Catch of rebuilding species is predicted to be lower for Alternative 7 than the No Action Alternative (Table C-22). The same is true for attainment. Predicted numbers of vessels constrained by rebuilding species are less than 6% for each one, including canary rockfish and POP, thus enabling a higher proportion of vessels to catch 100 percent of their QP for target species such as sablefish north of 36° N., whiting, and minor slope rockfish north of 40°10' N. (Table C-23).

Table C-22. Allocations (lbs.), predicted total catch (lbs.), attainment (%) and comparison between Alternative 7 for 2013, and the No Action Alternative (as % of No Action), in the Shorebased IFQ Fishery, by species category.

IFQ species category	Allocation No action	Catch No action	Attainment No action	Allocation Alt. 7, 2013	Catch Alt. 7, 2013	Attainment Alt. 7, 2013	Allocation comparison	Catch comparison	Attainment comparison
Bocaccio rockfish south of 40°10' N.	132,277	7,314	6%	169,535	6,705	4%	128%	92%	72%
Canary rockfish	57,761	7,651	13%	116,625	6,900	6%	202%	90%	45%
Cowcod south of 40°10' N.	3,968	39	1%	4,189	37	1%	106%	94%	89%
Darkblotched rockfish	548,819	121,713	22%	590,839	108,176	18%	108%	89%	83%
Pacific ocean perch north of 40°10' N.	263,452	69,945	27%	394,627	59,793	15%	150%	85%	57%
Petrale sole	2,324,995	1,334,856	57%	5,460,850	1,188,565	22%	235%	89%	38%
Yelloweye rockfish	1,323	102	8%	2,205	88	4%	167%	86%	52%
Arrowtooth flounder	20,861,131	4,096,046	20%	8,496,616	1,670,869	20%	41%	41%	100%
Chilipepper rockfish south of 40°10' N.	2,934,904	648,477	22%	2,440,517	546,509	22%	83%	84%	101%
Dover sole	49,018,682	16,668,724	34%	49,019,784	16,745,565	34%	100%	100%	100%
English sole	21,037,611	152,809	1%	14,032,423	102,219	1%	67%	67%	100%
Lingcod coastwide	3,991,800	526,447	13%	3,791,951	500,879	13%	95%	95%	100%
Lingcod north of 40°10' N.	-	-	-	2,702,867	497,373	18%	-	-	-
Lingcod south of 40°10' N.	-	-	-	1,089,084	3,506	0%	-	-	-
Lingcod north of 42° N.	1,851,883	522,762	28%	-	-	-	-	-	-
Lingcod south of 42° N.	2,139,917	3,685	0.2%	-	-	-	-	-	-
Longspine thornyheads north of 34°27' N.	4,219,648	2,059,067	49%	4,100,598	2,012,468	49%	97%	98%	101%
Minor shelf rockfish north of 40°10' N.	1,150,813	29,526	3%	1,157,206	29,766	3%	101%	101%	100%
Minor shelf rockfish south of 40°10' N.	189,598	4,953	3%	179,897	4,711	3%	95%	95%	100%
Minor slope rockfish north of 40°10' N.	1,828,779	298,443	16%	1,715,196	280,348	16%	94%	94%	100%
Minor slope rockfish south of 40°10' N.	831,958	91,797	11%	824,529	91,956	11%	99%	100%	101%
Other flatfish	9,253,683	1,528,418	17%	9,237,369	1,528,820	17%	100%	100%	100%
Pacific cod	2,502,247	576,976	23%	2,495,633	575,494	23%	100%	100%	100%
Pacific halibut (IBQ) north of 40°10' N.	257,524	68,872	27%	257,524	69,121	27%	100%	100%	100%
Pacific whiting	204,628,442	201,597,130	99%	204,628,442	201,720,185	99%	100%	100%	100%
Sablefish north of 36° N.	5,438,804	4,836,978	89%	4,023,436	3,591,809	89%	74%	74%	100%
Sablefish south of 36° N.	1,133,352	812,079	72%	1,327,183	951,519	72%	117%	117%	100%
Shortspine thornyheads north of 34°27' N.	3,120,533	1,465,666	47%	3,084,267	1,454,645	47%	99%	99%	100%
Shortspine thornyheads south of 34°27' N.	110,231	15,346	14%	110,231	15,346	14%	100%	100%	100%

IFQ species category	Allocation No action	Catch No action	Attainment No action	Allocation Alt. 7, 2013	Catch Alt. 7, 2013	Attainment Alt. 7, 2013	Allocation comparison	Catch comparison	Attainment comparison
Splitnose rockfish south of 40°10' N.	3,206,513	58,185	2%	3,351,026	61,094	2%	105%	105%	100%
Starry flounder	1,480,404	28,135	2%	1,657,876	31,509	2%	112%	112%	100%
Widow rockfish	755,348	295,502	39%	2,204,623	291,333	13%	292%	99%	34%
Yellowtail rockfish north of 40°10' N.	6,850,556	1,324,649	19%	6,148,692	1,189,649	19%	90%	90%	100%

Table C-23. Allocations (lbs.), predicted total catch (lbs.), attainment (%) and comparison between Alternative 7 for 2014, and the No Action Alternative (as % of No Action), in the Shorebased IFQ Fishery, by species category.

IFQ species category	Allocation No action	Catch No action	Attainment No action	Allocation Alt. 7, 2014	Catch Alt. 7, 2014	Attainment Alt. 7, 2014	Allocation comparison	Catch comparison	Attainment comparison
Bocaccio rockfish south of 40°10' N.	132,277	7,314	6%	175,929	6,644	4%	133%	91%	68%
Canary rockfish	57,761	7,651	13%	120,152	6,870	6%	208%	90%	43%
Cowcod south of 40°10' N.	3,968	39	1%	4,189	36	1%	106%	93%	88%
Darkblotched rockfish	548,819	121,713	22%	615,090	107,968	18%	112%	89%	79%
Pacific ocean perch north of 40°10' N.	263,452	69,945	27%	401,241	59,414	15%	152%	85%	56%
Petrale sole	2,324,995	1,334,856	57%	5,593,128	1,182,923	21%	241%	89%	37%
Yelloweye rockfish	1,323	102	8%	2,205	90	4%	167%	88%	53%
Arrowtooth flounder	20,861,131	4,096,046	20%	7,661,064	1,506,557	20%	37%	37%	100%
Chilipepper rockfish south of 40°10' N.	2,934,904	648,477	22%	2,369,969	530,711	22%	81%	82%	101%
Dover sole	49,018,682	16,668,724	34%	49,019,784	16,745,565	34%	100%	100%	100%
English sole	21,037,611	152,809	1%	11,587,496	84,409	1%	55%	55%	100%
Lingcod coastwide	3,991,800	526,447	13%	3,589,126	474,088	13%	90%	90%	100%
Lingcod north of 40°10' N.	-	-	-	2,546,339	470,770	18%	-	-	-
Lingcod south of 40°10' N.	-	-	-	1,042,786	3,319	0%	-	-	-
Lingcod north of 42° N.	1,851,883	522,762	28%	-	-	-	-	-	-
Lingcod south of 42° N.	2,139,917	3,685	0.2%	-	-	-	-	-	-
Longspine thornyheads north of 34°27' N.	4,219,648	2,059,067	49%	3,992,572	1,959,451	49%	95%	95%	101%
Minor shelf rockfish north of 40°10' N.	1,150,813	29,526	3%	1,157,206	29,766	3%	101%	101%	100%
Minor shelf rockfish south of 40°10' N.	189,598	4,953	3%	179,897	4,711	3%	95%	95%	100%
Minor slope rockfish north of 40°10' N.	1,828,779	298,443	16%	1,715,196	280,348	16%	94%	94%	100%
Minor slope rockfish south of 40°10' N.	831,958	91,797	11%	831,143	92,694	11%	100%	101%	101%
Other flatfish	9,253,683	1,528,418	17%	9,237,369	1,528,820	17%	100%	100%	100%
Pacific cod	2,502,247	576,976	23%	2,495,633	575,494	23%	100%	100%	100%
Pacific halibut (IBQ) north of 40°10' N.	257,524	68,872	27%	257,524	69,121	27%	100%	100%	100%
Pacific whiting	204,628,442	201,597,130	99%	204,628,442	201,720,185	99%	100%	100%	100%
Sablefish north of 36° N.	5,438,804	4,836,978	89%	4,376,176	3,906,708	89%	80%	81%	100%
Sablefish south of 36° N.	1,133,352	812,079	72%	1,439,619	1,032,130	72%	127%	127%	100%
Shortspine thornyheads north of 34°27' N.	3,120,533	1,465,666	47%	3,053,402	1,440,089	47%	98%	98%	100%
Shortspine thornyheads south of 34°27' N.	110,231	15,346	14%	110,231	15,346	14%	100%	100%	100%

IFQ species category	Allocation No action	Catch No action	Attainment No action	Allocation Alt. 7, 2014	Catch Alt. 7, 2014	Attainment Alt. 7, 2014	Allocation comparison	Catch comparison	Attainment comparison
Splitnose rockfish south of 40°10' N.	3,206,513	58,185	2%	3,476,690	63,385	2%	108%	109%	100%
Starry flounder	1,480,404	28,135	2%	1,666,695	31,677	2%	113%	113%	100%
Widow rockfish	755,348	295,502	39%	2,204,623	291,132	13%	292%	99%	34%
Yellowtail rockfish north of 40°10' N.	6,850,556	1,324,649	19%	6,155,306	1,190,929	19%	90%	90%	100%

Predicted catch of canary rockfish under Alternative 7 was 90 percent of that under No Action. Predicted catch of POP under Alternative 7 was 85 percent of that under No Action. The same is true of predictions for Alternative 7 in 2014 (Table C-24).

Table C-24. Percentages of vessels in the shorebased IFQ fishery predicted to attain 100% of their QP, by species and alternative, for Alternative 7 for 2013 and 2014, and the No Action Alternative.

IFQ species category	No action	Alt. 7, 2013	Alt. 7, 2014	2013 dif.	2014 dif.
Bocaccio rockfish south of 40°10' N.	< 6%	< 6%	< 6%	-	-
Canary rockfish	< 6%	< 6%	< 6%	-	-
Cowcod south of 40°10' N.	< 6%	< 6%	< 6%	-	-
Darkblotched rockfish	< 6%	< 6%	< 6%	-	-
Pacific ocean perch north of 40°10' N.	< 6%	< 6%	< 6%	-	-
Petrale sole	< 6%	< 6%	< 6%	-	-
Yelloweye rockfish	< 6%	< 6%	< 6%	-	-
Arrowtooth flounder	10%	12%	12%	2%	2%
Chilipepper rockfish south of 40°10' N.	< 6%	< 6%	< 6%	-	-
Dover sole	11%	12%	12%	1%	1%
English sole	< 6%	< 6%	< 6%	-	-
Lingcod	8%	10%	10%	2%	2%
Longspine thornyheads north of 34°27' N.	11%	13%	13%	2%	2%
Minor shelf rockfish north of 40°10' N.	7%	11%	11%	4%	4%
Minor shelf rockfish south of 40°10' N.	< 6%	< 6%	< 6%	-	-
Minor slope rockfish north of 40°10' N.	6%	11%	11%	5%	5%
Minor slope rockfish south of 40°10' N.	< 6%	< 6%	< 6%	-	-
Other flatfish	10%	11%	11%	1%	1%
Pacific cod	< 6%	8%	8%	-	-
Pacific halibut (IBQ) north of 40°10' N.	9%	13%	13%	4%	4%
Pacific whiting	28%	37%	37%	9%	9%
Sablefish north of 36° N.	41%	53%	53%	12%	12%
Sablefish south of 36° N.	< 6%	< 6%	< 6%	-	-
Shortspine thornyheads north of 34°27' N.	14%	16%	16%	2%	2%
Shortspine thornyheads south of 34°27' N.	< 6%	< 6%	< 6%	-	-
Splitnose rockfish south of 40°10' N.	< 6%	< 6%	< 6%	-	-
Starry flounder	< 6%	< 6%	< 6%	-	-
Widow rockfish	< 6%	< 6%	< 6%	-	-
Yellowtail rockfish north of 40°10' N.	< 6%	< 6%	< 6%	-	-

Distribution of IFQ catch by area, gear type and depth

Model-based predictions of distribution of catch among areas, gear types, or depth were not produced. Currently, the information most indicative of future catch distribution according to these factors is 2011 catch data. The most recent, detailed, total catch data available (for which depth and gear information was available) at the time of this analysis was from the WCGOP, dated October 4, 2011.

Within non-whiting trips, 4.4 percent of the catch at this time was taken with fixed gear, and 95.6 percent was taken with some type of trawl gear. The total non-whiting catch at this time was 25,945,928 pounds. The distribution of catch between gear types as of early October, 2011, followed a north to south cline, where north of 40°10’ N. lat., 98 percent of non-whiting catch was taken with trawl gear, from 36° to 40°10’ N. lat., trawl accounted for 95 percent, from 34°27’ to 36° N. lat., 86 percent was taken with trawl gear, and finally, south of 34°27’, all non-whiting catch was taken with fixed gear, although it was a small percentage of the overall non-whiting catch (Table C-25). At that time these data were recorded, 86.5 percent of total catch for the sector was from declared whiting trips, with the remainder, 13.5%, from non-whiting trips. The total catch for the sector at this time was 192,352,890 pounds.

Table C-25. Distribution of IFQ total catch among areas and depths, for non-whiting trips, as of October 4, 2011.

Gear type	North of 40°10’	36° to 40°10’	34°27’ to 36°	South of 34°27’	Total
Fixed gear	1.9%	4.8%	86.4%	100.0%	4.4%
Trawl	98.1%	95.2%	13.6%	0.0%	95.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Within each gear type (for non-whiting trips), most fixed gear catch was taken in the area from 34°27’ to 36° N. lat. (46%), followed by 37 percent north of 40°10’ N. lat. Another 12 percent of fixed gear catch was taken between 36° and 40°10’ N. lat., with the remaining 5 percent coming from south of 34°27’. Within trawl catch, 89 percent came from north of 40°10’ N. lat., approximately 11% was taken between 34°27’ to 36° (

Area	Fixed gear	Trawl	Total
North of 40°10’	37.4%	88.9%	86.6%
36° to 40°10’	11.7%	10.7%	10.8%
34°27’ to 36°	45.9%	0.3%	2.4%
South of 34°27’	5.0%	0.0%	0.2%
Total	100.0%	100.0%	100.0%

).

Table C-26. Distribution of IFQ total catch among areas and gears, for non-whiting trips, as of October 4, 2011.

Area	Fixed gear	Trawl	Total
North of 40°10’	37.4%	88.9%	86.6%
36° to 40°10’	11.7%	10.7%	10.8%
34°27’ to 36°	45.9%	0.3%	2.4%
South of 34°27’	5.0%	0.0%	0.2%
Total	100.0%	100.0%	100.0%

For non-whiting trips, the vast majority of catch was taken deeper than 100 fm (84%). This was the distribution north of 36° N. lat., however, south of 36° N. lat., all catch was taken deeper than 100 fm (

Depth	North of 40°10’	36° to 40°10’	34°27’ to 36°	South of 34°27’	Total
> 100 fm	83.5%	84.1%	100.0%	100.0%	84.0%
< 100 fm	16.5%	15.9%	0.0%	0.0%	16.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

). For whiting trips, 41.4 percent of catch was taken deeper than 100 fm, while 58.6% was taken at depths less than 100 fm (all mid-water trawls).

Table C-27. Distribution of IFQ total catch among areas and depths, for non-whiting trips, as of October 4, 2011.

Depth	North of 40°10’	36° to 40°10’	34°27’ to 36°	South of 34°27’	Total
> 100 fm	83.5%	84.1%	100.0%	100.0%	84.0%
< 100 fm	16.5%	15.9%	0.0%	0.0%	16.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

C.2 Non-Nearshore

C.2.1 Sablefish Trip Limits

The following section discusses catch projections and trip limit analyses for the four fixed gear, daily trip limit (DTL) fisheries, including both limited entry (LE) and open access (OA), north and south of 36° N. lat. for 2011. Hereafter, they will be referred to as follows: LE North, LE South, OA North, and OA South.

Proposed trip limits for 2013 and 2014 in the fixed gear, sablefish, DTL fisheries were produced through iteration using GMT catch projection models (models described briefly below, and in detail in the 2011-2012 EIS).

Proposed trip limits in the Preliminary Preferred Alternatives for 2013 and 2014 were reduced or increased to bring projected catch to within new management targets, resulting from changes to the sablefish ACLs for the areas north and south of 36° N. lat. Landings projections were approximately 91 percent of the landings target, in order to produce trip limits which are likely to result in full attainment of harvest guidelines, while providing sufficient catch buffer, appropriate for the uncertainty in accuracy of estimated landings data, and normal uncertainty associated with statistical model projections. This strategy was supported by the Council in establishing sablefish DTL trip limits for 2012, in the November, 2011 Council meeting.

For 2013, in the LE North fishery, proposed trip limits for 2013 were reduced to approximately 85 percent of No Action levels; for the OA North fishery, proposed trip limits were reduced to 68 percent of No Action. In the area south of 36° N. lat., harvest guidelines were higher than No Action (due to a slightly higher sablefish ACL for 2013 and 2014 in this area). For LE South, proposed trip limits were 104 percent of no action; for OA South, 108 percent. Trip limits for 2014 were slightly higher than for 2013 (2 to 5 percent higher) across all four sablefish DTL fisheries, due to higher ACLs in 2014.

Analytical description

The purposes of this analysis are to compare predicted landings between the No Action Alternative and the Preliminary Preferred Alternative, under their resultant regional allocations, and fishery harvest guidelines, for the four fixed gear, sablefish daily trip limit (DTL) fisheries, including limited entry (LE) and open access (OA), both north and south of 36° N. lat.

The ACLs, regional allocations, and fishery LTs only vary between the No Action Alternative, versus the Preliminary Preferred Alternative and all other alternatives, within each year. Levels of these three harvest control points vary only between years (2013-2014), and between No Action and all other alternatives. Within this analysis, "harvest guidelines" is defined as numerical management harvest objectives which are not quotas. These are either cited in regulation or calculated from other higher level numerical management objectives appearing in regulation. These harvest guidelines were reduced to account for discard mortality, the method and rationale for which is described below, to produce "landings targets", which were used in projection modeling to predict landings, and determine necessary trip limits.

Model description

The catch projection models used in this analysis are linear regression models that relate trip limits to monthly or bimonthly landings, separately for each fishery. Detailed descriptions of the models can be found in Appendix A. of the 2011-2012 harvest specifications EIS.
Limited entry models were specified as described in the 2011-2012 EIS. Minor differences in model specification were made in the open access models for 2013-2014. Sablefish ex-vessel revenue and fuel prices were removed as predictor variables in the open access North and South models. Although these variables present a meaningful picture in retrospect, when their historical values are known, they do not provide valuable information for making projections of future catch, since fuel prices and sablefish prices in the future are not known, are subject to substantial variability, and either assumptions or projections must be made about these would-be predictor variables themselves. Error in assumptions regarding future values of these variables introduces bias and significantly affects accuracy of projections; using them inflates apparent accuracy and precision, producing unrealistically high multiple-R^2 values and low standard errors for the regressions. Trip limits, on the other hand, are known (are set by the Council process), and their use for projecting catch into the future presents a realistic picture of uncertainty. Data from years 2004-2006, when there was extremely small variation in trip limits, and provided little information content for the model, were removed from the OA South model, and resulted in increased model fit.

Model input data

Landings and catch data were acquired from PacFIN using the query "slct_ves_sabl_arid_DTL_no_EFP.sql". As described in the GMT inseason statements from the April, June, September, and November 2011 Council meetings, data from this query were found this year to have two substantial problems, both of which were corrected before use in the analysis for these harvest specifications. First, historical landings of sablefish with fixed gear, in the LE North, DTL fishery were substantially underestimated from 2004 through 2011, as the software in the PacFIN database which estimates division of fixed gear sablefish landings between the primary tier fishery and DTL fisheries was malfunctioning. The software has since been modified to make the most accurate division of catch between the two fisheries which is currently possible, and the GMT and Council are working on a long-range solution that would provide direct catch accounting, which would replace the currently necessary computational estimation procedure. Second, gear-switching provisions under IFQ lead to misattribution of IFQ landings of sablefish using fixed gear, to the various sablefish DTL fisheries. This has also been corrected, and screening procedures have been put in place both in PacFIN and with the states to flag and remove IFQ fish tickets from the "slct_ves_sabl_arid_DTL_no_EFP.sql" query for the sablefish DTL projection models.

Accounting for discards and discard mortality

Landings targets which appear in this section have been reduced from harvest guidelines that would appear in regulation, where applicable, in order to account for discard mortality. The harvest guideline (a specified numerical harvest objective that is not a quota) was multiplied by 15.9% (discard rate estimate), and by 20% (discard mortality rate estimate), and then that product (estimated dead discarded sablefish) was subtracted from the harvest guideline, resulting in a "landings target", which projected landings should be beneath, in order to keep total catch within the harvest guideline. The estimated discard rate used by GMT was taken from the 2010 West Coast Groundfish Observer Program (WCGOP) Total Mortality Report. In the 2009-10 management cycle, the discard rate estimate was the same, and was derived from data in the 2007 WCGOP Total Mortality Report, which was the most recent available data at that time. That discard mortality rate estimate was taken from information in Davis (2001, LTtp://onlinelibrary.wiley.com/doi/10.1111/j.1095-8649.2001.tb00495.x/abstract), Shirrippa and Colbert (2005, LTtp://www.pcouncil.org/wp-content/uploads/Sable05_complete.pdf), and Shirrippa (2007, LTtp://www.pcouncil.org/wp-content/uploads/Sable07v3_0.pdf). Shirrippa (2005) used experimental data and sea surface temperature to predict varying release mortality by gear. The GMT considered that Davis (2001) demonstrated high sensitivity to temperature and deck time, along with high variability of predicted discard mortality in Shirrippa (2005) informed by sea surface temperature data, and adopted an estimate of 20%. This value was also adopted by Taylor 2011 in the current sablefish stock assessment.

No Action Alternative

Area restrictions

Under No Action, the following Rockfish Conservation Area boundaries for use of fixed gear, from 2012 regulations, would remain in place for 2013 and 2014 (Table C-28).

Table C-28. Rockfish Conservation Area (RCA) boundaries for fixed gear, under the No Action Alternative.

Area	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec
North of 46° 16'	shore - 100 fm					
45° 03' 83" - 46° 16'	30 - 100 fm					
43° - 45° 03' 83"	30 - 125 fm (125 line reduced to 100 fm during directed halibut season)					
42° - 43°	20 - 100 fm					
40° 10' - 42°	20 fm depth contour - 100 fm					
34° 27' - 40° 10'	30 fm - 150 fm line					
South of 34° 27' (w/islands)	m - 150 fm line					

Projected Landings (No action)

Projected landings under the No Action Alternative are presented in Table C-29. The GMT and the Council considered, while constructing and adopting them, respectively, the uncertainty in the landings data seen during 2011 (in terms of correctly separating primary tier landings from DTL landings, and separating new IFQ fixed gear landings from DTL landings) along with the normal uncertainty associated with projection models, the No Action trip limit structures for 2012 for each fishery presented here. The No Action Alternative resulted in projected attainments in the range of 91% to 93%, aiming to enable harvest of a high proportion of the HG, yet accommodating previously described uncertainty.

Table C-29. Model-projected landings under the No Action Alternative, for the fixed-gear, sablefish, DTL fisheries. Landings targets and projected landings are in metric tons (mt).

Fishery	Area	LT	No act. projection	% of LT
LE N.	North of 36° N. lat.	265	242	91%
OA N.	North of 36° N. lat.	419	381	91%
LE S.	South of 36° N. lat.	380	353	93%
OA S.	South of 36° N. lat.	309	284	92%

These trip limits can be adjusted inseason as needed to influence higher or lower catch as 2013 progresses. We strove to present trip limits with a predictable and temporally even structure (which was appreciated by the GAP, in their statement, in the November 2011 Council meeting), and to avoid starting the year with highly variable trip limits, such as resulted from the "rolling over" of 2010 trip limits into 2011, due to unforeseeable delays in implementation.

Table C-30. Trip limits for sablefish DTL fisheries under No Action.

<table>
<tr><th>Area</th><th>Fishery</th><th>Jan-Feb</th><th>Mar-Apr</th><th>May-Jun</th><th>July-Aug</th><th>Sept-Oct</th><th>Nov-Dec</th></tr>
<tr><td rowspan="2">North of 36° N. lat. (U.S./Canada Border to 36° N. lat.)</td><td>LE N.</td><td colspan="6">1,300 lb. per week, not to exceed 5,000 lb. per 2 mo.</td></tr>
<tr><td>OA N.</td><td colspan="6">300 lb. per day, or 1 landing per week of up to 900 lb., not to exceed 1,800 lb. per 2 mo.</td></tr>
<tr><td rowspan="2">South of 36° N. lat.</td><td>LE S.</td><td colspan="6">1,800 lb. per week</td></tr>
<tr><td>OA S.</td><td colspan="6">300 lb. per day, or 1 landing per week of up to 1,350 lb., not to exceed 2,700 lb. per 2 mo.</td></tr>
</table>

Alternatives 1-7

Preliminary Preferred Alternative for 2013

Projected landings under the Preliminary Preferred Alternative are presented in Table C-31. As with the No Action Alternative, we considered the uncertainty in the landings data seen during 2011 (in terms of correctly separating primary tier landings from DTL landings, and separating new IFQ fixed gear landings from DTL landings), along with the normal uncertainty associated with projection models, when constructing the trip limit structures for 2013 for each fishery presented here. The Preliminary Preferred Alternative results in of projected attainments of 91%, aiming to enable harvest of a high proportion of the LT, yet accommodating previously described uncertainty. These trip limits can be adjusted inseason as needed to influence higher or lower landings as 2013 progresses. We strove to present trip limits with a predictable and temporally even structure, using the same rationale as for No Action. Landings targets for each fishery are equal for Alternative 1 and all alternatives other than No Action, within each year.

Table C-31. 2013 Model-projected landings for trip limits under the Preliminary Preferred Alternative, No Action Alternative, and comparison between them, in the fixed-gear, sablefish, DTL fisheries for 2013. Landings targets and projected landings are in metric tons (mt).

Fishery	Area	LT	Preferred Alterantive Projection	% of LT
LE N.	North of 36° N. lat.	197	179	91%
OA N.	North of 36° N. lat.	291	266	91%
LE S.	South of 36° N. lat.	446	405	91%
OA S.	South of 36° N. lat.	362	330	91%

Projected landings under the PPA were lower than No Action for the LE North and OA North fisheries (74 percent and 70 percent of No Action, respectively), and higher than No Action for the LE South and OA South (115 percent and 116 percent, respectively), covarying with changes to the area-specific sablefish ACLs in 2013; see Table C-32 and Figure C-3.

Table C-32. 2013 Model-projected landings for trip limits under the Preliminary Preferred Alternative (equal to alternatives other than No Action), No Action Alternative, and comparison between them, in the fixed-gear, sablefish, DTL fisheries for 2013. Landings targets and projected landings are in metric tons (mt).

Fishery	Area	PPA projection	No act. projection	% of No act.
LE N.	North of 36° N. lat.	179	242	74%
OA N.	North of 36° N. lat.	266	381	70%
LE S.	South of 36° N. lat.	405	353	115%
OA S.	South of 36° N. lat.	330	284	116%

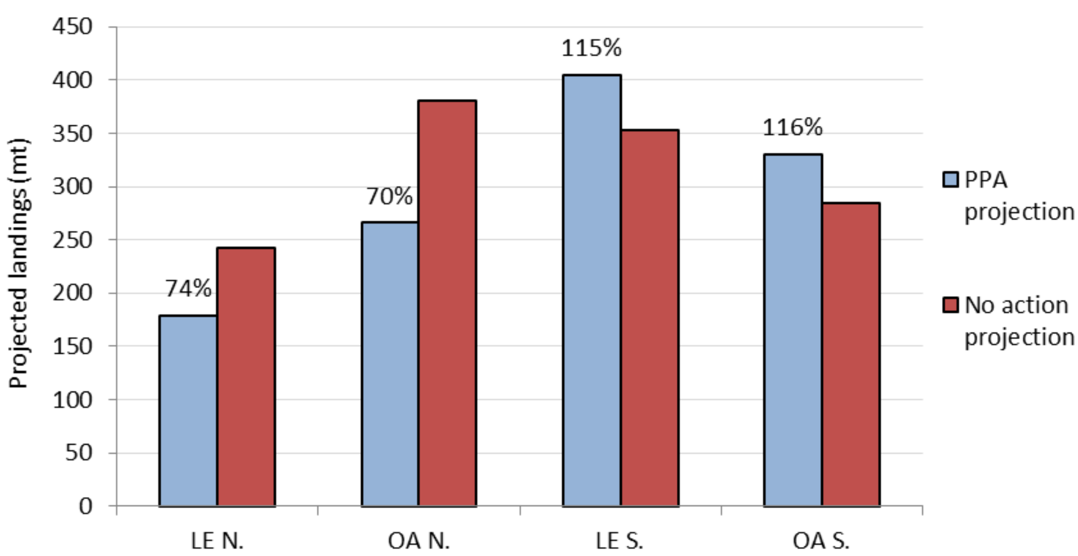


Figure C-3. Projected landings for 2013 under the PPA and No Action, for the four fixed gear, sablefish, DTL fisheries. Column labels show PPA projection as a percentage of No Action.

The proposed trip limits which informed the above landings projections were reduced accordingly in the North, compared with No Action, and increased in the South, compared with No Action (Table C-33), to keep catch within the LTs. For the LE North, weekly trip limits needed to be reduced by 200 pounds per week, and bimonthly limits by 800 pounds, to maintain a similar rate of attainment as in the No Action Alternative. For the OA North, a reduction of 290 pounds per week and 580 pounds per two months was necessary.

For the area south of 36° N. lat., an increase to trip limits of 80 pounds per week was possible in the LE South fishery, while an increase of 110 pounds per week and 220 pounds per bimonthly period was possible in the OA South fishery.

Table C-33. 2013 Proposed trip limits for 2013 in sablefish DTL fisheries under the PPA, and alternatives other than No Action.

Area	Fishery	Jan-Feb	Mar-Apr	May-Jun	July-Aug	Sept-Oct	Nov-Dec
North of 36° N. lat. (U.S./Canada Border to 36° N. lat.)	LE N.	1,100 lb. per week, not to exceed 4,200 lb. per 2 mo.					
	OA N.	300 lb. per day, or 1 landing per week of up to 610 lb., not to exceed 1,220 lb. per 2 mo.					
South of 36° N. lat.	LE S.	1,880 lb. per week					
	OA S.	300 lb. per day, or 1 landing per week of up to 1,460 lb., not to exceed 2,920 lb. per 2 mo.					

Preliminary Preferred Alternative for 2014

Projected landings under the Preliminary Preferred Alternative for 2014 are presented in Table C-34. As with the No Action Alternative, we considered uncertainty in the landings data seen during 2011 (in terms of correctly separating primary tier landings from DTL landings, and separating new IFQ fixed gear landings from DTL landings), along with the normal uncertainty associated with projection models, when constructing the trip limit structures for 2013 for each fishery presented here. The Preliminary Preferred Alternative for 2014 results in projected attainments of 91%, aiming to enable harvest of a high proportion of the LT, yet accommodating previously described uncertainty. These trip limits can be adjusted inseason as needed to influence higher or lower landings as 2014 progresses. We strove to present trip limits with a predictable and temporally even structure, using the same rationale as for No Action. Landings targets for each fishery are equal for the PPA and all alternatives other than No Action, within each year.

Table C-34. Model-projected landings for trip limits under the Preliminary Preferred Alternative, No Action Alternative, and comparison between them, in the fixed-gear, sablefish, DTL fisheries for 2014. Landings targets and projected landings are in metric tons (mt).

Fishery	Area	LT PPA	PPA projection	% of LT
LE N.	North of 36° N. lat.	214	194	91%
OA N.	North of 36° N. lat.	319	290	91%
LE S.	South of 36° N. lat.	483	441	91%
OA S.	South of 36° N. lat.	393	359	91%

Projected landings under the PPA were lower than No Action for the LE North and OA North fisheries (80 percent and 76 percent of No Action, respectively), and higher than No Action for the LE South and

OA South (125 percent and 126 percent, respectively), covarying with changes to the area-specific sablefish ACLs in 2013; see Table C-35 and Figure C-4.

Table C-35. Model-projected landings for trip limits under the Preliminary Preferred Alternative, No Action Alternative, and comparison between them, in the fixed-gear, sablefish, DTL fisheries for 2014. Landings targets and projected landings are in metric tons (mt).

Fishery	Area	PPA projection	No act. projection	% of No act.
LE N.	North of 36° N. lat.	194	242	80%
OA N.	North of 36° N. lat.	290	381	76%
LE S.	South of 36° N. lat.	441	353	125%
OA S.	South of 36° N. lat.	359	284	126%

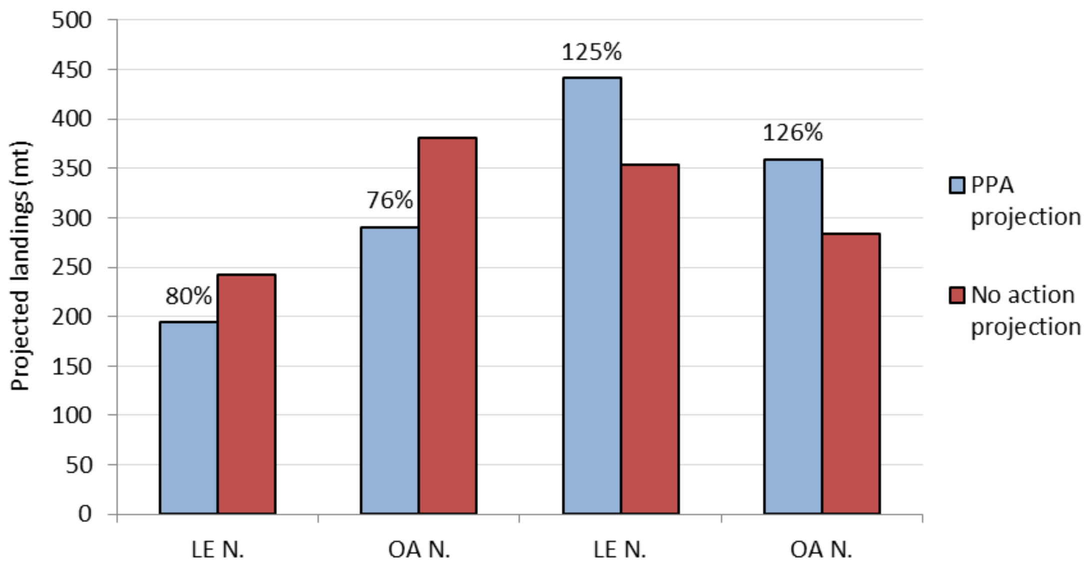


Figure C-4. Projected landings for 2014 under the PPA and No Action, for the four fixed gear, sablefish, DTL fisheries. Column labels show PPA projection as a percentage of No Action.

Table C-36. Proposed trip limits for 2014, in sablefish DTL fisheries under the PPA, and alternatives other than No Action.

<table>
<tr><th>Area</th><th>Fishery</th><th>Jan-Feb</th><th>Mar-Apr</th><th>May-Jun</th><th>July-Aug</th><th>Sept-Oct</th><th>Nov-Dec</th></tr>
<tr><td rowspan="2">North of 36° N. lat. (U.S./Canada Border to 36° N. lat.)</td><td>LE N</td><td colspan="6">1,100 lb. per week, not to exceed 4,400 lb. per 2 mo.</td></tr>
<tr><td>OA N</td><td colspan="6">300 lb. per day, or 1 landing per week of up to 675 lb., not to exceed 1,350 lb. per 2 mo.</td></tr>
<tr><td>South of 36° N.</td><td>LE S</td><td colspan="6">1,930 lb. per week</td></tr>
</table>

lat.	OA S	300 lb. per day, or 1 landing per week of up to 1,525 lb., not to exceed 3,050 lb. per 2 mo.

The proposed trip limits which informed the above landings projections were reduced accordingly in the North, compared with No Action, and increased in the South, compared with No Action (Table C-36), to keep catch within the LTs. For the LE North, weekly trip limits needed to be reduced by 200 pounds per week, and bimonthly limits by 600 pounds, to maintain a similar rate of attainment as in the No Action Alternative. For the OA North, a reduction of 225 pounds per week and 450 pounds per two months was necessary.

For the area south of 36° N. lat., an increase to trip limits of 130 pounds per week was possible in the LE South fishery, while an increase of 175 pounds per week and 350 pounds per bimonthly period was possible in the OA South fishery.

C.2.2 Non-nearshore Fixed Gear

C.2.2.1 Non-Nearshore: No Action Alternative

The non-nearshore bycatch model projects overfished species mortality for both the limited entry fixed gear sector and the open access daily trip limit fishery fishing seaward of the non-trawl RCA in areas north of 36° N. latitude. Sablefish is the primary target and provides the main source of revenue in both sectors. Over the years 2005-2010, sablefish accounted for 95 percent of groundfish ex vessel revenue earned by the non-nearshore limited entry fixed gear sector in this area (Table C-37) and 93 percent of the non-nearshore open access sector (Table C-38). Other key target stocks in these sectors include Pacific halibut, shortspine and longspine thornyheads, blackgill rockfish, and for some vessels, dogfish.

Table C-37. Non-nearshore limited entry fixed gear sector ex-vessel revenues by top species, 2005-2010 (source: PacFIN).

	Total ex-vessel $ (2005-2010)	% of total
Sablefish	$63,304,213	94.9%
Pacific halibut	$1,116,932	1.7%
Shortspine thornyhead	$718,962	1.1%
Dogfish	$390,574	0.6%
Unspecificed slope rockfish	$212,770	0.3%
Longspine thornyhead	$192,545	0.3%
Other	$780,944	1.2%
Total	$66,716,940	--

Table C-38. Non-nearshore open access sector ex-vessel revenues by top species, 2005-2010 (source: PacFIN).

	Total ex-vessel $ (2005-2010)	% of total
Sablefish	$14,023,294	92.7%
Lingcod	$435,586	2.9%
Pacific halibut	$273,744	1.8%
Grenadier	$50,948	0.3%
Dogfish	$42,812	0.3%

Blackgill rockfish	$25,454	0.2%
Other	$272,933	1.8%
Total	$15,124,771	--

Yelloweye rockfish and canary rockfish are the two key rebuilding stocks affecting these sectors in that there is a small margin between recent catch and the sector's allocations of these stocks. Other rebuilding stocks are caught by these sectors as well, yet the catch has so far remained sufficiently below their respective sector allocations.

The non-trawl RCA is the main management measure for mitigating bycatch of the rebuilding stocks. Seaward expansion of the RCA is the main option for additional reductions in catch of yelloweye and canary. As in past cycles and discussed below, the WCGOP data suggests that overall encounters with these stocks would decrease as the RCA is extended seaward (Table C-39).

Table C-39. WCGOP bycatch rates, by 25 fathom (fm) depth category, of canary rockfish and yelloweye rockfish (lbs. of catch per 1,000 lbs. of landed sablefish) in the non-nearshore fixed gear sectors for the years 2002-2009 in the area north of 40° 10' N. latitude.

	canary rockfish	yelloweye rockfish
>100 fm	1.6	0.7
>125 fm	1.2	0.4
>150 fm	1.2	0.2

The circumstances in these two sectors remain very similar to those analyzed in the 2011-12 FEIS. The analysis of the non-nearshore sectors and related effects on fishing communities in that FEIS remains generally applicable here. Bycatch projections have been updated with WCGOP data from 2009 and the model now incorporates data collected from 2002 to 2009. The other main change from 2011-12 comes from the changed sablefish ACL. As highlighted above, sablefish provides the main source of revenue for these sectors. With bycatch rates remaining mostly stable in recent years, the revenue-based economic impact analysis used here are therefore most sensitive to changes in the sablefish ACL. In these 2013-14 integrated alternatives, the expected sablefish harvest only varies with the No Action alternative because of the different sablefish ACL value associated with that alternative. There will therefore be no contrast in the quantitative revenue projections between the action alternatives.

Table C-40. Sablefish harvest projections for the non-nearshore, limited entry fixed gear sector under the action alternatives based on the Preliminary Preferred 2013-2014 sablefish ACLs for the area north of 36^{0} N. latitude.

	Limited Entry (all catch estimates are expressed as metric tons (mt))					
Sablefish N. of 36	**Total Catch Share**	**Observed Discard Rate**	**Assumed Discard Mortality (20%)**	**Landed Catch Projection**	**Primary Season**	**LEFG DTL**
No Action	1,823	16%	58	1,764	1,500	264
2013	1,362	16%	43	1,318	1,121	198
2014	1,477	16%	47	1,430	1,216	215

Table C-41. Sablefish harvest projections for the non-nearshore open access sector under the action alternatives based on the Preliminary Preferred 2013-2014 sablefish ACLs for the area north of 36^0 N. latitude.

	Open Access (all catch estimates are expressed as metric tons (mt))						
Sablefish N. of 36	**OA Share**	**Incidental OA removal**	**Directed OA Total Catch Share**	**Observed Discard Rate**	**Assumed Total Discards**	**Assumed Discard Mortality (20%)**	**Directed OA Landed Catch Share**
No Action	450	17	433	16%	69	14	419
2013	336	35	301	16%	48	10	292
2014	365	35	330	16%	52	10	319

Seaward RCA Boundary	**36°- 40° 10'**	**40°10'-Col/Eur 43°**	**Col/Eur 43°-Cascade Head 45.064°**	**Cascade Head 45.064°-Pt. Chehalis 46.888°**	**North of Pt. Chehalis 46.888°**
Shoreward boundary to 100 fm					
100 fm					
125 fm					
150 fm					
>150 fm					

Figure C-5. No Action Alternative: Non-trawl RCA seaward configuration. The shoreward configuration of the RCA is driven by the nearshore model. Grey shading indicates areas closed to fishing.

Table C-42. No Action Alternative: Two-year sector allocation of yelloweye and canary rockfish to the non-nearshore fixed gear sectors.

Species	**2013-14 Sector allocations (mt)**
Canary rockfish	2.3
Yelloweye rockfish	1.3

Limited Entry North of 36° N. latitude

Under the No Action alternative and the corresponding carryover of the 2012 sablefish ACL, the limited entry fixed gear sector is projected to land 1,764 mt of sablefish (Table C-40). This amount is 3 percent less than the equivalent projection used for 2012 because of updated information on the proportion of the sablefish catch that is discarded at sea.

At this level of activity, the model projects overfished species mortality reported in Table C-43. These projections are lower than the values projected for these sectors in 2012 and remain below the allocation under the No Action alternative (Table C-42). Therefore, no changes to management measures would be required.

Table C-43. No Action Alternative: Modeled-overfished species projected mortality for the limited entry fixed gear sector north of 36° N. latitude.

Species	Projected Mortality (mt)
Bocaccio	0.0
Canary rockfish	1.7
Darkblotched rockfish	3.2
Pacific ocean perch	0.3
Yelloweye rockfish	0.7

Open Access Sablefish DTL north of 36° N. latitude

The projected mortality for the open access sector under the No Action alternative are also similar to the 2011-12 estimates. The No Action projection is that 419 mt of sablefish will be landed by this sector in the areas north of 36° N. latitude. At this level of landings, the projected mortality of yelloweye rockfish remains at 0.1 mt and the projection for canary rockfish increases by 0.1 mt compared to 2011-12 (Table C-44). This slight increase in the canary impact would not exceed the allocation for this sector (Table C-42) and so no RCA adjustment would be needed under the No Action Alternative.

Table C-44. No Action Alternative: Modeled-overfished species projected mortality for the open access sablefish daily trip limit fishery north of 36° N. latitude.

Species	Projected Mortality (mt)
Bocaccio	0.0
Canary rockfish	0.3
Darkblotched rockfish	0.7
Pacific ocean perch	0.0
Yelloweye rockfish	0.1

C.2.2.2 Non-Nearshore: Alternative 1 (Preferred)

Under this alternative, the sablefish north of 36° N. latitude ACL decreases substantially relative to 2011-12. This decrease translates directly into lower expected mortality of rebuilding stocks in the two non-nearshore sectors. As to the two key rebuilding stocks in these sectors, the PPA sector allocations would allow the non-nearshore sectors yelloweye mortality of 1.1 mt for both 2013 and 2014, and canary mortality of 3.6 mt and 3.7 mt for 2013 and 2014, respectively(Table C-45).

This expected decrease in yelloweye and canary rockfish mortality are not substantial enough to consider relaxation of the seaward boundary of the non-trawl RCA from its baseline configuration. Reducing the seaward extent of the RCA boundary would be expected to increase encounters with canary, yelloweye, and other shelf rockfish stocks like bocaccio. The RCA was established at 100 fathoms because the 100 fm depth contour marks the transition between shelf and slope habitats. If fishing areas are reopened on the shelf, catch of shelf rockfish stocks like canary and yelloweye could increase substantially. In addition, estimates of yelloweye catch in these sectors have shown variability in recent years with estimates of actual catch differing by more than 50 percent higher and lower than the bycatch projections from the non-nearshore model. Such volatility requires some caution when interpreting and planning based on projected mortality. The GMT and NWFSC will further evaluate this variability and the management uncertainty it creates in preparation for future cycles.

Table C-45. Alternative 1: Two-year sector allocation of yelloweye and canary rockfish to the non-nearshore fixed gear sectors.

Species	2013	2014
Canary rockfish	3.6	3.7
Yelloweye rockfish	1.1	1.1

Limited Entry North of 36° N. latitude

The limited entry fixed gear sector are projected to land 1,315 mt and 1,427 mt of sablefish in 2013 in 2014, respectively, under this alternative. These amounts represent a 19-25 percent decrease relative to the No Action Alternative. The corresponding mortality projections for the rebuilding stocks are listed in Table C-46.

Table C-46. Preliminary Preferred Alternative: Modeled-overfished species projected mortality for the limited entry fixed gear sector north of 36° N. latitude.

Species	Projected Mortality 2013 (mt)	Projected Mortality 2014 (mt)
Bocaccio	0.0	0.0
Canary rockfish	1.3	1.4
Darkblotched rockfish	2.4	2.6
Pacific ocean perch	0.2	0.2
Yelloweye rockfish	0.5	0.6

Open Access Sablefish DTL north of 36° N. latitude

The open access DTL sector is projected to land 291 mt and 319 mt of sablefish in the area north of 36° N. latitude during 2013 and 2014, respectively, under this alternative. Landings at these levels correspond to the projected mortality shown in Table C-47.

Table C-47. Preliminary Preferred Alternative: Open access fixed gear north of 36° N. latitude projected mortality of overfished species.

Species	Projected Mortality 2013 (mt)	Projected Mortality 2014 (mt)
Bocaccio	0.0	0.0
Canary rockfish	0.2	0.2
Darkblotched rockfish	0.5	0.5
Pacific ocean perch	0.0	0.0
Yelloweye rockfish	0.1	0.1

C.2.2.3 Non-Nearshore: Alternative 2

The two-year allocation of yelloweye rockfish under this alternative to the non-nearshore sectors is, again, 1.1 mt for 2013 and 2011; and the two-year allocations of canary rockfish proposed under this alternative are 3.0 mt and 3.1 mt for 2013 and 2014, respectively (
Table C-48). The expected landings of sablefish and projected mortality of rebuilding stocks are identical to Alternative 1 (Table C-46 and Table C-47) and the current RCA configuration could be maintained.

Table C-48. Alternative 2: Two-year sector allocation of yelloweye and canary rockfish to the non-nearshore fixed gear sectors.

Species	2013	2014
Canary rockfish	3.0	3.1
Yelloweye rockfish	1.1	1.1

C.2.2.4 Non-Nearshore: Alternative 3

The two-year allocation of yelloweye rockfish and canary rockfish—the two key bycatch stocks in the non-nearshore sectors—are identical to those under the PPA, Alternative 1 (Table C-45). The expected sablefish landings and projected overfished species mortality is identical to those under Alternative 1 as well (Table C-46 and Table C-47).

C.2.2.5 Non-Nearshore: Alternative 4

Under this alternative, the proposed two year allocation of canary rockfish—1.1 mt in 2013 and 1.2 mt in 2014 (Table C-49) - is a substantial drop compared to No Action and would require an adjustment to the seaward boundary of the non-trawl RCA to keep projected canary mortality within the sector allocations. The non-nearshore fixed gear sectors would need a two-year canary allocation of at least 1.5 mt in 2013 and 1.6 mt in 2014 to maintain the current RCA configuration. As under all other action alternatives, the two-year allocation of yelloweye rockfish to the non-nearshore sectors is 1.1 mt in both 2013 and 2014.

Table C-49. Alternative 4: Two-year sector allocation of yelloweye and canary rockfish to the non-nearshore fixed gear sectors.

Species	2013	2014
Canary rockfish	1.1	1.2
Yelloweye rockfish	1.1	1.1

To reduce canary mortality to within the two year allocations proposed under this alternative, the seaward boundary would have to be pushed to 150 fathoms in all areas north of 40° 10' N. latitude (Figure C-6), which would extend the non-trawl RCA to its largest size yet. As in past cycles, it is assumed that the sectors will achieve full harvest of their sablefish allocations irrespective of where the RCA boundaries are established. Sablefish are highly valuable and still available at depths beyond 150 fathoms. Nonetheless, this assumption has not been tested in areas north of 40° 10' N. latitude.

The RCA expansion would be expected to raise the cost of harvest and, in turn, to potentially lower profits. However, without data from logbooks and other economic information from these sectors, the potential effects of a seaward expansion of the non-trawl RCA are not well understood. In general, the expansion could push vessels into less productive fishing grounds and lower catch rates. As highlighted in the 2011-12 FEIS, increased gear conflicts both within the sector and with the bottom trawl sector is another concern involved with seaward RCA expansion. The expansion would create longer-distance runs to fishing grounds that could also increase costs and reduce profits. In addition, if catch rates are indeed lowered then overall time on the water could increase. These longer travel distances could especially affect the open access sector where trip limits generally allow less sablefish harvest opportunity per vessel. The longer distance to and time spent on the fishing grounds could also cause safety concerns for smaller vessels.

Dogfish targeting by fixed gear vessels is another factor the Council has considered over the last few cycles when evaluating a seaward expansion of the non-trawl RCA. The level of income provided by this stock is small relative to the overall coastwide revenue provided by sablefish (Table C-37 and Table

C-38), and so the loss of dogfish opportunity may not register in the revenue projections among these integrated alternatives. Yet dogfish have provided an important source of income to certain vessels operating off northern Washington both before and after implementation of the RCA. The current RCA configuration already covers significant dogfish fishing grounds and an expansion to 150 fathoms would likely eliminate fishing opportunity for this stock completely.

In 2009, concerns over yelloweye bycatch caused the Council to push the RCA boundary out to 125 fathoms in the area between 43° N. latitude and Cascade Head. The Council exempted the directed halibut fishery, which is only open a few days per year, from this change and only held vessels participating in that fishery to the 100 fathom seaward RCA boundary. If the Council took the same approach here, the directed halibut fishery would not be affected by the RCA expansion. A deeper RCA reduces access to halibut and would be expected to increase gear conflicts. The directed Pacific halibut fishery is a derby-style fishery where a vessel's harvest is limited to what can be taken during the limited opening of the fishery.

Seaward RCA Boundary	**36°- 40° 10'**	**40°10'- Col/Eur 43°**	**Col/Eur 43°- Cascade Head 45.064°**	**Cascade Head 45.064°- Pt. Chehalis 46.888°**	**North of Pt. Chehalis 46.888°**
Shoreward boundary to 100 fm					
100 fm					
125 fm					
150 fm					
>150 fm					

Figure C-6. **Alternative 4, Non-trawl RCA seaward configuration. Grey shading indicates areas closed to fishing.**

Limited Entry North of 36° N. latitude

With the seaward boundary of the RCA north of 40° 10' N. latitude extend from 100 fathoms to 150 fathoms, the projected mortality for the limited entry fixed gear sector are those shown in

Figure C-6. As in the other action alternatives, these projected mortalities are based on the assumption that the limited entry fixed gear sector will land 1,315 mt of sablefish in 2013 in the area north of 36° N. latitude with that number increasing to 1,427 mt in 2014.

Table C-50. Alternative 5. Modeled-overfished species projected mortality for the limited entry fixed gear sector north of 36° N. latitude.

Species	Projected Mortality 2013 (mt)	Projected Mortality 2014 (mt)
Bocaccio	0.0	0.0
Canary rockfish	0.9	1.0
Darkblotched rockfish	3.4	3.7
Pacific ocean perch	0.2	0.2
Yelloweye rockfish	0.2	0.2

Open Access Sablefish DTL north of 36° N. latitude

Table C-51 shows projected mortality in the open access fixed gear north of 36° N. latitude with the seaward boundary of the RCA north of 40° 10' N. latitude extend from 100 fathoms to 150 fathoms. As in the other action alternatives, the projected mortality is based on the assumption that the limited entry fixed gear sector will land 1,315 mt of sablefish in 2013 in the area north of 36° N. latitude with that number increasing to 1,427 mt in 2014.

Table C-51. Alternative 5. Open access fixed gear north of 36° N. latitude projected mortality of overfished species.

Species	Projected Impacts 2013 (mt)	Projected Impacts 2014 (mt)
Bocaccio	0.0	0.0
Canary rockfish	0.1	0.1
Darkblotched rockfish	0.6	0.7
Pacific ocean perch	0.0	0.0
Yelloweye rockfish	0.0	0.0

C.2.2.6 Non-Nearshore: Alternative 5

As described under the No Action alternative, canary rockfish and yelloweye rockfish are the two key bycatch stocks in the non-nearshore sectors. The two year allocations for canary rockfish are 7.2 mt and 7.3 mt, respectively (Table C-52). The expected sablefish landings and projected mortality of rebuilding stocks under this alternative are identical to those under Alternative 1 (Table C-46 and Table C-47). The RCA configuration in place for 2011 and 2012 could be maintained under this alternative. As highlighted in the discussion under Alternative 1, the 1.1 mt of yelloweye mortality allowed to this sector are too low to consider any liberalization of the seaward boundary of the RCA.

Table C-52. Alternative 5: Two-year sector allocation of yelloweye and canary rockfish to the non-nearshore fixed gear sectors.

Species	2013	2014
Canary rockfish	1.1	1.2
Yelloweye rockfish	1.1	1.1

C.2.2.7 Non-Nearshore: Alternative 6

The two year allocations proposed under this alternative are identical to those under Alternative 2 for the key rebuilding stocks—yelloweye rockfish and canary rockfish (
Table C-48)—as are the expected landings of sablefish and projected mortality of rebuilding stocks (Table C-46 and Table C-47). As under that alternative, the current RCA configuration could be maintained under this alternative.

C.2.2.8 Non-Nearshore: Alternative 7

As discussed under the other alternatives, canary rockfish and yelloweye rockfish are the two key bycatch stocks in the non-nearshore sectors. The two year allocations for canary rockfish proposed under this alternative are 4.7 mt and 4.8 mt, respectively. The two-year allocation of yelloweye rockfish, as under all other action alternatives, is 1.1 mt in both 2013 and 2014 (Table C-53).

The expected sablefish landings and projected mortality of rebuilding stocks under this alternative are identical to those under Alternative 1 (Table C-46 and Table C-47). The RCA configuration in place for 2011 and 2012 can be maintained. As highlighted in the discussion under Alternative 1, the 1.1 mt of yelloweye allocation for this sector is too low to consider any liberalization of the seaward boundary of the RCA.

Table C-53. Alternative 7: Two-year sector allocation of yelloweye and canary rockfish to the non-nearshore fixed gear sectors.

Species	2013	2014
Canary rockfish	4.7	4.8
Yelloweye rockfish	1.1	1.1

C.3 Nearshore

C.3.1 Nearshore: No Action Alternative

Under the No Action alternative, landing projections for 2013-14 would be based on final inseason action taken in September 2011 (Table C-54). Those projections were originally calculated in March 2011 using average landings for each species from the three highest years from 2007 to 2010. Overfished species impact projections would be stratified into three areas[1]: (1) north of 42° N. latitude; (2) between 42° N. latitude and 40° 10' N. latitude; and (3) south of 40° 10' N. latitude. The overfished species allocations would be divided between Oregon and California[2] based on the result from the final preferred alternative in 2011-12 (2011-2012 FEIS).

Under the No Action alternative, depth restrictions would remain unchanged (30 fm north of 43° N. latitude; 20 fm[3] between 43° N. latitude and 40° 10' N. latitude; 30 fm between 40° 10' N. latitude and 34° 27' N. latitude; 60 fm south of 34° 27' N. latitude) (

Figure C-7).

Some Oregon and California coastal communities were impacted by a tsunami in March 2011, which temporarily closed some ports, damaged infrastructure, destroyed vessels, and limited the fishermen's ability to access and/or sell catches. Crescent City, which typically provides some of the highest historical nearshore landings in northern California, was hit hard by this disaster. As a result, the landings originally projected for this fishery, particularly between 42° N latitude and 40° 10' N. latitude, are not likely to materialize and actual overfished species mortality will likely be lower than projected. Although Brookings was also heavily impacted by this tsunami, and provides much of the southern Oregon nearshore landings, damage to Port Orford and other Oregon ports was light or nonexistent. Oregon nearshore fisheries were therefore were uninterrupted by the tsunami north of Brookings, and actual landings by the Oregon nearshore fishery will approximate the projected landings shown in Table C-54. The 2011 landings in Oregon may have exceeded projected landings had the tsunami not occurred.

As discussed in the 2011-12 FEIS, the nearshore fishery is not modeled based upon full attainment of non-overfished species allocations and this fishery will continue to be held at reduced levels compared to historic harvests due to restrictions imposed by overfished species caps and restrictive RCAs. Indeed, historical state landing caps are, in many cases, unattainable under the No Action alternative, resulting in lost economic opportunities. Public testimony and advisory body comments summarized in the 2011-12

[1] Prior to 2011, the nearshore model was stratified north and south of 40° 10' N latitude. In 2011, the model was modified to incorporate a finer area stratification to allow each state to manage their fishery independently
[2] Washington does not have a commercial nearshore fishery.
[3] The 20 fm RCA is defined by depth, not waypoints.

FEIS speak to the hardships faced by the nearshore fisheries in both states as a result of the low allocation of yelloweye rockfish and the restrictive RCAs under the No Action alternative. In particular, the ports of Port Orford, Brookings, Eureka, and Crescent City have been negatively impacted by the reduced trip limits and restricted access to productive fishing grounds as a result of the non-trawl RCA closures implemented to reduce mortality of overfished species, particularly yelloweye. These ports would produce substantially higher landings of target species under the less restrictive RCAs and/or landing caps that were available prior to 2009.

Increased competition for space, gear conflicts, reduced access to productive fishing grounds, and potentially increased local depletions of some fish stocks may have resulted from the more restrictive management measures first implemented in 2009. These measures forced individuals to shift their historical fishing effort from deeper to shallow depths (see above). The most recent data on proportion of catch by depth from West Coat Groundfish Observer Program reveal that substantial fishing effort occurred deeper than 20 fm prior to 2009, especially off northern California. Fishing effort at 20 – 30 fm depths was significant in some cases, reaching as much as 40 percent of the fishing effort for some nearshore species in northern California and 6 percent of the fishing effort off Oregon (Table C-55). Competition for space and the potential for local depletion become even more problematic when the recreational fishery is open because it operates in similar depths to the nearshore fishery.

The No Action alternative is modeled assuming the bycatch rates, weather, and market conditions applied or experienced in 2011 and 2012 will be the same in 2013 and 2014. Under the No Action alternative, this fishery would be held to the projected yelloweye allocation, 1.1 mt, which is equal to the yelloweye allocation imposed for the 2011 and 2012 fisheries. Although overfished species mortality in 2011 may be lower than projected, the projected mortality in 2013 and 2014 could be higher due to some unforeseen event or to natural variation in annual catches. Few management measures remain available to further reduce yelloweye mortality in this fishery (if needed); drastic reductions to landed catch or total fishery closure between 43° N. latitude and 40° 10' N. latitude would be required to further reduce yelloweye mortality. Depth restrictions shallower than 10 fm are ill advised because fishing would occur in very shallow waters. Modifications to depth restrictions or reductions in landed catch south of 40° 10' N. latitude could provide some savings for canary rockfish but would provide little (if any) savings of yelloweye rockfish because this is an area of low bycatch for that species.

Projected mortality of overfished species under the No Action alternative are summarized in Table C-56.

Table C-54. No Action: Nearshore fishery projected total landings by area for 2013-14.

Area	Projected Total Landings (mt) 2013-14
Grand Total	499
Black rockfish	197
Blue rockfish	17
Cabezon	95
Deeper nearshore rockfish	36
Kelp greenling	22
Lingcod	52
Other minor nearshore rockfish	21
Shallow nearshore rockfish	59
North of 42º N. lat.	
Black rockfish	111
Blue rockfish	3
Cabezon	25
Kelp greenling	20
Lingcod	28
Other minor nearshore rockfish	11
42º - 40º10' N. lat.	
Black rockfish	82
Blue rockfish	11
Cabezon	7
Kelp greenling	0
Lingcod	8
Other minor nearshore rockfish	10
South of 40º10' N. lat.	
Black rockfish	4
Blue rockfish	3
Cabezon	63
Deeper nearshore rockfish	36
Kelp greenling	1
Lingcod	16
Shallow nearshore rockfish	59

Table C-55. Summary of observed nearshore landings by area and depth from 2003 through 2010 (source: West Coast Groundfish Observer Program, 2010).

	% of observed landings by depth		
NORTH of 42° N. lat.	**0-10 fm**	**11-20 fm**	**> 20 fm**
Black rockfish	49.8%	48.5%	1.7%
Blue rockfish	38.5%	56.0%	5.4%
Cabezon	28.3%	68.7%	3.0%
Kelp greenling	50.3%	47.7%	1.9%
Lingcod	30.8%	64.0%	5.3%
Other minor nearshore rockfish	27.8%	66.4%	5.7%
42° to 40°10' N. lat.	0-10 fm	11-20 fm	> 20 fm
Black rockfish	44.5%	52.3%	3.2%
Blue rockfish	18.1%	70.7%	11.2%
Cabezon	46.6%	39.7%	13.8%
Kelp greenling	37.7%	61.4%	0.9%
Lingcod	30.4%	47.9%	21.7%
Other minor nearshore rockfish	18.9%	41.5%	39.7%
SOUTH of 40°10' N. lat.	0-10 fm	11-20 fm	> 20 fm
Black rockfish	46.3%	48.4%	5.3%
Blue rockfish	52.7%	40.4%	6.9%
Cabezon	94.6%	3.9%	1.4%
Deeper nearshore rockfish	30.7%	61.3%	8.0%
Kelp greenling	91.5%	6.8%	1.7%
Lingcod	54.4%	41.8%	3.9%
Shallow nearshore rockfish	69.1%	24.1%	6.8%

Shoreward RCA Boundary	**South of 34°27'**	**34°27' - 40°10'**	**40°10' - 42°**	**42°- 43°**	**43° - 46°16'**	**North of 46°16'**
Shore						
20 fm						
30 fm						
60 fm						

Figure C-7. No Action: Nearshore shoreward RCA configuration. Grey shading indicates areas closed to fishing.

Table C-56. No Action: Overfished species bycatch projections for the nearshore fixed gear fisheries for 2013-2014.

Species	Area	Projected Total Impacts (mt) 2013-14	Allocation (mt) 2013-14[a/]
Bocaccio	Total	0.5	
	OR: North of 42º	0	n/a
	CA: 42º - 40º10'	0	
	CA: South of 40º10'	0.5	0.7
Canary	Total	3.2	4.0
	OR: North of 42º	0.8	
	CA: 42º - 40º10'	0.8	
	CA: South of 40º10'	1.6	
Cowcod	Total	0	
	OR: North of 42º	0	n/a
	CA: 42º - 40º10'	0	
	CA: South of 40º10'	0	0.9[b/]
Darkblotched	Total	0.2	n/a
	OR: North of 42º	0.2	
	CA: 42º - 40º10'	0	
	CA: South of 40º10'	0	
Yelloweye	Total	1.0	1.1
	OR: North of 42º	0.7	0.8
	CA: 42º - 40º10'	0.2	0.3
	CA: South of 40º10'	0.1	

[a/]represents nearshore share of non-trawl allocation
[b/]non-trawl allocation

C.3.2 Nearshore: Alternative 1 (Preferred)

Under Alternative 1 (PPA), the allocations of canary and yelloweye rockfish to the nearshore fishery are higher than the No Action alternative. Although both states will have some increased opportunity compared to No Action, management measures will continue to be more restrictive and landings lower than years prior to 2009 (2009-2010 FEIS). As such, nearshore fishermen continue to be negatively impacted by the reduced trip limits and restricted access to productive fishing grounds, as a result of the non-trawl RCA closures, implemented to reduce mortality of overfished species, particularly yelloweye.

Similar to the No Action alternative, the PPA is modeled assuming the bycatch rates, weather, and market conditions experienced in 2011 and 2012 will be the same in 2013 and 2014, and assumes no variation in landings and mortality. If overfished species mortality is higher than projected, then few management measures are available to further reduce yelloweye bycatch in this fishery (if needed). Further reductions in yelloweye bycatch would require drastic reductions to landed catch or total fishery closure between 43° N. latitude and 40° 10' N. latitude. Depth restrictions shallower than 10 fm are ill advised because of vessel safety concerns.

Based on Council direction, the No Action catch sharing for canary (OR = 26.7%; CA = 73.3%) and yelloweye rockfish (OR = 72.7%; CA = 27.3%) was analyzed in the integrated alternatives. Under this alternative, the tradeoffs between more restrictive depth restrictions and higher reductions in landed catch were explored (Alternatives 1a and 1b). In Oregon, overfished species mortality is projected assuming the same RCA under No Action (20 fm depth restriction between 42° N. latitude to 43° N. latitude) (Alternative 1a) and a 30 fm depth restriction statewide (Alternative 1b). In California overfished species mortality is projected assuming the same RCA under No Action for both sub-alternatives (20 fm between

42° N. latitude and 40° 10' N. latitude; 30 fm between 40° 10' N latitude and 34° 27' N. latitude; 60 fm south of 34° 27' N. latitude).

North of 42° N. latitude – under Alternative 1a, the RCA configuration (

Figure C-7) would be the same as No Action and landings would be increased 8 to 29 percent (depending on the speices) relative to No Action (Table C-58) to reflect state landing caps. Lingcod could also be increased by 40 percent relative to the No Action. Under Alternative 1b, a 30 fm RCA configuration would be implemented statewide (

Figure C-9) and landings increased 7 percent relative to No Action (Table C-58).

Under Alternative 1a, current state landing caps could be reached, assuming overfished species bycatch rates, weather, and other unforeseen circumstances are similar to 2011 – 2012. However, the shoreward RCA in southern Oregon would still be restricted to 20 fm. As described for the No Action alternative, this narrow fishing depth distribution (< 20 fm) may result in increased gear conflicts, increased probability of local depletions for certain populations, and reduced access to productive fishing grounds. The result is reduced economic efficiency in attaining landing caps. The negative impacts of this 20 fm RCA is most realized by the communities of Brookings and Port Orford.

Pre-2009 fishing grounds would be reopened under Alternative 1b, where the RCA would be returned to 30 fm statewide (

Figure C-9). Alternative 1b would reduce gear conflicts, reduce the potential for local depletions, and increase opportunities to fish in productive areas that have been closed for four years. However, under this alternative, landings would be restricted to levels well below historical landing caps for the state of Oregon.

South of 42° N. latitude – under Alternatives 1a and 1b, the RCA configuration and landings would be the same as No Action, except for greenling and lingcod (Table C-58;

Figure C-8). Landings of greenling would be increased but are projected to be within the greenling contribution to the Other Fish complex. A small increase in lingcod landings could also be afforded statewide while staying within overfished species allocations.

Under the Alternative 1, the communities of Eureka and Crescent City will continue to be negatively impacted by the 20 fm depth restriction to reduce yelloweye mortality. Gear conflicts and competition for space as described under the No Action alternative will continue without an increase in the yelloweye rockfish allocation to the state. Also as discussed under the No Action alternative, this fishery has historically operated at deeper depths and almost 40 percent of the minor nearshore rockfish and over 20 percent of the lingcod landings were observed in depths greater than 20 fm from 2003 to 2010. Forcing this fishery into shallower depths has made it difficult for the fishermen to prosecute their fishery. Although the area south of 40° 10' N. latitude has lower yelloweye rockfish bycatch, they still do occur and the ability to implement more restrictive management measures on a finer geographic scale is limited. Therefore, if needed, more restrictive management measures (e.g., trip limit reductions and a more restrictive non-trawl RCA) would more than likely be applied to areas where catch did not occur simply due to management limitations.

In addition, the California Fish and Game Commission (Commission) is in the process of implementing marine protected areas (MPAs) in this region. At this time, a total of 20 MPAs, covering approximately 137 sq mi of state waters or about 13 percent of the area north of 40° 10' N. latitude, are included in the

Commission's preferred alternative (CDFG 2011). Since these MPAs occur in state waters, many in 20 fm or less, this further limits the available fishing areas for nearshore fishermen and would further exacerbate crowding issues.

Projected landings under Alternative 1 are summarized by area and alternative in Table C-58 and overfished species mortality is summarized in Table C-59**.**

Table C-57. Nearshore apportionment of the non-trawl allocation for canary and yelloweye rockfish for 2013-14.

	No Action (mt)	Alt 1 (mt)	Alt 2 (mt)	Alt 3 (mt)	Alt 4 (mt)	Alt 5 (mt)	Alt 6 (mt)	Alt 7 (mt)
Canary	4.0	6.2/6.4	5.3/5.5	6.2/6.4	2	12.5/12.7	5.3/5.5	8.2/8.4
Yelloweye	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2

Table C-58. Alternative 1: Nearshore target species landings by area and alternative for 2013-2014.

Area	Projected Total Landings (mt) 2013-14	
	Alternative 1a	**Alternative 1b**
Grand Total	**590**	**555**
Black rockfish	224	205
Blue rockfish	18	18
Cabezon	100	97
Deeper nearshore rockfish	36	36
Kelp greenling	49	48
Lingcod	80	70
Other minor nearshore rockfish	24	22
Shallow nearshore rockfish	59	59
North of 42º N. lat.		
Black rockfish	138	119
Blue rockfish	4	4
Cabezon	30	27
Kelp greenling	23	22
Lingcod	40	30
Other minor nearshore rockfish	14	12
42º - 40º10' N. lat.		
Black rockfish	82	82
Blue rockfish	11	11
Cabezon	7	7
Kelp greenling	5	5
Lingcod	20	20
Other minor nearshore rockfish	10	10

South of 40º10' N. lat.		
Black rockfish	4	4
Blue rockfish	3	3
Cabezon	63	63
Deeper nearshore rockfish	36	36
Kelp greenling	21	21
Lingcod	20	20
Shallow nearshore rockfish	59	59

Shoreward RCA Boundary	South of 34º27'	34º27' - 40º10'	40º10' - 42º	42º - 43º	43º - 46º16'	North of 46º16'
Shore						
20 fm						
30 fm						
60 fm						

Figure C-8. Alternative 1a: Nearshore shoreward RCA configuration. Grey shading indicates areas closed to fishing.

Shoreward RCA Boundary	South of 34º27'	34º27' - 40º10'	40º10' - 42º	42º - 43º	43º - 46º16'	North of 46º16'
Shore						
20 fm						
30 fm						
60 fm						

Figure C-9. Alternative 1b: Nearshore shoreward RCA configuration. Grey shading indicates areas closed to fishing. Diagonal lines represent the latitudinal area where an RCA change was made relative to the No Action configuration.

Table C-59. Alternative 1: Overfished species bycatch projections for the nearshore fixed gear fisheries by area and alternative for 2013-2014.

Species	Area	Projected Total Mortality (mt) 2013-2014		Allocation (mt) 2013-14[a/]
		Alternative 1a	Alternative 1b	
Bocaccio	Total	0.5	0.5	
	OR: North of 42º	0	0	n/a
	CA: 42º - 40º10'	0	0	
	CA: South of 40º10'	0.5	0.5	0.9
Canary	Total	3.8	3.7	6.2/6.4
	OR: North of 42º	1.1	1	1.7/1.7
	CA: 42º - 40º10'	0.9	0.9	4.5/4.7
	CA: South of 40º10'	1.8	1.8	
Cowcod	Total	0	0	
	OR: North of 42º	0	0	n/a
	CA: 42º - 40º10'	0	0	
	CA: South of 40º10'	0	0	1.0[b/]
Darkblotched	Total	0.3	0.2	n/a
	OR: North of 42º	0.3	0.2	
	CA: 42º - 40º10'	0	0	
	CA: South of 40º10'	0	0	
Yelloweye	Total	1.2	1.2	1.2
	OR: North of 42º	0.87	0.87	0.87
	CA: 42º - 40º10'	0.24	0.24	0.33
	CA: South of 40º10'	0.09	0.09	

[a/]represents nearshore share of non-trawl allocation
[b/]non-trawl allocation

Similar to analyses conducted in the 2011-12 FEIS, two alternate catch sharing relationships to demonstrate the tradeoffs of varying overfished species allocations compared to No Action were examined (Table C-60). An equal catch sharing (50:50) and a reverse of the No Action allocations were used analyzed to bracket the upper and lower ranges of landings and corresponding management measures (Table C-60).

Under the equal catch sharing scenario (Table C-61), Oregon would receive more canary and less yelloweye compared to the No Action catch sharing. Since less catch has historically originated from depths deeper than 20 fm, little yelloweye savings is afforded by implementing a shallower (20 fm) depth restriction. As a result, landed catch would need to be reduced by 14 percent relative to No Action alternative to stay within overfished species allocations under this scenario. Under this same scenario, California would be afforded less canary rockfish compared to No Action, but more yelloweye rockfish. A 30 fm depth restriction could be implemented between 42° N. latitude and 40° 10' N. latitude, yet a 35 percent reduction in landed catch would be needed to stay within overfished species allocations. Liberating the depth to 30 fm would reduce gear conflicts, reduce the potential for localized depletion, and increase opportunities to fish in productive areas that have been closed for four years. It would also reduce competition for space when the recreational fishery is open. For the area south of 40° 10' N. latitude, the RCA configuration and landings under No Action could be afforded (including an increase for lingcod and greenling) and stay within overfished species allocations.

Under the reverse No Action scenario, Oregon would receive more canary rockfish, yet substantially less yelloweye rockfish, compared to the No Action catch sharing (Table C-61). As described above, little savings of yelloweye rockfish is afforded by restricting the fishery to 20 fm, therefore, drastic reductions in landed catch of up to 53 percent would be necessary to stay within the yelloweye allocation. Because the fishery is constrained by yelloweye rockfish under this scenario, the higher amount of canary rockfish would go unutilized.

Under this same scenario, California would receive substantially more yelloweye rockfish and less canary rockfish compared to No Action. The small allocation of canary rockfish under this scenario would require increased management measures, which limit access to target species, due to areas of high canary bycatch in all areas of the state except for south of 34º 27' N. latitude, which is an area of low bycatch. As a result, a 20 fm depth restriction would need to be implemented for all areas, except south of 34º 27' N. latitude to stay within the canary allocation in addition to a 10 percent reduction in landed catch. The higher amount of yelloweye afforded under this scenario would not be utilized due to canary rockfish constrains.

Table C-60. Alternative 1: Allocations of canary and yelloweye rockfish for 2013-14 under alternate nearshore catch sharing scenarios.

		No Action	**Equal Sharing**	**Reverse No Action**
OR	Canary	1.7	3.1/3.2	4.5/4.7
	Yelloweye	0.87	0.6	0.33
CA	Canary	4.5/4.7	3.1/3.2	1.7
	Yelloweye	0.33	0.6	0.87

Table C-61. Alternative 1: Description of management measures under alternate nearshore catch sharing scenarios.

		Catch Sharing		
	AREA	No Action	Equal Sharing	Reverse No Action
OR	north of 43º	(Alt 1a): RCA=30 fm; Landings=8%-40% increase (Alt 1b): RCA = 30 fm; Landings=7% increase	RCA=30fm; Landings=14% reduction	RCA=30 fm; Landings=53% reduction
	42º-43º	(Alt 1a): RCA=20 fm; Landings=8%-40% increase (Alt 1b): RCA = 30 fm; Landings=7% increase	RCA=20 fm; Landings=14% reduction	RCA=20 fm; Landings=53% reduction
CA	42º - 40º10'	(Alt 1a): RCA=20 fm; Landings=No Action with higher greenling and lingcod (Alt 1b): same as Alt a	RCA=30 fm; Landings=35% reduction	RCA=20 fm; Landings=10% reduction
	40º10' to 34º27'	(Alt 1a): RCA=30 fm; Landings=No Action with higher greenling and lingcod (Alt 1b): same as Alt a	RCA=30 fm; Landings=No Action with higher greenling and lingcod	RCA=20 fm; Landings=10% reduction
	south of 34º27'	(Alt 1a) RCA=60 fm; Landings=No Action with higher greenling and lingcod (Alt 1b) same as Alt a	RCA=60 fm; Landings=No Action with higher greenling and lingcod	RCA=60 fm; Landings=10% reduction

In summary, the nearshore fishery is primarily constricted by yelloweye rockfish under the PPA. An additional increase in the yelloweye rockfish allocation to the nearshore fishery may allow for a liberalization of the RCA back to 30 fm for the area between 42º N. latitude and 40º 10' N. latitude and may allow landings that are closer or equal to historic state landing caps. Increased landings may improve economic opportunities to some of the most economically depressed communities in the states of Oregon and California, and liberalized shoreward RCA boundaries. This could help alleviate gear conflicts and reduce pressure on other nearshore stocks.

C.3.3 Nearshore: Alternative 2

Under Alternative 2, the allocations of canary and yelloweye rockfish to the nearshore fishery are higher than under the No Action alternative (Table C-57). Although both states will have some increased opportunity compared to No Action, management measures will continue to be more restrictive and landings lower than previous years (2009-2010 FEIS). As such, nearshore fishermen continue to be negatively impacted by the reduced trip limits and restricted access to productive fishing grounds, as a result of the non-trawl RCA closures, implemented to reduce mortality of overfished species, particularly yelloweye.

Based on Council direction, the No Action catch sharing for canary (OR = 26.7%; CA = 73.3%) and yelloweye rockfish (OR = 72.7%; CA = 27.3%) was analyzed in the integrated alternatives. Under this alternative, the tradeoffs between more restrictive depth restrictions and higher reductions in landed catch were analyzed (Alternative 2a and 2b). In Oregon, overfished species mortality is modeled assuming the same RCA under No Action (20 fm depth restriction between 42° N. latitude to 43° N. latitude) (Alternative 2a) and a 30 fm depth restriction statewide (Alternative 2b). In California, overfished species mortality is modeled assuming the same RCA under No Action (20 fm between 42° N. latitude and 40° 10' N. latitude; 30 fm between 40° 10' N. latitude and 34° 27' N. latitude; 60 fm south of 34° 27' N. latitude).

North of 42° N. latitude – under Alternative 2a, the RCA configuration (

Figure C-10) would be the same as No Action and landings would be increased 8 to 29 percent (depending on the species) relative to No Action (Table C-54) to reflect state landing caps. Lingcod could also be increased by 40 percent relative to the No Action. Under Alternative 2b, a 30 fm RCA configuration would be implemented statewide (

Figure C-11) and landings increased 7 percent relative to No Action (Table C-54).

Under Alternative 2a, current state landing caps could be reached, assuming bycatch rates, weather, and other unforeseen circumstances are similar to 2011 – 2012. However, the shoreward RCA in southern Oregon would still be restricted to 20 fm. As described for the No Action alternative, this narrow fishing depth distribution (< 20 fm) may result in increased gear conflicts, increased probability of local depletions for certain populations, and reduced access to productive fishing grounds. The result is reduced economic efficiency in attaining landing caps. The negative impacts of this 20 fm RCA is most realized by the communities of Brookings and Port Orford.

Pre-2009 fishing grounds would be reopened under Alternative 2b, however, where the RCA would be returned to 30 fm statewide (

Figure C-11). Alternative 2b would reduce gear conflicts, reduce the potential for local depletions, and increase opportunities to fish in productive areas that have been closed for four years. However, under this alternative, landings would be restricted to levels well below historical landing caps for the state of Oregon.

South of 42° N. latitude – under Alternatives 2a and 2b, the RCA configuration and landings would be the same as No Action, except for greenling and lingcod (Table C-62;

Figure C-10). Landings of greenling would be increased but are projected to be within the greenling contribution to the Other Fish complex. A small increase in lingcod landings could also be afforded statewide while staying within overfished species allocations.

Under the PPA, the communities of Eureka and Crescent City will continue to be negatively impacted by the 20 fm depth restriction to reduce yelloweye rockfish mortality. Gear conflicts and competition for space as described under the No Action alternative will continue without an increase in the yelloweye rockfish allocation to the state. Also as discussed under the No Action alternative, this fishery has historically operated at deeper depths and almost 40 percent of the minor nearshore rockfish and over 20 percent of the lingcod landings were observed in depths greater than 20 fm from 2003 to 2010. Forcing this fishery into shallower depths has made it difficult for the fishermen to prosecute their fishery since the productive areas are closed. Although the area south of 40° 10' N. latitude has lower yelloweye rockfish mortality, they still do occur and the ability to implement more restrictive management measures on a finer geographic scale is limited. Therefore, if needed, more restrictive management measures (e.g., reductions to trip limits and movements of the non-trawl RCA) compared to No Action would more than likely be applied to areas where catch did not occur simply due to management limitations.

In addition, the Commission is in the process of implementing MPAs in this region. At this time, a total of 20 MPAs, covering approximately 137 sq mi of state waters or about 13 percent of the area north of 40°10' N. latitude, are included in the Commission's preferred alternative (CDFG 2011). Since these MPAs occur in state waters, many in 20 fm or less, this further limits the available fishing areas for nearshore fishermen and would further exacerbate crowding issues.

Projected mortality of overfished species under Alternative 2 are summarized by area and alternative in Table C-63.

Table C-62. Alternative 2: Nearshore fishery projected landings by area and alternative for 2013-2014.

Area	Projected Landings (mt) 2013-14	
	Alternative 2a	**Alternative 2b**
Grand Total	590	555
Black rockfish	224	205
Blue rockfish	18	18
Cabezon	100	97
Deeper nearshore rockfish	36	36
Kelp greenling	49	48
Lingcod	80	70
Other minor nearshore rockfish	24	22
Shallow nearshore rockfish	59	59
North of 42º N. lat.		
Black rockfish	138	119
Blue rockfish	4	4
Cabezon	30	27
Kelp greenling	23	22
Lingcod	40	30
Other minor nearshore rockfish	14	12
42º - 40º10' N. lat.		
Black rockfish	82	82
Blue rockfish	11	11
Cabezon	7	7
Kelp greenling	5	5
Lingcod	20	20
Other minor nearshore rockfish	10	10
South of 40º10' N. lat.		
Black rockfish	4	4
Blue rockfish	3	3
Cabezon	63	63
Deeper nearshore rockfish	36	36
Kelp greenling	21	21
Lingcod	20	20
Shallow nearshore rockfish	59	59

Shoreward RCA Boundary	South of 34º27'	34º27' - 40º10'	40º10' - 42º	42º - 43º	43º - 46º16'	North of 46º16'
Shore						
20 fm						
30 fm						
60 fm						

Figure C-10. Alternative 2a: Nearshore shoreward RCA configuration. Grey shading indicates areas closed to fishing.

Shoreward RCA Boundary	South of 34º27'	34º27' - 40º10'	40º10' - 42º	42º - 43º	43º - 46º16'	North of 46º16'
Shore						
20 fm						
30 fm						
60 fm						

Figure C-11. Alternative 2b: Nearshore shoreward RCA configuration. Grey shading indicates areas closed to fishing. Diagonal lines indicate change from No Action.

Table C-63. Alternative 2: Overfished species bycatch projections for the nearshore fixed gear fisheries by area and alternative for 2013-2014.

		Projected Mortality (mt) 2013-14		Allocation (mt) 2013-14[a/]
Species	Area	Alternative 2a	Alternative 2b	
Bocaccio	Total	0.5	0.5	
	OR: North of 42º	0	0	n/a
	CA: 42º - 40º10'	0	0	
	CA: South of 40º10'	0.5	0.5	0.9
Canary	Total	3.8	3.7	5.3/5.5
	OR: North of 42º	1.1	1	1.4/1.5
	CA: 42º - 40º10'	0.9	0.9	3.9/4.0
	CA: South of 40º10'	1.8	1.8	
Cowcod	Total	0	0	
	OR: North of 42º	0	0	n/a
	CA: 42º - 40º10'	0	0	
	CA: South of 40º10'	0	0	1.0[b/]
Darkblotched	Total	0.3	0.2	n/a
	OR: North of 42º	0.3	0.2	
	CA: 42º - 40º10'	0	0	
	CA: South of 40º10'	0	0	
Yelloweye	Total	1.2	1.2	1.2
	OR: North of 42º	0.87	0.87	0.87
	CA: 42º - 40º10'	0.24	0.24	0.33
	CA: South of 40º10'	0.09	0.09	

[a/]represents nearshore share of non-trawl allocation
[b/]non-trawl allocation

Similar to analyses conducted in the 2011-12 FEIS, two alternate catch sharing relationships were analyzed to demonstrate the tradeoffs of varying overfished species allocations compared to No Action (Table C-64). An equal catch sharing (50:50) and a reverse of the No Action alternative catch sharing was used to bracket the upper and lower ranges of landings and corresponding management measures (Table C-64).

Under the equal sharing scenario, Oregon would receive more canary and less yelloweye compared to the No Action catch sharing. The RCA configuration and landings under this scenario would be the same as discussed under Alternative 1. Under this same scenario, California would be afforded less canary rockfish compared to No Action, but more yelloweye rockfish. The RCA configuration and landings under this scenario would be the same as discussed under Alternative 1.

Under the reverse No Action, Oregon would receive more canary rockfish, yet substantially less yelloweye rockfish, compared to No Action. The RCA configuration and landings under this scenario would be the same as discussed under Alternative 1.

Under this same scenario, California would receive substantially more yelloweye rockfish and less canary rockfish compared to No Action. The RCA configuration would be similar to No Action, except that the area between 40º 10' N. latitude to 34º 27' N. latitude would be modified to 20 fm. In addition, a 20 percent reduction in landed catch would be necessary to stay within the canary allocation

Table C-64. Alternative 2: Allocations of canary and yelloweye rockfish for 2013-14 under alternate nearshore catch sharing scenarios.

		No Action	Equal Sharing	Reverse No Action
OR	Canary	1.4/1.5	2.7/2.8	3.9/4.0
	Yelloweye	0.87	0.6	0.33
CA	Canary	3.9/4.0	2.7/2.8	1.4/1.5
	Yelloweye	0.33	0.6	0.87

Table C-65. Alternative 2: Description of management measures by area under alternate catch sharing scenarios.

		Catch Sharing		
	AREA	**No Action**	**Equal Sharing**	**Reverse No Action**
OR	north of 43º	same as Alt 1	same as Alt 1	same as Alt 1
	42º-43º			
CA	42º - 40º10'	same as Alt 1	same as Alt 1	RCA=20 fm; Landings=20% reduction
	40º10' to 34º27'			RCA=20 fm; Landings=20% reduction
	south of 34º27'			RCA=60 fm; Landings=20% reduction

C.3.4 Nearshore: Alternative 3

Under Alternative 3, the allocations of canary and yelloweye rockfish to the nearshore fishery are higher than under the No Action alternative (Table C-57). Although both states will have some increased opportunity compared to No Action, management measures will continue to be more restrictive and landings lower than previous years (2009-2010 FEIS). As such, nearshore fishermen continue to be negatively impacted by the reduced trip limits and restricted access to productive fishing grounds, as a result of the non-trawl RCA closures, implemented to reduce mortality of overfished species, particularly yelloweye.

Based on Council direction, the No Action catch sharing for canary (OR = 26.7%; CA = 73.3%) and yelloweye rockfish (OR = 72.7%; CA = 27.3%) was analyzed in the integrated alternatives. Under this alternative, the tradeoffs between more restrictive depth restrictions and higher reductions in landed catch (Alternative 3a and 3b). In Oregon, overfished species mortality is modeled assuming the same RCA under No Action (20 fm depth restriction between 42° N. latitude to 43° N. latitude) (Alternative 3a) and a 30 fm depth restriction statewide (Alternative 3b). In California, overfished species mortality is modeled assuming the same RCA under No Action (20 fm between 42° N. latitude and 40° 10' N. latitude; 30 fm between 40° 10' N. latitude and 34° 27' N. latitude; 60 fm south of 34° 27' N. latitude).

North of 42° N. latitude – under Alternative 3a, the RCA configuration (

Figure C-12) would be the same as No Action and landings would be increased 8 to 29 percent relative to No Action (Table C-66) to reflect state landing caps. Lingcod would also be increased by 40 percent relative to the No Action. Under Alternative 3b, a 30 fm RCA configuration would be implemented statewide (

Figure C-13) and landings increased 7 percent relative to No Action (Table C-66).

Under Alternative 3a, current state landing caps could be reached, assuming bycatch rates, weather, and other unforeseen circumstances are similar to 2011 – 2012. However, the shoreward RCA in southern Oregon would still be restricted to 20 fm. As described for the No Action alternative, this narrow fishing depth distribution (< 20 fm) may result in increased gear conflicts, increased probability of local depletions for certain populations, and reduced access to productive fishing grounds. The result is reduced economic efficiency in attaining landing caps. The negative impacts of this 20 fm RCA is most realized by the communities of Brookings, Port Orford, Coos Bay, and Newport.

Pre-2009 fishing grounds would be reopened under Alternative 3b, however, where the RCA would be returned to 30 fm statewide (

Figure C-12. Alternative 3a: Nearshore shoreward RCA configuration. Grey shading indicates areas closed to fishing). Alternative 3b would reduce gear conflicts, reduce the potential for local depletions, and increase opportunities to fish in productive areas that have been closed for four years. However, under this alternative, landings would be restricted to levels well below historical landing caps for the state of Oregon.

South of 42° N. latitude – under Alternatives 3a and 3b, the RCA configuration and landings would be the same as No Action, except for greenling and lingcod (Table C-66;

Figure C-12). Landings of greenling would be increased but are projected to be within the greenling contribution to the Other Fish complex. A small increase in lingcod landings could also be afforded statewide while staying within overfished species allocations.

Under Alternative 3, the communities of Eureka and Crescent City will continue to be negatively impacted by the 20 fm depth restriction to reduce yelloweye rockfish mortality. Gear conflicts and competition for space as described under the No Action alternative will continue without an increase in the yelloweye rockfish allocation to the state. Also as discussed under the No Action alternative, this fishery has historically operated at deeper depths and almost 40 percent of the minor nearshore rockfish and over 20 percent of the lingcod landings were observed in depths greater than 20 fm from 2003 to 2010. Forcing this fishery into shallower depths has made it difficult for the fishermen to prosecute their fishery. Although the area south of 40° 10' N latitude has lower yelloweye rockfish catch, they still do occur and the ability to implement more restrictive management measures on a finer geographic scale is limited. Therefore, if needed, more restrictive management measures (e.g., trip limit reductions and a more restrictive non-trawl RCA) would more than likely be applied to areas where catch did not occur simply due to management limitations.

In addition, the Commission is in the process of implementing MPAs in this region. At this time, a total of 20 MPAs, covering approximately 137 sq mi of state waters or about 13 percent of the area north of

40° 10' N. latitude, are included in the Commission's preferred alternative (CDFG 2011). Since these MPAs occur in state waters, many in 20 fm or less, this further limits the available fishing areas for nearshore fishermen and would further exacerbate crowding issues.

Projected mortality of overfished species under Alternative 3 are summarized by area and alternative inTable C-67.

Table C-66. Alternative 3: Nearshore fishery projected total catch by area and alternative for 2013-2014.

Area	Projected Landings (mt) 2013-14	
	Alternative 3a	**Alternative 3b**
Grand Total	590	555
Black rockfish	224	205
Blue rockfish	18	18
Cabezon	100	97
Deeper nearshore rockfish	36	36
Kelp greenling	49	48
Lingcod	80	70
Other minor nearshore rockfish	24	22
Shallow nearshore rockfish	59	59
North of 42º N. lat.		
Black rockfish	138	119
Blue rockfish	4	4
Cabezon	30	27
Kelp greenling	23	22
Lingcod	40	30
Other minor nearshore rockfish	14	12
42º - 40º10' N. lat.		
Black rockfish	82	82
Blue rockfish	11	11
Cabezon	7	7
Kelp greenling	5	5
Lingcod	20	20
Other minor nearshore rockfish	10	10
South of 40º10' N. lat.		
Black rockfish	4	4
Blue rockfish	3	3
Cabezon	63	63
Deeper nearshore rockfish	36	36
Kelp greenling	21	21
Lingcod	20	20

Shallow nearshore rockfish	59	59

Shoreward RCA Boundary	South of 34º27'	34º27' - 40º10'	40º10' - 42º	42º - 43º	43º - 46º16'	North of 46º16'
Shore						
20 fm						
30 fm						
60 fm						

Figure C-12. Alternative 3a: Nearshore shoreward RCA configuration. Grey shading indicates areas closed to fishing.

Shoreward RCA Boundary	South of 34º27'	34º27' - 40º10'	40º10' - 42º	42º - 43º	43º - 46º16'	North of 46º16'
Shore						
20 fm						
30 fm						
60 fm						

Figure C-13. Alternative 3b: Nearshore shoreward RCA configuration. Grey shading indicates areas closed to fishing. Diagonal lines represent the latitudinal area where an RCA change was made relative to the No Action configuration.

Table C-67. Alternative 3: Overfished species bycatch projections for the nearshore fixed gear fisheries by area and alternative for 2013-2014.

		Projected Mortality (mt) 2013-14		Allocation (mt) 2013-14[a/]
Species	Area	Alternative a	Alternative b	
Bocaccio	Total	0.5	0.5	
	OR: North of 42º	0	0	n/a
	CA: 42º - 40º10'	0	0	
	CA: South of 40º10'	0.5	0.5	0.9
Canary	Total	3.8	3.7	6.2/6.4
	OR: North of 42º	1.1	1	1.7/1.7
	CA: 42º - 40º10'	0.9	0.9	4.5/4.7
	CA: South of 40º10'	1.8	1.8	
Cowcod	Total	0	0	
	OR: North of 42º	0	0	n/a
	CA: 42º - 40º10'	0	0	
	CA: South of 40º10'	0	0	1.0[b/]
Darkblotched	Total	0.3	0.2	n/a
	OR: North of 42º	0.3	0.2	
	CA: 42º - 40º10'	0	0	
	CA: South of 40º10'	0	0	
Yelloweye	Total	1.2	1.2	1.2
	OR: North of 42º	0.87	0.87	0.87
	CA: 42º - 40º10'	0.24	0.24	0.33
	CA: South of 40º10'	0.09	0.09	

[a/]represents nearshore share of non-trawl allocation
[b/]non-trawl allocation

Similar to analyses conducted in the 2011-12 FEIS, two alternate catch sharing relationships were analyzed to demonstrate the tradeoffs of varying overfished species allocations compared to No Action (Table C-68). An equal catch sharing (50:50) and a reverse No Action (i.e., reverse the percentages for each species) were used to bracket the upper and lower ranges of landings and corresponding management measures.

Under the equal sharing scenario (Table C-69), Oregon would receive more canary and less yelloweye compared to No Action catch sharing. The RCA configuration and landings under this scenario would be the same as discussed under Alternative 1. Under this same scenario, California would be afforded less canary rockfish compared to No Action, but more yelloweye rockfish. The RCA configuration and landings under this scenario would be the same as discussed under Alternative 1.

Under the reverse No Action (Table C-69), Oregon would receive more canary rockfish, yet substantially less yelloweye rockfish, compared to No Action and California would receive substantially more yelloweye rockfish and less canary rockfish. The RCA configurations and landings for both states under this scenario would be the same as discussed under Alternative 1.

Table C-68. Alternative 3: Allocations of canary and yelloweye rockfish for 2013-14 under alternate nearshore catch sharing scenarios.

		No Action	Equal Sharing	Reverse No Action
OR	Canary	1.7	3.1/3.2	4.5/4.7
	Yelloweye	0.87	0.6	0.33
CA	Canary	4.5/4.7	3.1/3.2	1.7
	Yelloweye	0.33	0.6	0.87

Table C-69. Alternative 3: Description of management measures under alternate nearshore catch sharing scenarios.

		Catch Sharing		
	AREA	**No Action**	**Equal Sharing**	**Reverse No Action**
OR	north of 43º	Same as Alt 1	Same as Alt 1	Same as Alt 1
	42º-43º			
CA	42º - 40º10'	Same as Alt 1	Same as Alt 1	Same as Alt 1
	40º10' to 34º27'			
	south of 34º27'			

C.3.5 Nearshore: Alternative 4

Under Alternative 4, while the allocation of yelloweye rockfish is higher compared to No Action, the allocation of canary rockfish is 50% lower (Table C-57). Both states are severely restricted by the low amount of canary rockfish due to areas of high bycatch; therefore, nearshore landings would have to be reduced between 20 and 45 percent compared to No Action depending on the area and RCA configuration. As such, nearshore fishermen continue to be negatively impacted by the reduced trip limits and restricted access to productive fishing grounds, as a result of the non-trawl RCA closures, implemented to reduce mortality of overfished species, particularly yelloweye.

Based on Council direction, the No Action sharing for canary (OR = 26.7%; CA = 73.3%) and yelloweye rockfish (OR = 72.7%; CA = 27.3%) was analyzed in the integrated alternatives. Under this alternative, the tradeoffs between more restrictive depth restrictions and higher reductions in landed catch (Alternatives 4a and 4b) were analyzed. In Oregon, overfished species mortality is modeled assuming a 20 fm depth restriction statewide for both alternatives. In California, overfished species morality is modeled assuming a 20 fm depth restriction statewide (Alternative 4a) and the same RCA under No Action (20 fm between 42° N. latitude and 40° 10' N. latitude; 30 fm between 40° 10' N. latitude and 34° 27' N. latitude; 60 fm south of 34° 27' N. latitude) (Alternative 4b).

North of 42° N. latitude – under Alternative 4a and 4b, a 20 fm depth restriction would be implemented statewide and landings would have to be reduced by 40 percent relative to the No Action Alternative (Table C-70;

Figure C-14. Alternative 4a: Nearshore shoreward RCA configuration. Grey shading indicates areas closed to fishing. Diagonal lines represent the latitudinal area where an RCA change was made relative to the No Action configuration.

It was pointed out earlier that the No Action alternative was already restrictive for the Oregon nearshore fisheries in that historical landing caps were not attainable due to the management measures required to maintain yelloweye rockfish catch below the imposed caps. Under Alternatives 4a and 4b, restricting landings by an additional 40 percent may force fish buyers to leave certain ports, such as Port Orford and Gold Beach, which have no fish processing plants, and Brookings port group (i.e., Port Orford, Brookings, and Gold Beach), which provides the most live fish landings of any other port group along the U.S. west coast). This, coupled with drastic catch restrictions to fishermen, would likely result in many nearshore fishermen leaving the fishery entirely. Coastal communities that would be most impacted by this additional economic hardship have previously been identified as most vulnerable in the 2011-12 FEIS (e.g., Port Orford and Brookings). Furthermore, not only would landings be drastically reduced, but fishing area would be reduced; the RCA north of 43° N. latitude may have to be moved from 30 fm to 20 fm. This additional action may eliminate fishing opportunities for the northern Oregon nearshore fishery because many of the fishing areas and reefs are deeper than 20 fm. Hence, this action would result in disproportionate impacts along the Oregon coast. In addition, the 20 fm depth restriction state-wide may cause crowding issues, competition for space, result in more gear conflicts, and increase the likelihood of local depletions of certain fish stocks.

South of 42° N. latitude – under Alternative 4a, a 20 fm depth restriction would be implemented statewide in addition to a 20 percent reduction in landed catch for all species compared to No Action (Table C-70;

Figure C-14). The restrictive RCA statewide is necessary to reduce canary bycatch that occurs south of 40°10' N latitude. The 20 fm depth restriction in addition to the anticipated MPAs discussed under Alternative 1 is likely to cause crowding issues, create competition for space, and result in more gear conflicts. The tsunami damage sustained by the port of Crescent City has not been repaired and this port continues to struggle under current low landings. Further reducing landings as would be required under this alternative will only cause further negative economic impacts to this city. Other ports in the area that did not sustain tsunami damage will still be negatively impacted by the loss of revenue as a result of the reduced landings.

Although few canary catches have been documented south of 34°27' N. latitude, the overfished species impact projection model for the nearshore fishery is unable to differentiate canary rockfish mortality occurring north and south of 34° 27' N. latitude. As a result, the entire RCA south of 40°10' N. latitude would have to be restricted to 20 fm. Since the fishery south of 34°27' N. latitude is allowed to operate out to depths of 60 fm, this would represent a tremendous loss of fishing grounds and could effectively eliminate the fishery in this area because many of the species tend to be found at the deeper depths in this area.

Access to fishing grounds has also been restricted in this area due to the implementation of MPAs. Fifty-four MPAs, encompassing 356 square miles of state waters have been implemented since 2007 in the area between 40° 10' N. latitude and 34° 27' N. latitude (CDFG 2011). An additional 50 MPAs, covering 356 sq mi of state waters, will go into effect on January 1, 2012 for the area south of 34° 27' N. latitude. In total, 104 MPAs covering 711 square miles of state waters will be implemented in this entire area south of 40° 10' N latitude. Similar to the area north of 40° 10' N. latitude, the fishing grounds available to nearshore fishermen has reduced due to the implementation of MPAs and implementing further shallow depth restrictions as would be required under Alternative a would only further exacerbate the crowding issues similar to those for the area north of 40° 10' N latitude.

Under Alternative 4b, maintaining the No Action RCA configuration would require reductions in landed catch of 45 percent and would effectively eliminate this fishery because the operational costs would be greater than any potential profits (Table C-70;

Figure C-14. Alternative 4a: Nearshore shoreward RCA configuration. Grey shading indicates areas closed to fishing. Diagonal lines represent the latitudinal area where an RCA change was made relative to the No Action configuration.

Although the nearshore fishery may not necessarily be a high volume fishery, it is valuable so small changes to landings can have a large effect on profits. Since many fishermen rely on the nearshore fishery as either a full time source of income, or as part of their fishing portfolio, reductions to landed catch could severely impact not only the individual fishermen, but the coastal communities who rely on upon them.

Projected mortality of overfished species under Alternative 4 are summarized by area and alternative in Table C-71.

Table C-70. Alternative 4: Nearshore fishery projected landings by area and alternative for 2013-2014.

Area	Projected Landings (mt) 2013-14	
	Alternative 4a	**Alternative 4b**
Grand Total	393	309
Black rockfish	136	114
Blue rockfish	13	10
Cabezon	71	54
Deeper nearshore rockfish	29	20
Kelp greenling	33	27
Lingcod	49	39
Other minor nearshore rockfish	15	13
Shallow nearshore rockfish	47	32
North of 42º N. lat.		
Black rockfish	67	67
Blue rockfish	2	2
Cabezon	15	15
Kelp greenling	12	12
Lingcod	17	17
Other minor nearshore rockfish	7	7
42º - 40º10' N. lat.		
Black rockfish	66	45
Blue rockfish	9	6
Cabezon	6	4
Kelp greenling	4	3
Lingcod	16	11
Other minor nearshore rockfish	8	6
South of 40º10' N. lat.		
Black rockfish	3	2
Blue rockfish	2	2
Cabezon	50	35
Deeper nearshore rockfish	29	20
Kelp greenling	17	12
Lingcod	16	11
Shallow nearshore rockfish	47	32

Shoreward RCA Boundary	South of 34º27'	34º27' - 40º10'	40º10' - 42º	42º - 43º	43º - 46º16'	North of 46º16'
Shore						
20 fm						
30 fm						
60 fm						

Figure C-14. Alternative 4a: Nearshore shoreward RCA configuration. Grey shading indicates areas closed to fishing. Diagonal lines represent the latitudinal area where an RCA change was made relative to the No Action configuration.

Shoreward RCA Boundary	South of 34º27'	34º27' - 40º10'	40º10' - 42º	42º - 43º	43º - 46º16'	North of 46º16'
Shore						
20 fm						
30 fm						
60 fm						

Figure C-15. Alternative 4b: Nearshore shoreward RCA configuration. Grey shading indicates areas closed to fishing. Diagonal lines represent the latitudinal area where an RCA change was made relative to the No Action configuration.

Table C-71. Alternative 4: Overfished species bycatch projections for the nearshore fixed gear fisheries by area and alternative for 2013-2014.

Species	Area	Projected Mortality (mt) 2013-14		Allocation (mt) 2013-14[a/]
		Alternative a	Alternative b	
Bocaccio	Total	0	0.3	
	OR: North of 42º	0	0	n/a
	CA: 42º - 40º10'	0	0	
	CA: South of 40º10'	0	0.3	0.9
Canary	Total	2	2	2
	OR: North of 42º	0.5	0.5	0.5
	CA: 42º - 40º10'	0.7	0.5	1.5
	CA: South of 40º10'	0.8	1	
Cowcod	Total	0	0	
	OR: North of 42º	0	0	n/a
	CA: 42º - 40º10'	0	0	
	CA: South of 40º10'	0	0	1.0[b/]
Darkblotched	Total	0.12	0.1	n/a
	OR: North of 42º	0.12	0.1	
	CA: 42º - 40º10'	0	0	
	CA: South of 40º10'	0	0	
Yelloweye	Total	0.64	0.62	1.2
	OR: North of 42º	0.42	0.42	0.87
	CA: 42º - 40º10'	0.19	0.10	0.33
	CA: South of 40º10'	0.03	0.10	

[a/]represents nearshore share of non-trawl allocation
[b/]non-trawl allocation

Similar to analyses conducted in the 2011-12 FEIS, two alternate catch sharing relationships were analyzed to demonstrate the tradeoffs of varying overfished species allocations compared to No Action (Table C-72). An equal catch sharing (50:50) and a reverse No Action (i.e., reverse the percentages for each species) were analyzed to bracket the upper and lower ranges of landings and corresponding management measures.

Under the equal sharing scenario (Table C-73), Oregon would receive more canary and less yelloweye compared to No Action catch sharing. The RCA configuration and landings under this scenario would be the same as discussed under Alternative 1. Under this same scenario, California would be afforded less canary rockfish compared to No Action, but more yelloweye rockfish. The RCA configuration and landings under this scenario would be the same as discussed under Alternative 1.

Under the reverse No Action (Table C-73), Oregon would receive more canary rockfish, yet substantially less yelloweye rockfish, compared to No Action and California would receive substantially more yelloweye rockfish and less canary rockfish. The RCA configuration and landings for Oregon would be the same as Alternative 1.

Under this same scenario, California would receive substantially more yelloweye rockfish and less canary rockfish compared to No Action. The RCA configuration would be similar to No Action, except that the area between 40º 10' N. latitude to 34º 27' N. latitude would be modified to 20 fm. In addition, a 70 percent reduction in landed catch would be necessary to stay within the canary allocation.

Table C-72. Alternative 4: Allocations of canary and yelloweye rockfish for 2013-14 under alternate nearshore catch sharing scenarios.

		No Action	Equal Sharing	Reverse No Action
OR	Canary	0.5	1.0	1.5
	Yelloweye	0.87	0.6	0.33
CA	Canary	1.5	1.0	0.5
	Yelloweye	0.33	0.6	0.87

Table C-73. Alternative 4: Description of management measures by area under alternate catch sharing scenarios.

		Catch Sharing		
	AREA	**No Action**	**Equal Sharing**	**Reverse No Action**
OR	north of 43º	(Alt a): RCA=20 fm; Landings=40% reduction (Alt b): same as Alt a	same as Alt 1	same as Alt 1
	42º-43º			
CA	42º - 40º10'	(Alt a): Landings=45% reduction (Alt b): Landings=20% reduction	RCA=20 fm; Landings=50% reduction	RCA=20 fm; Landings=70% reduction
	40º10' to 34º27'	(Alt a): Landings=45% reduction (Alt b): RCA=20 fm; Landings=20% reduction	RCA=20 fm; Landings=50% reduction	RCA=20 fm; Landings=70% reduction
	south of 34º27'	(Alt a): Landings=45% reduction (Alt b): RCA=20 fm; Landings=20% reduction	RCA=60 fm; Landings=50% reduction	RCA=60 fm; Landings=70% reduction

C.3.6 Nearshore: Alternative 5

Under Alternative 5, the allocations of canary and yelloweye rockfish to the nearshore fishery are higher than under the No Action alternative (Table C-57). Although both states will have some increased opportunity compared to No Action, management measures will continue to be more restrictive and landings lower than previous years (2009-2010 FEIS). As such, nearshore fishermen continue to be negatively impacted by the reduced trip limits and restricted access to productive fishing grounds, as a result of the non-trawl RCA closures, implemented to reduce mortality of overfished species, particularly yelloweye.

Based on Council direction, the No Action sharing for canary (OR = 26.7%; CA = 73.3%) and yelloweye rockfish (OR = 72.7%; CA = 27.3%) was analyzed in the integrated alternatives. Under this alternative, the tradeoffs between more restrictive depth restrictions and higher reductions in landed catch (Alternative 5a and 5b) were analyzed. In Oregon, overfished species mortality is modeled assuming the same RCA under No Action (20 fm depth restriction between 42° N. latitude to 43° N. latitude) (Alternative 5a) and a 30 fm depth restriction statewide (Alternative 5b). In California, overfished species mortality is modeled assuming the same RCA under No Action (20 fm between 42° N. latitude and 40°

10' N. latitude; 30 fm between 40° 10' N. latitude and 34° 27' N. latitude; 60 fm south of 34° 27' N. latitude).

North of 42° N. latitude – under Alternative 5a, the RCA configuration (

Figure C-16) would be the same as No Action and landings would be increased 8 to 29 percent (depending on the species) relative to No Action (Table C-74) to reflect state landing caps. Lingcod would also be increased by 40 percent relative to the No Action. Under Alternative 5b, a 30 fm RCA configuration would be implemented statewide (

Figure C-17) and landings increased 7 percent relative to No Action (Table C-74).

Under Alternative 5a, current state landing caps could be reached, assuming bycatch rates, weather, and other unforeseen circumstances are similar to 2011 – 2012. However, the shoreward RCA in southern Oregon would still be restricted to 20 fm. As described for the No Action alternative, this narrow fishing depth distribution (< 20 fm) may result in increased gear conflicts, increased probability of local depletions for certain populations, and reduced access to productive fishing grounds. The result is reduced economic efficiency in attaining landing caps. The negative impacts of this 20 fm RCA is most realized by the communities of Brookings and Port Orford.

Pre-2009 fishing grounds would be reopened under Alternative 5b, however, where the RCA would be returned to 30 fm statewide (

Figure C-17). Alternative 5b would reduce gear conflicts, reduce the potential for local depletions, and increase opportunities to fish in productive areas that have been closed for four years. However, under this alternative, landings would be restricted to levels well below historical landing caps for the state of Oregon.

South of 42° N. latitude – under Alternatives 5a and5 b, the RCA configuration and landings would be the same as No Action, except for greenling and lingcod (Table C-74;

Figure C-16). Landings of greenling would be increased but are projected to be within the greenling contribution to the Other Fish complex. A small increase in lingcod landings could also be afforded statewide while staying within overfished species allocations.

Under the PPA, the communities of Eureka and Crescent City will continue to be negatively impacted by the 20 fm depth restriction to reduce yelloweye mortality. Gear conflicts and competition for space as described under the No Action alternative will continue without an increase in the yelloweye rockfish allocation to the state. Also as discussed under the No Action alternative, this fishery has historically operated at deeper depths and almost 40 percent of the minor nearshore rockfish and over 20 percent of the lingcod landings were observed in depths greater than 20 fm from 2003 to 2010. Forcing this fishery into shallower depths has made it difficult for the fishermen to prosecute their fishery. Although the area south of 40°10' N. latitude has lower yelloweye rockfish catches, they still do occur and the ability to implement more restrictive management measures on a finer geographic scale is limited. Therefore, if needed, more restrictive management measures (e.g., trip limit reductions and a more restrictive non-trawl RCA) would more than likely be applied to areas where catch did not occur simply due to management limitations.

In addition, the Commission is in the process of implementing MPAs in this region. At this time, a total of 20 MPAs, covering approximately 137 sq mi of state waters or about 13 percent of the area north of 40° 10' N. latitude, are included in the Commission’s preferred alternative (CDFG 2011). Since these

MPAs occur in state waters, many in 20 fm or less, this further limits the available fishing areas for nearshore fishermen and would further exacerbate crowding issues.

Projected mortality of overfished species under Alternative 5 are summarized by area and alternative in Table C-75.

Table C-74. Alternative 5: Nearshore fishery projected landings by area and alternative for 2013-2014.

Area	Projected Landings (mt) 2013-14	
	Alternative a	**Alternative b**
Grand Total	590	555
Black rockfish	224	205
Blue rockfish	18	18
Cabezon	100	97
Deeper nearshore rockfish	36	36
Kelp greenling	49	48
Lingcod	80	70
Other minor nearshore rockfish	24	22
Shallow nearshore rockfish	59	59
North of 42º N. lat.		
Black rockfish	138	119
Blue rockfish	4	4
Cabezon	30	27
Kelp greenling	23	22
Lingcod	40	30
Other minor nearshore rockfish	14	12
42º - 40º10' N. lat.		
Black rockfish	82	82
Blue rockfish	11	11
Cabezon	7	7
Kelp greenling	5	5
Lingcod	20	20
Other minor nearshore rockfish	10	10
South of 40º10' N. lat.		
Black rockfish	4	4
Blue rockfish	3	3
Cabezon	63	63
Deeper nearshore rockfish	36	36
Kelp greenling	21	21
Lingcod	20	20
Shallow nearshore rockfish	59	59

Shoreward RCA Boundary	South of 34º27'	34º27' - 40º10'	40º10' - 42º	42º - 43º	43º - 46º16'	North of 46º16'
Shore						
20 fm						
30 fm						
60 fm						

Figure C-16. Alternative 5a: Nearshore shoreward RCA configuration. Grey shading indicates areas closed to fishing. Diagonal lines represent the latitudinal area where an RCA change was made relative to the No Action configuration.

Shoreward RCA Boundary	South of 34º27'	34º27' - 40º10'	40º10' - 42º	42º - 43º	43º - 46º16'	North of 46º16'
Shore						
20 fm						
30 fm						
60 fm						

Figure C-17. Alternative 5b: Nearshore shoreward RCA configuration. Grey shading indicates areas closed to fishing. Diagonal lines represent the latitudinal area where an RCA change was made relative to the No Action configuration.

Table C-75. Alternative 5: Overfished species bycatch projections for the nearshore fixed gear fisheries by area and alternative for 2013-2014.

		Projected Mortality (mt) 2013-14		Allocation (mt) 2013-14[a/]
Species	Area	Alternative a	Alternative b	
Bocaccio	Total	0.5	0.5	
	OR: North of 42º	0	0	n/a
	CA: 42º - 40º10'	0	0	
	CA: South of 40º10'	0.5	0.5	0.9
Canary	Total	3.8	3.7	12.5/12.7
	OR: North of 42º	1.1	1	3.3/3.4
	CA: 42º - 40º10'	0.9	0.9	9.2/9.3
	CA: South of 40º10'	1.8	1.8	
Cowcod	Total	0	0	
	OR: North of 42º	0	0	n/a
	CA: 42º - 40º10'	0	0	
	CA: South of 40º10'	0	0	1.0[b/]
Darkblotched	Total	0.3	0.2	n/a
	OR: North of 42º	0.3	0.2	
	CA: 42º - 40º10'	0	0	
	CA: South of 40º10'	0	0	
Yelloweye	Total	1.2	1.2	1.2
	OR: North of 42º	0.87	0.87	0.87
	CA: 42º - 40º10'	0.24	0.24	0.33
	CA: South of 40º10'	0.09	0.09	

[a/]represents nearshore share of non-trawl allocation
[b/]non-trawl allocation

Similar to analyses conducted in the 2011-12 FEIS, two alternate catch sharing relationships were analyzed to demonstrate the tradeoffs of varying overfished species allocations compared to No Action (Table C-76). An equal catch sharing (50:50) and a reverse No Action (i.e., reverse the percentages for each species) were analyzed to bracket the upper and lower ranges of landings and corresponding management measures.

Under the equal sharing scenario (Table C-77), Oregon would receive more canary and less yelloweye compared to No Action catch sharing. The RCA configuration and landings under this scenario would be the same as discussed under Alternative 1. Under this same scenario, California would be afforded less canary rockfish compared to No Action, but more yelloweye rockfish. The RCA configuration and landings under this scenario would be the same as discussed under Alternative 1.

Under the reverse No Action (Table C-77), Oregon would receive more canary rockfish, yet substantially less yelloweye rockfish, compared to No Action and California would receive substantially more yelloweye rockfish and less canary rockfish. The RCA configurations and landings for Oregon would be the same as Alternative 1. For California, a 30 fm depth restriction could be implemented for the area between 42° N and 40° 10' N. latitude and landings would be the same as No Action, with an increase in greenling and lingcod. For the area south of 40º 10' N. latitude, the RCA configuration and landings would be same as No Action, with an increase in greenling and lingcod.

Table C-76. Alternative 5: Allocations of canary and yelloweye rockfish for 2013-14 under alternate nearshore catch sharing scenarios.

		No Action	Equal Sharing	Reverse No Action
OR	Canary	3.3/3.4	6.3/6.4	9.2/9.3
	Yelloweye	0.87	0.6	0.33
CA	Canary	9.2/9.3	6.3/6.4	3.3/3.4
	Yelloweye	0.33	0.6	0.87

Table C-77. Alternative 5: Description of management measures by area under alternate catch sharing scenarios.

		Catch Sharing		
	AREA	**No Action**	**Equal Sharing**	**Reverse No Action**
OR	north of 43º	same as Alt 1	same as Alt 1	same as Alt 1
	42º-43º			
CA	42º - 40º10'	same as Alt 1	same as Alt 1	RCA = 30 fm, No Action landings plus higher greenling and lingcod
	40º10' to 34º27'			No Action RCA and landings plus higher greenling and lingcod
	south of 34º27'			

C.3.7 Nearshore: Alternative 6

Under Alternative 6, the allocations of canary and yelloweye rockfish to the nearshore fishery are higher than under the No Action alternative (Table C-57). Although both states will have some increased opportunity compared to No Action, management measures will continue to be more restrictive and landings lower than previous years (2009-2010 FEIS). As such, nearshore fishermen continue to be negatively impacted by the reduced trip limits and restricted access to productive fishing grounds, as a result of the non-trawl RCA closures, implemented to reduce mortality of overfished species, particularly yelloweye.

Based on Council direction, the No Action sharing for canary (OR = 26.7%; CA = 73.3%) and yelloweye rockfish (OR = 72.7%; CA = 27.3%) was analyzed in the integrated alternatives. Under this alternative, the tradeoffs between more restrictive depth restrictions and higher reductions in landed catch were analyzed (Alternative 6a and 6b). In Oregon, overfished species mortality is modeled assuming the same RCA under No Action (20 fm depth restriction between 42° N. latitude to 43° N. latitude) (Alternative 6a) and a 30 fm depth restriction statewide (Alternative 6b). In California, overfished species mortality is modeled assuming the same RCA under No Action (20 fm between 42° N. latitude and 40° 10' N. latitude; 30 fm between 40° 10' N. latitude and 34° 27' N. latitude; 60 fm south of 34° 27' N. latitude).

North of 42° N. latitude – under Alternative 6a, the RCA configuration (

Figure C-18) would be the same as No Action and landings would be increased 8 to 29 percent (depending on the species) relative to No Action to reflect state landing caps (Table C-78). Lingcod would also be increased by 40 percent relative to the No Action. Under Alternative 6b, a 30 fm RCA configuration would be implemented statewide (

Figure C-19) and landings increased 7 percent relative to No Action (Table C-78).

Under Alternative 6a, current state landing caps could be reached, assuming bycatch rates, weather, and other unforeseen circumstances are similar to 2011 – 2012. However, the shoreward RCA in southern Oregon would still be restricted to 20 fm. As described for the No Action alternative, this narrow fishing depth distribution (< 20 fm) may result in increased gear conflicts, increased probability of local depletions for certain populations, and reduced access to productive fishing grounds. The result is reduced economic efficiency in attaining landing caps. The negative impacts of this 20 fm RCA is most realized by the communities of Brookings and Port Orford.

Pre-2009 fishing grounds would be reopened under Alternative 6b, however, where the RCA would be returned to 30 fm statewide (

Figure C-19). Alternative 6b would reduce gear conflicts, reduce the potential for local depletions, and increase opportunities to fish in productive areas that have been closed for four years. However, under this alternative, landings would be restricted to levels well below historical landing caps for the state of Oregon.

South of 42° N. latitude – under Alternatives 6a and 6b, the RCA configuration and landings would be the same as No Action, except for greenling and lingcod (

Figure C-18). Landings of greenling would be increased but are projected to be within the greenling contribution to the Other Fish complex. A small increase in lingcod landings could also be afforded statewide while staying within overfished species allocations.

Under the PPA, the communities of Eureka and Crescent City will continue to be negatively impacted by the 20 fm depth restriction to reduce yelloweye mortality. Gear conflicts and competition for space as described under the No Action alternative will continue without an increase in the yelloweye rockfish allocation to the state. Also as discussed under the No Action alternative, this fishery has historically operated at deeper depths and almost 40 percent of the minor nearshore rockfish and over 20 percent of the lingcod landings were observed in depths greater than 20 fm from 2003 to 2010. Forcing this fishery into shallower depths has made it difficult for the fishermen to prosecute their fishery. Although the area south of 40° 10' N. latitude has lower yelloweye rockfish catches, they still do occur and the ability to implement more restrictive management measures on a finer geographic scale is limited. Therefore, if needed, more restrictive management measures (e.g., trip limit reductions and a more restrictive non-trawl RCA) would more than likely be applied to areas where catch did not occur simply due to management limitations.

In addition, the Commission is in the process of implementing MPAs in this region. At this time, a total of 20 MPAs, covering approximately 137 sq mi of state waters or about 13 percent of the area north of 40° 10' N. latitude, are included in the Commission's preferred alternative (CDFG 2011). Since these MPAs occur in state waters, many in 20 fm or less, this further limits the available fishing areas for nearshore fishermen and would further exacerbate crowding issues.

Projected mortality of overfished species under Alternative 6 are summarized by area and alternative in Table C-79.

Table C-78. Alternative 6: Nearshore fishery projected landings by area and alternative for 2013-2014.

Area	Projected Landings (mt) 2013-14	
	Alternative 6a	**Alternative 6b**
Grand Total	590	555
Black rockfish	224	205
Blue rockfish	18	18
Cabezon	100	97
Deeper nearshore rockfish	36	36
Kelp greenling	49	48
Lingcod	80	70
Other minor nearshore rockfish	24	22
Shallow nearshore rockfish	59	59
North of 42º N. lat.		
Black rockfish	138	119
Blue rockfish	4	4
Cabezon	30	27
Kelp greenling	23	22
Lingcod	40	30
Other minor nearshore rockfish	14	12
42º - 40º10' N. lat.		
Black rockfish	82	82
Blue rockfish	11	11
Cabezon	7	7
Kelp greenling	5	5
Lingcod	20	20
Other minor nearshore rockfish	10	10
South of 40º10' N. lat.		
Black rockfish	4	4
Blue rockfish	3	3
Cabezon	63	63
Deeper nearshore rockfish	36	36
Kelp greenling	21	21
Lingcod	20	20
Shallow nearshore rockfish	59	59

Shoreward RCA Boundary	South of 34º27'	34º27' - 40º10'	40º10' - 42º	42º - 43º	43º - 46º16'	North of 46º16'
Shore						
20 fm						
30 fm						
60 fm						

Figure C-18. Alternative 6a: Nearshore shoreward RCA configuration. Grey shading indicates areas closed to fishing.

Shoreward RCA Boundary	South of 34º27'	34º27' - 40º10'	40º10' - 42º	42º - 43º	43º - 46º16'	North of 46º16'
Shore						
20 fm						
30 fm						
60 fm						

Figure C-19. Alternative 6b: Nearshore shoreward RCA configuration. Grey shading indicates areas closed to fishing. Diagonal lines represent the latitudinal area where an RCA change was made relative to the No Action configuration.

Table C-79. Alternative 6: Overfished species bycatch projections for the nearshore fixed gear fisheries by are and alternative for 2013-2014.

		Projected Mortality (mt) 2013-14		Allocation (mt) 2013-14[a]
Species	**Area**	**Alternative a**	**Alternative b**	
Bocaccio	Total	0.5	0.5	
	OR: North of 42º	0	0	n/a
	CA: 42º - 40º10'	0	0	
	CA: South of 40º10'	0.5	0.5	0.9
Canary	Total	3.8	3.7	5.3/5.5
	OR: North of 42º	1.1	1	1.4/1.5
	CA: 42º - 40º10'	0.9	0.9	3.9/4.0
	CA: South of 40º10'	1.8	1.8	
Cowcod	Total	0	0	
	OR: North of 42º	0	0	n/a
	CA: 42º - 40º10'	0	0	
	CA: South of 40º10'	0	0	1.0[b]
Darkblotched	Total	0.3	0.2	n/a
	OR: North of 42º	0.25	0.2	
	CA: 42º - 40º10'	0	0	
	CA: South of 40º10'	0	0	
Yelloweye	Total	1.2	1.2	1.2
	OR: North of 42º	0.87	0.87	0.87
	CA: 42º - 40º10'	0.24	0.24	0.33
	CA: South of 40º10'	0.09	0.09	

[a] represents nearshore share of non-trawl allocation
[b] non-trawl allocation

Similar to analyses conducted in the 2011-12 FEIS, two alternate catch sharing relationships were analyzed to demonstrate the tradeoffs of varying overfished species allocations compared to No Action (Table C-80). An equal catch sharing (50:50) and a reverse No Action (i.e., reverse the percentages for each species) were analyzed to bracket the upper and lower ranges of landings and corresponding management measures.

Under the equal sharing scenario, Oregon would receive more canary and less yelloweye compared to No Action (Table C-80). The RCA configuration and landings under this scenario would be the same as discussed under Alternative 1. Under this same scenario, California would be afforded less canary rockfish compared to No Action, but more yelloweye rockfish. The RCA configuration and landings under this scenario would be the same as discussed under Alternative 1.

Under the reverse No Action, Oregon would receive more canary rockfish, yet substantially less yelloweye rockfish, compared to No Action and California would receive substantially more yelloweye rockfish and less canary rockfish (Table C-80). The RCA configurations and landings under this scenario would be the same as discussed under Alternative 1 for Oregon and Alternative 2 for California.

Table C-80. Alternative 6: Allocations of canary and yelloweye rockfish for 2013-14 under alternate nearshore catch sharing scenarios.

		No Action	Equal Sharing	Reverse No Action
OR	Canary	1.4/1.5	2.7/2.8	3.9/4.0
	Yelloweye	0.87	0.6	0.33
CA	Canary	3.9/4.0	2.7/2.8	1.4/1.5
	Yelloweye	0.33	0.6	0.87

Table C-81. Alternative 6: Description of management measures by area under alternate catch sharing scenarios.

		Catch Sharing		
	AREA	**No Action**	**Equal Sharing**	**Reverse No Action**
OR	north of 43º	same as Alt 1	same as Alt 1	same as Alt 1
	42º-43º			
CA	42º - 40º10'	same as Alt 1	same as Alt 1	same as Alt 2
	40º10' to 34º27'			
	south of 34º27'			

C.3.8 Nearshore: Alternative 7

Under Alternative 7, the allocations of canary and yelloweye rockfish to the nearshore fishery are higher than under the No Action alternative (Table C-57). Although both states will have some increased opportunity compared to No Action, management measures will continue to be more restrictive and landings lower than previous years (2009-2010 FEIS). As such, nearshore fishermen continue to be negatively impacted by the reduced trip limits and restricted access to productive fishing grounds, as a result of the non-trawl RCA closures, implemented to reduce mortality of overfished species, particularly yelloweye.

Based on Council direction, the No Action sharing for canary (OR = 26.7%; CA = 73.3%) and yelloweye rockfish (OR = 72.7%; CA = 27.3%) was analyzed in the integrated alternatives. Under this alternative, the tradeoffs between more restrictive depth restrictions and higher reductions in landed catch (Alternative 7a and 7b) were analyzed. In Oregon, overfished species mortality is modeled assuming the same RCA under No Action (20 fm depth restriction between 42° N. latitude to 43° N. latitude) (Alternative a) and a 30 fm depth restriction statewide (Alternative b). In California, overfished species mortality is modeled assuming the same RCA under No Action (20 fm between 42° N. latitude and 40° 10' N. latitude; 30 fm between 40° 10' N. latitude and 34° 27' N. latitude; 60 fm south of 34° 27' N. latitude).

North of 42° N. latitude – under Alternative 7a, the RCA configuration (

Figure C-20) would be the same as No Action and landings would be increased 8 to 29 percent (depending on the species) relative to No Action (Table C-82) to reflect state landing caps. Lingcod would also be increased by 40 percent relative to the No Action. Under Alternative 7b, a 30 fm RCA configuration would be implemented statewide (

Figure C-21) and landings increased 7 percent relative to No Action (Table C-82).

Under Alternative 7a, current state landing caps could be reached, assuming bycatch rates, weather, and other unforeseen circumstances are similar to 2011 – 2012. However, the shoreward RCA in southern Oregon would still be restricted to 20 fm. As described for the No Action alternative, this narrow fishing depth distribution (< 20 fm) may result in increased gear conflicts, increased probability of local depletions for certain populations, and reduced access to productive fishing grounds. The result is reduced economic efficiency in attaining landing caps. The negative impacts of this 20 fm RCA is most realized by the communities of Brookings and Port Orford.

Pre-2009 fishing grounds would be reopened under Alternative 7b, however, where the RCA would be returned to 30 fm statewide (

Figure C-21). Alternative 7b would reduce gear conflicts, reduce the potential for local depletions, and increase opportunities to fish in productive areas that have been closed for four years. However, under this alternative, landings would be restricted to levels well below historical landing caps for the state of Oregon.

South of 42° N. latitude – under Alternatives 7a and 7b, the RCA configuration and landings would be the same as No Action, except for greenling and lingcod (

Figure C-20). Landings of greenling would be increased but are projected to be within the greenling contribution to the Other Fish complex. A small increase in lingcod landings could also be afforded statewide while staying within overfished species allocations.

Under the PPA, the communities of Eureka and Crescent City will continue to be negatively impacted by the 20 fm depth restriction to reduce yelloweye rockfish mortality. Gear conflicts and competition for space as described under the No Action alternative will continue without an increase in the yelloweye rockfish allocation to the state. Also as discussed under the No Action alternative, this fishery has historically operated at deeper depths and almost 40 percent of the minor nearshore rockfish and over 20 percent of the lingcod landings were observed in depths greater than 20 fm from 2003 to 2010. Forcing this fishery into shallower depths has made it difficult for the fishermen to prosecute their fishery. Although the area south of 40° 10' N. latitude has lower yelloweye rockfish bycatch, they still do occur and the ability to implement more restrictive management measures on a finer geographic scale is limited. Therefore, if needed, more restrictive management measures (e.g., trip limit reductions and a more restrictive non-trawl RCA) would more than likely be applied to areas where catch did not occur simply due to management limitations.

In addition, the Commission is in the process of implementing MPAs in this region. At this time, a total of 20 MPAs, covering approximately 137 sq mi of state waters or about 13 percent of the area north of 40° 10' N. latitude, are included in the Commission's preferred alternative (CDFG 2011). Since these MPAs occur in state waters, many in 20 fm or less, this further limits the available fishing areas for nearshore fishermen and would further exacerbate crowding issues.

Projected landings under Alternative 7 are summarized by area and alternative in Table C-82.

Table C-82. Alternative 7: Nearshore fishery projected total catch by area and alternative for 2013-2014.

	Projected Mortality (mt) 2013-14	
Area	**Alternative 7a**	**Alternative 7b**
Grand Total	590	555
Black rockfish	224	205
Blue rockfish	18	18
Cabezon	100	97
Deeper nearshore rockfish	36	36
Kelp greenling	49	48
Lingcod	80	70
Other minor nearshore rockfish	24	22
Shallow nearshore rockfish	59	59
North of 42º N. lat.		
Black rockfish	138	119
Blue rockfish	4	4
Cabezon	30	27
Kelp greenling	23	22
Lingcod	40	30
Other minor nearshore rockfish	14	12
42º - 40º10' N. lat.		
Black rockfish	82	82
Blue rockfish	11	11
Cabezon	7	7
Kelp greenling	5	5
Lingcod	20	20
Other minor nearshore rockfish	10	10
South of 40º10' N. lat.		
Black rockfish	4	4
Blue rockfish	3	3
Cabezon	63	63
Deeper nearshore rockfish	36	36
Kelp greenling	21	21
Lingcod	20	20
Shallow nearshore rockfish	59	59

Shoreward RCA Boundary	**South of 34º27'**	**34º27' - 40º10'**	**40º10' - 42º**	**42º - 43º**	**43º - 46º16'**	**North of 46º16'**
Shore						
20 fm						
30 fm						
60 fm						

Figure C-20. Alternative 7a: Nearshore shoreward RCA configuration. Grey shading indicates areas closed to fishing.

Shoreward RCA Boundary	**South of 34º27'**	**34º27' - 40º10'**	**40º10' - 42º**	**42º - 43º**	**43º - 46º16'**	**North of 46º16'**
Shore						
20 fm						
30 fm						
60 fm						

Figure C-21. Alternative 7b: Nearshore shoreward RCA configuration. Grey shading indicates areas closed to fishing. Diagonal lines represent the latitudinal area where an RCA change was made relative to the No Action configuration.

Table C-83. Alternative 7: Overfished species bycatch projections for the nearshore fixed gear fisheries by area and alternative for 2013-2014.

Species	Area	Projected Mortality (mt) 2013-14 Alternative a	Projected Mortality (mt) 2013-14 Alternative b	Allocation (mt) 2013-14[a/]
Bocaccio	Total	0.5	0.5	
	OR: North of 42º	0	0	n/a
	CA: 42º - 40º10'	0	0	
	CA: South of 40º10'	0.5	0.5	0.9
Canary	Total	3.8	3.7	8.2/8.4
	OR: North of 42º	1.1	1	2.2/2.4
	CA: 42º - 40º10'	0.9	0.9	6.0/6.2
	CA: South of 40º10'	1.8	1.8	
Cowcod	Total	0	0	
	OR: North of 42º	0	0	n/a
	CA: 42º - 40º10'	0	0	
	CA: South of 40º10'	0	0	1.0[b/]
Darkblotched	Total	0.3	0.2	n/a
	OR: North of 42º	0.3	0.2	
	CA: 42º - 40º10'	0	0	
	CA: South of 40º10'	0	0	
Yelloweye	Total	1.2	1.2	1.2
	OR: North of 42º	0.87	0.87	0.87
	CA: 42º - 40º10'	0.24	0.24	0.33
	CA: South of 40º10'	0.09	0.09	

[a/]represents nearshore share of non-trawl allocation
[b/]non-trawl allocation

Similar to analyses conducted in the 2011-12 FEIS, two alternate catch sharing relationships were analyzed to demonstrate the tradeoffs of varying overfished species allocations compared to No Action (Table C-84). An equal catch sharing (50:50) and a reverse No Action (i.e., reverse the percentages for each species) were used to bracket the upper and lower ranges of landings and corresponding management measures.

Under the equal sharing scenario, Oregon would receive more canary and less yelloweye rockfish compared to No Action catch sharing and California would be afforded less canary rockfish compared to No Action, but more yelloweye rockfish (Table C-84). The RCA configuration and landings for both states under this scenario would be the same as discussed under Alternative 1.

Under the reverse No Action, Oregon would receive more canary rockfish, yet substantially less yelloweye rockfish, compared to No Action and California would receive substantially more yelloweye rockfish and less canary rockfish (Table C-84). For Oregon, the RCA configurations and landings under this scenario would be the same as Alternative 1. For California (between 42º N latitude and 40º10' N latitude), the RCA could be liberated out to 30 fm and landings would be the same as No Action, except for an increase in greenling and lingcod. For the entire area south of 40-10, the RCA configuration would be the same as No Action but a 40 percent reduction in landed catch would be necessary for all species except cabezon and greenling.

Table C-84. Alternative 7: Allocations of canary and yelloweye rockfish for 2013-14 under alternate nearshore catch sharing scenarios.

		No Action	Equal Sharing	Reverse No Action
OR	Canary	1.4/1.5	2.7/2.8	3.9/4.0
	Yelloweye	0.87	0.6	0.33
CA	Canary	3.9/4.0	2.7/2.8	1.4/1.5
	Yelloweye	0.33	0.6	0.87

Table C-85. Alternative 7: Description of management measures by area under alternate catch sharing scenarios.

		Catch Sharing		
	AREA	**No Action**	**Equal Sharing**	**Reverse No Action**
OR	north of 43º	same as Alt 1	same as Alt 1	same as Alt 1
	42º-43º			
CA	42º - 40º10'	same as Alt 1	same as Alt 1	RCA = 30 fm, No Action landings plus higher greenling and lingcod
	40º10' to 34º27'			40% reduction in landed catch from No Action, except for cabezon and greenling (higher than No Action).
	south of 34º27'			

C.4 Washington Recreational

C.4.1 Washington Recreational: No Action Alternative

Under the No Action Alternative, Washington recreational fisheries would operate under the 2012 annual catch limits (ACL) for yelloweye rockfish of 17 mt and canary rockfish of 107 mt and the associated Washington recreational harvest guidelines of 2.6 mt for yelloweye rockfish and 2.0 mt for canary rockfish in 2013 and 2014 (Table C-86).

Table C-86. Washington Recreational Allocations under the No Action Alternative.

Species	2013-2014 Recreational Allocation (mt)
Canary rockfish	2.0
Yelloweye rockfish	2.6

Groundfish Seasons and Area Restrictions

Under the No Action Alternative, the Washington recreational fishery would be open year round for groundfish except lingcod. Washington would continue to prohibit the retention of canary and yelloweye rockfish in all areas.

Depth restrictions are the primary tool used to keep recreational mortality of yelloweye and canary rockfish within specified harvest guidelines. Restrictions limiting the depth where groundfish fisheries are permitted are more severe in the area north of the Queets River (Washington management areas 3 and 4) where yelloweye and canary rockfish abundance is higher and therefore caught incidentally at a higher rate. Depth restrictions are less restrictive as you move south along the coast where incidental catch of yelloweye and canary becomes progressively less.

North Coast (Marine Areas 3 and 4)
The retention of bottomfish would be prohibited seaward of a line approximating 20 fathoms from June 1- September 30, except on days that halibut fishing would be open. Fishing for, retention or possession of groundfish and halibut would be prohibited in the C-shaped yelloweye rockfish conservation area (YRCA) (Figure C-22).

South Coast (Marine Area 2)
The retention of bottomfish, except rockfish, would be prohibited seaward of 30 fathoms from March 15 through June 15, except sablefish and Pacific cod retention would be allowed May 1 through June 15; retention of lingcod would be allowed on days open to the primary halibut season; the retention of lingcod would be prohibited south of 46 deg. 58’ and seaward of 30 fathoms on Fridays and Saturdays from July 1 through August 31; fishing for, retention or possession of lingcod would be prohibited in deepwater areas seaward of a line extending from 47°31.70’ N. lat., 124°45.00’ W. long., to 46°38.17’ N. lat., 124°30.00’ W. long. year round except as allowed on days open to the Pacific halibut fishery (figure 3); fishing for, retention or possession of bottomfish or halibut would be prohibited in the South Coast YRCA and Westport Offshore YRCA (Figure C-23).

Columbia River (Marine Area 1)
The retention of bottomfish, except sablefish and Pacific cod, would be prohibited with halibut onboard from May 1 through September 30 and; fishing for, retention or possession of lingcod in deepwater areas seaward of a line extending from 46°38.17’ N. lat., 124°21.00’ W. long. to 46°25.00’ N. lat., 124°21.00’ W. long would be prohibited year round (Figure C-24).

Table C-87. Washington Recreational Seasons and Groundfish Retention Restrictions under the No Action Alternative.

Marine Area	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
3 & 4 (N. Coast)	Open all depths					Open <20 fm June 1-Sep 30 a/				Open all depths		
2 (S. Coast)	Open all depths		Open <30 fm Mar 15 - June 15 b/, c/, d/, g/			Open all depths except lingcod prohibited on Fri. and Sat. >30 fm e/,g			Open all depths g/			
1 (Col. R.)	Open all depths g/				Open all depths f/, g/					Open all depths g/		

a/ Groundfish retention allowed >20 fm on days when Pacific halibut would be open.
b/ Retention of sablefish and Pacific cod allowed seaward of 30 fm from May 1- June 15.
c/ Retention of rockfish allowed seaward of 30 fm.
d/ Retention of lingcod allowed seaward of 30 fm on days that the primary halibut season would be open.
e/ Retention of lingcod prohibited >30 fm, south of 46°58 on Fri. and Sat. from July 1 – August 31.
f/ Retention of groundfish, except sablefish and Pacific cod, prohibited with Pacific halibut on board.
g/ Retention of lingcod prohibited in deepwater areas at all times.

Area Restrictions

Under the No Action Alternative, fishing for, retention or possession of groundfish and halibut during the Washington recreational groundfish and Pacific halibut fisheries would be prohibited in the C-shaped yelloweye rockfish conservation area (YRCA) in the north coast (Figure C-22), and the South Coast and Westport YRCAs in the south coast (Figure C-23) as they were during the 2011 and 2012 seasons.

Fishing for, retention or possession of lingcod would be prohibited seaward of a line connecting the following coordinates from the Queets River (47°31.70’ N. lat., 124° 45.00’ W. long.) to 46°25.00’ N. lat, 124°21.00’ W. long., year round except as allowed in Washington Marine Area 2 on days open to the primary halibut fishery (Figure C-24) as was in place in 2012:

47°31.70’ N. lat 124°45.00’ W. long.
46°38.17’ N. lat 124°30.00’ W. long.
46°38.17’ N. lat 124°21.00’ W. long.
46°25.00’ N. lat 124°21.00’ W. long.

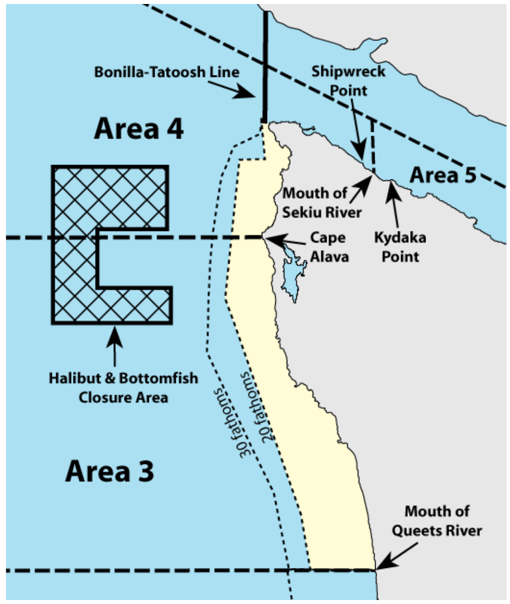


Figure C-22. Washington North Coast C-Shaped YRCA

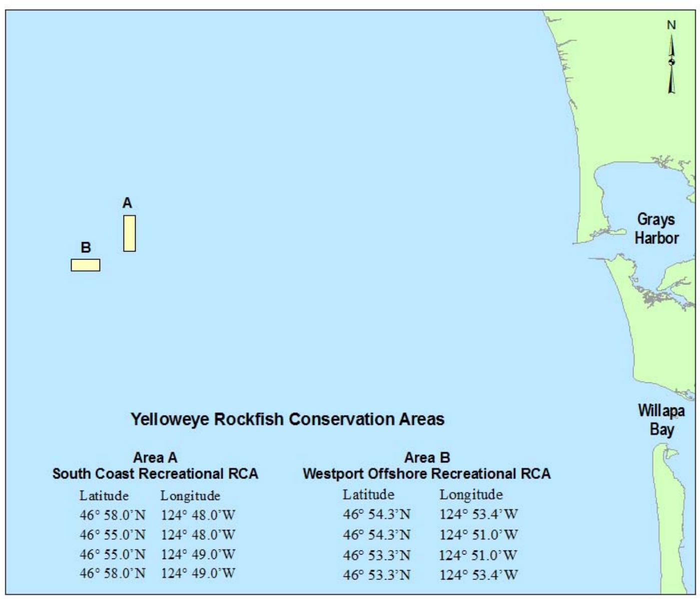


Figure C-23. Washington South Coast and Westport YRCAs

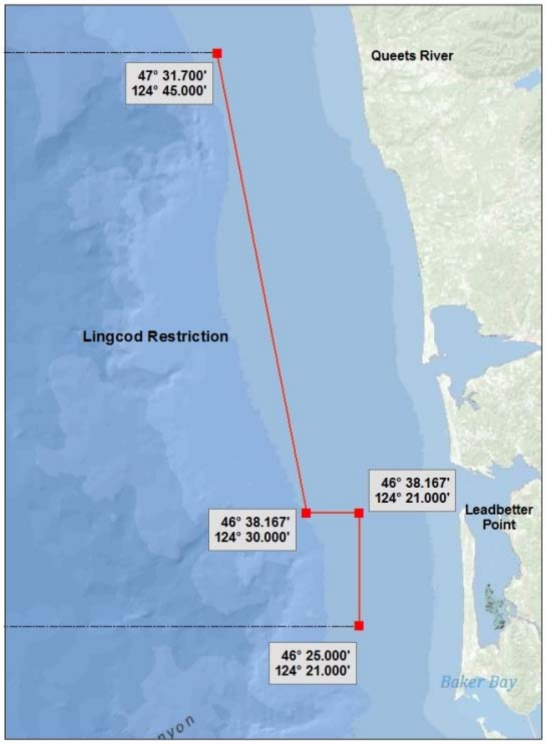


Figure C-24. Washington Lingcod Restricted Area

Groundfish Bag Limits

Under the No Action Alternative the recreational groundfish bag limit would be 12 fish per day including rockfish and lingcod. Of the 12 recreational groundfish allowed to be landed per day, sub limits of 10 rockfish, 2 lingcod and 2 cabezon would apply.

Lingcod Seasons and Size Limits

The lingcod season in Marine Areas 1 through 3 (Washington-Oregon border at 46°16' N Latitude to Cape Alava at 48° 10' N Latitude) would be open from the Saturday closest to March 15 through the Saturday closest to October 15, which was March 12 through October 15 in 2011 and March 17 through October 13 in 2012. Marine Area 4 (Cape Alava to the U.S. Canadian border) was open from April 16 through the Saturday closest to October 15, or October 15, whichever is earlier, which was April 16 through October 15 in 2011 and April 16 through October 13 in 2012.

Under the No Action Alternative there would be no changes to the lingcod seasons and size limits in 2013 and 2014, the season would be as follows:

- Marine Areas 1-3: March 16 through October 12 in 2013 and March 15 through October 18 in 2014. Minimum size, 22 inches.
- Marine Area 4: April 16 through October 12 in 2013 and April 16 to October 15 in 2014. Minimum size, 24 inches.

Pacific Halibut Seasons

It is expected that the Pacific halibut seasons in 2013 and 2014 will be similar to the halibut seasons in 2011 and 2012. There are no changes to the restrictions on groundfish retention during the Pacific halibut season proposed under the No Action Alternative.

Additional Management Measures Analyzed
No additional management measures were analyzed for the No Action Alternative. Management measures outlined under the No Action Alternative will be used to keep recreational harvests of overfished species within specified harvest guidelines for 2013 and 2014.

Projected Impacts and Inseason Management Response
Projected mortality for Washington's recreational fishery are based upon the previous season's harvest estimated by the Ocean Sampling Program (OSP) and incorporated in RecFIN. It should be noted that the precision of recreational groundfish catch estimates based upon previous seasons will continue to be influenced by factors such as the length and success of salmon and halibut seasons, weather and unforeseen factors.

Washington's Ocean Sampling Program is able to produce estimates of groundfish catch with a one month lag time. Management measures such as more restrictive depth closures, area closures, groundfish retention restrictions or changes to seasons can be implemented immediately through emergency changes to state regulations if inseason catch reports indicate that recreational harvests of overfished species are exceeding pre-season projections to the point where harvest guidelines are at risk of being exceeded.

Table C-88 outlines the projected mortality for overfished species in the groundfish fishery for 2013 and 2014 under the No Action Alternative.

Table C-88. Washington Recreational Harvest Guidelines and Projected Mortality under the No Action Alternative.

No Action Alternative	WA Recreational Harvest Guideline (mt)	Projected Mortality (mt)
Canary rockfish	2.0	1.0
Yelloweye rockfish	2.6	2.4

Community Impacts

Under the No Action Alternative, management measures necessary to keep recreational harvest of yelloweye rockfish within harvest guidelines require closure or significant restriction of the groundfish fishery in areas deeper than 20 and 30 fathoms along a substantial portion of the Washington coast, restrictions on groundfish retention during peak recreational fishing periods, and closed areas. While these restrictions have been effective at keeping recreational catch of overfished species under specified harvest guidelines in the past they are limiting to recreational fishing opportunity since areas are closed, season length is restricted, bag limits are reduced, and retention for some species is prohibited.

Projected mortality of overfished species and angler effort in 2013 and 2014 under No Action management measures are expected to be similar to previous seasons however, if anger effort and fishing success result in catch estimates higher than what is projected, additional fishing restrictions may be needed to ensure that harvest of overfished species do not exceed harvest guidelines.

C.4.2 Washington Recreational: Alternative 1 (Preferred)

Under Alternative 1, the Council's Preliminary Preferred Alternative, Washington recreational fisheries would operate under ACL's for yelloweye rockfish of 18 mt and canary rockfish of 116 and 119 mt, and the associated Washington recreational harvest guidelines of 2.9 mt for yelloweye rockfish and 3.1 and 3.2 mt for canary rockfish in 2013 and 2014 (Table C-89).

Table C-89. Washington Recreational Allocations under Alternative 1.

Species	2013 Recreational Allocation (mt)	2014 Recreational Allocation (mt)
Canary rockfish	3.1	3.2
Yelloweye rockfish	2.9	2.9

Groundfish Seasons and Area Restrictions

Under Alternative 1, the Washington recreational fishery would operate under the same management measures as the No Action Alternative. The recreational fishery would be open year round for groundfish except lingcod. Washington would continue to prohibit the retention of canary and yelloweye rockfish in all areas.

Depth restrictions are the primary tool used to keep recreational mortality of yelloweye and canary rockfish within specified harvest guidelines. Restrictions limiting the depth where groundfish fisheries are permitted are more severe in the area north of the Queets River (Washington management areas 3 and 4) where yelloweye and canary rockfish abundance is higher and therefore caught incidentally at a higher rate. Depth restrictions are less restrictive as you move south along the coast where incidental catch of yelloweye and canary becomes progressively less.

There is little flexibility to consider less restrictive management measure options that would allow access to higher recreational harvest guidelines under higher canary rockfish ACL alternatives because less restrictive depth restrictions or other management measures that allow access to canary rockfish have the potential to increase yelloweye rockfish mortality.

North Coast (Marine Areas 3 and 4)
The retention of bottomfish would be prohibited seaward of a line approximating 20 fathoms from June 1- September 30, except on days that halibut fishing would be open. Fishing for, retention or possession of groundfish and halibut would be prohibited in the C-shaped yelloweye rockfish conservation area (YRCA) (Figure C-22).

South Coast (Marine Area 2)
The retention of bottomfish, except rockfish, would be prohibited seaward of 30 fathoms from March 15 through June 15, except sablefish and Pacific cod retention would be allowed May 1 through June 15; retention of lingcod would be allowed on days open to the primary halibut season; the retention of lingcod would be prohibited south of 46 deg. 58' and seaward of 30 fathoms on Fridays and Saturdays from July 1 through August 31; fishing for, retention or possession of lingcod would be prohibited in deepwater areas seaward of a line extending from 47°31.70' N. lat., 124°45.00' W. long., to 46°38.17' N. lat., 124°30.00' W. long. year round except as allowed on days open to the Pacific halibut fishery (figure 3); fishing for, retention or possession of bottomfish or halibut would be prohibited in the South Coast YRCA and Westport Offshore YRCA (Figure C-23).

Columbia River (Marine Area 1)
The retention of bottomfish, except sablefish and Pacific cod, would be prohibited with halibut onboard from May 1 through September 30 and; fishing for, retention or possession of lingcod in deepwater areas seaward of a line extending from 46°38.17' N. lat., 124°21.00' W. long. to 46°25.00' N. lat., 124°21.00' W. long would be prohibited year round (Figure C-24).

Table C-90. Washington Recreational Seasons and Groundfish Retention Restrictions under Alternative 1.

<table>
<tr><th>Marine Area</th><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>June</th><th>July</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
<tr><td>3 & 4 (N. Coast)</td><td colspan="5">Open all depths</td><td colspan="4">Open <20 fm June 1-Sep 30 a/</td><td colspan="3">Open all depths</td></tr>
<tr><td>2 (S. Coast)</td><td colspan="2">Open all depths</td><td colspan="4">Open <30 fm Mar 15 - June 15 b/, c/, d/, g/</td><td colspan="2">Open all depths except lingcod prohibited on Fri. and Sat. >30 fm e/,g</td><td colspan="4">Open all depths g/</td></tr>
<tr><td>1 (Col. R.)</td><td colspan="4">Open all depths g/</td><td colspan="5">Open all depths f/, g/</td><td colspan="3">Open all depths g/</td></tr>
<tr><td colspan="13">a/ Groundfish retention allowed >20 fm on days when Pacific halibut would be open.
b/ Retention of sablefish and Pacific cod allowed seaward of 30 fm from May 1- June 15.
c/ Retention of rockfish allowed seaward of 30 fm.
d/ Retention of lingcod allowed seaward of 30 fm on days that the primary halibut season would be open.
e/ Retention of lingcod prohibited >30 fm, south of 46°58 on Fri. and Sat. from July 1 – August 31.
f/ Retention of groundfish, except sablefish and Pacific cod, prohibited with Pacific halibut on board.
g/ Retention of lingcod prohibited in deepwater areas at all times.</td></tr>
</table>

Area Restrictions
The same area restrictions that were in place under the No Action Alternative would be implemented under Alternative 1. Fishing for, retention or possession of groundfish and halibut during the Washington recreational groundfish and Pacific halibut fisheries would be prohibited in the C-shaped yelloweye rockfish conservation area (YRCA) in the north coast (Figure C-22), and the South Coast and Westport YRCAs in the south coast (Figure C-23) as they were during the 2011 and 2012 seasons.

Fishing for, retention or possession of lingcod would be prohibited seaward of a line extending from the Queets River (47°31.70' N. lat., 124° 45.00' W. long.) to 46°25.00' N. lat, 124°21.00' W. long., year round except as allowed in Washington Marine Area 2 on days open to the primary halibut fishery (Figure C-24) as was in place in 2012.

Groundfish Bag Limits
No changes to groundfish bag limits would be made under Alternative 1, the recreational groundfish bag limit would be 12 fish per day including rockfish and lingcod. Of the 12 recreational groundfish allowed to be landed per day, sub limits of 10 rockfish, 2 lingcod and 2 cabezon would apply.

Lingcod Seasons and Size Limits
No changes to the lingcod seasons would be made under Alternative 1 compared to the No Action Alternative, the lingcod seasons and size limits in 2013 and 2014 would be as follows:

- Marine Areas 1-3: March 16 through October 12 in 2013 and March 15 through October 18 in 2014. Minimum size, 22 inches.

- Marine Area 4: April 16 through October 12 in 2013 and April 16 to October 15 in 2014. Minimum size, 24 inches.

Pacific Halibut Seasons
It is expected that the Pacific halibut seasons in 2013 and 2014 will be similar to the halibut seasons in 2011 and 2012. There are no changes to the restrictions on groundfish retention during the Pacific halibut season proposed under the Alternative 1.

Additional Management Measures Analyzed
Washington recreational harvest guidelines for yelloweye and canary rockfish under Alternative 1 are similar to what was in place for 2011 and 2012 and as such no additional management measures were analyzed. No Action management measures will be used to keep recreational harvests of overfished species within specified harvest guidelines for 2013 and 2014.

Projected Impacts and Inseason Management Response
Projected mortality for Washington's recreational fishery are based upon the previous season's harvest estimated by the Ocean Sampling Program (OSP) and incorporated in RecFIN. It should be noted that the precision of recreational groundfish catch estimates based upon previous seasons will continue to be influenced by factors such as the length and success of salmon and halibut seasons, weather and unforeseen factors.

Washington's Ocean Sampling Program is able to produce estimates of groundfish catch with a one month lag time. Management measures such as more restrictive depth closures, area closures, groundfish retention restrictions or changes to seasons can be implemented immediately through emergency changes to state regulations if inseason catch reports indicate that recreational harvests of overfished species are exceeding pre-season projections to the point where harvest guidelines are at risk of being exceeded.

Table C-91 contains the projected mortality for overfished species in the groundfish fishery for 2013 and 2014 under the Alternative 1.

Table C-91. Washington Recreational Harvest Guidelines and Projected Impacts under Alternative 1.

Alternative 1	WA Recreational Harvest Guideline (mt) 2013/2014	Projected Mortality (mt)
Canary rockfish	3.1 / 3.2	1.0
Yelloweye rockfish	2.9	2.4

Community Impacts
Under Alternative 1, management measures necessary to keep recreational harvest of yelloweye rockfish within harvest guidelines, which are the same as the No Action Alternative, require closure or significant restriction of the groundfish fishery in areas deeper than 20 and 30 fathoms along the majority of the Washington coast, restrictions to groundfish retention during peak recreational fishing periods, and closed areas. While these restrictions have been effective at keeping recreational catch of overfished species under specified harvest guidelines in the past they are limiting to recreational fishing opportunity since areas are closed, season length is restricted, bag limits are reduced, and retention for some species is prohibited.

Projected mortality of overfished species and angler effort in 2013 and 2014 under No Action management measures are expected to be similar to previous seasons however, if anger effort and fishing success result in catch estimates higher than what is projected, additional fishing restrictions may be needed to ensure that harvest of overfished species do not exceed harvest guidelines.

C.4.3 Washington Recreational: Alternative 2

Under Alternative 2, Washington recreational fisheries would operate under ACL’s for yelloweye rockfish of 18 mt and canary rockfish of 101 and 104 mt, and the associated Washington recreational harvest guidelines of 2.9 mt for yelloweye rockfish and 2.6 and 2.7 mt for canary rockfish in 2013 and 2014 (Table C-92).

Table C-92. Washington Recreational Allocations under Alternative 2.

Species	2013 Recreational Allocation (mt)	2014 Recreational Allocation (mt)
Canary rockfish	2.6	2.7
Yelloweye rockfish	2.9	2.9

Groundfish Seasons and Area Restrictions
Season Structure
Under Alternative 2, the Washington recreational fishery would operate under the same management measures as the No Action Alternative. The recreational fishery would be open year round for groundfish except lingcod. Washington would continue to prohibit the retention of canary and yelloweye rockfish in all areas.

Depth restrictions are the primary tool used to keep mortality of yelloweye and canary rockfish within specified harvest guidelines for the Washington recreational fishery. Restrictions limiting the depth where groundfish fisheries are permitted are more severe in the area north of the Queets River (Washington management areas 3 and 4) where yelloweye and canary rockfish abundance is higher and therefore caught incidentally at a higher rate. Depth restrictions are less restrictive as you move south along the coast where incidental catch of yelloweye and canary becomes progressively less.

North Coast (Marine Areas 3 and 4)
The retention of bottomfish would be prohibited seaward of a line approximating 20 fathoms from June 1- September 30, except on days that halibut fishing would be open. Fishing for, retention or possession of groundfish and halibut during the Washington recreational groundfish and Pacific halibut fisheries would be prohibited in the C-shaped yelloweye rockfish conservation area (YRCA) (Figure C-22).

South Coast (Marine Area 2)
The retention of bottomfish, except rockfish, would be prohibited seaward of 30 fathoms from March 15 through June 15, except sablefish and Pacific cod retention would be allowed May 1 through June 15; retention of lingcod would be allowed on days open to the primary halibut season; the retention of lingcod would be prohibited south of 46 deg. 58' and seaward of 30 fathoms on Fridays and Saturdays from July 1 through August 31; fishing for, retention or possession of lingcod would be prohibited in deepwater areas seaward of a line extending from 47°31.70' N. lat., 124°45.00' W. long., to 46°38.17' N. lat., 124°30.00' W. long. year round except as allowed on days open to the Pacific halibut fishery (Figure C-23); fishing for, retention or possession of bottomfish or halibut would be prohibited in the South Coast YRCA and Westport Offshore YRCA (Figure C-23).

Columbia River (Marine Area 1)
The retention of bottomfish, except sablefish and Pacific cod, would be prohibited with halibut onboard from May 1 through September 30 and; fishing for, retention or possession of lingcod in deepwater areas seaward of a line extending from 46°38.17' N. lat., 124°21.00' W. long. to 46°25.00' N. lat., 124°21.00' W. long would be prohibited year round (Figure C-24).

Table C-93. Washington Recreational Seasons and Groundfish Retention Restrictions under Alternative 2.

<table>
<tr><th>Marine Area</th><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>June</th><th>July</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
<tr><td>3 & 4 (N. Coast)</td><td colspan="5">Open all depths</td><td colspan="4">Open <20 fm June 1-Sep 30 a/</td><td colspan="3">Open all depths</td></tr>
<tr><td>2 (S. Coast)</td><td colspan="2">Open all depths</td><td colspan="4">Open <30 fm Mar 15 - June 15 b/, c/, d/, g/</td><td colspan="2">Open all depths except lingcod prohibited on Fri. and Sat. >30 fm e/,g</td><td colspan="4">Open all depths g/</td></tr>
<tr><td>1 (Col. R.)</td><td colspan="3">Open all depths g/</td><td colspan="6">Open all depths f/, g/</td><td colspan="3">Open all depths g/</td></tr>
<tr><td colspan="13">a/ Groundfish retention allowed >20 fm on days when Pacific halibut would be open.
b/ Retention of sablefish and Pacific cod allowed seaward of 30 fm from May 1- June 15.
c/ Retention of rockfish allowed seaward of 30 fm.
d/ Retention of lingcod allowed seaward of 30 fm on days that the primary halibut season would be open.
e/ Retention of lingcod prohibited >30 fm, south of 46°58 on Fri. and Sat. from July 1 – August 31.
f/ Retention of groundfish, except sablefish and Pacific cod, prohibited with Pacific halibut on board.
g/ Retention of lingcod prohibited in deepwater areas at all times.</td></tr>
</table>

Area Restrictions
The same area restrictions that were in place under the No Action Alternative would be implemented under Alternative 2. Fishing for, retention or possession of groundfish and halibut during the Washington recreational groundfish and Pacific halibut fisheries would be prohibited in the C-shaped yelloweye rockfish conservation area (YRCA) in the north coast (Figure C-22), and the South Coast and Westport YRCAs in the south coast (Figure C-23) as they were during the 2011 and 2012 seasons.

Fishing for, retention or possession of lingcod would be prohibited seaward of a line extending from the Queets River (47°31.70' N. lat., 124° 45.00' W. long.) to 46°25.00' N. lat, 124°21.00' W. long., year round except as allowed in Washington Marine Area 2 on days open to the primary halibut fishery (Figure C-24).

Groundfish Bag Limits
No changes to groundfish bag limits would be made under Alternative 2 compared to the No Action Alternative, the recreational groundfish bag limit would be 12 fish per day including rockfish and lingcod. Of the 12 recreational groundfish allowed to be landed per day, sub limits of 10 rockfish, 2 lingcod and 2 cabezon would apply.

Lingcod Seasons and Size Limits
No changes to the lingcod seasons would be made under Alternative 2 compared to the No Action Alternative, the lingcod seasons and size limits in 2013 and 2014 would be as follows:

- Marine Areas 1-3: March 16 through October 12 in 2013 and March 15 through October 18 in 2014. Minimum size, 22 inches.

- Marine Area 4: April 16 through October 12 in 2013 and April 16 to October 15 in 2014. Minimum size, 24 inches.

Pacific Halibut Seasons
It is expected that the Pacific halibut seasons in 2013 and 2014 will be similar to the halibut seasons in 2011 and 2012. There are no changes to the restrictions on groundfish retention during the Pacific halibut season proposed under the Alternative 2.

Additional Management Measures Analyzed
Washington recreational harvest guidelines for yelloweye and canary rockfish are the most similar to what was in place for 2011 and 2012 under Alternative 2 and as such no additional management measures were analyzed. Management measures as outlined under No Action will be used to keep recreational harvests of overfished species within specified harvest guidelines for 2013 and 2014.

Projected Impacts and Inseason Management Response
Projected mortality for Washington's recreational fishery are based upon the previous season's harvest estimated by the Ocean Sampling Program (OSP) and incorporated in RecFIN. It should be noted that the precision of recreational groundfish catch estimates based upon previous seasons will continue to be influenced by factors such as the length and success of salmon and halibut seasons, weather and unforeseen factors.

Washington's Ocean Sampling Program is able to produce estimates of groundfish catch with a one month lag time. Management measures such as more restrictive depth closures, area closures, groundfish retention restrictions or changes to seasons can be implemented immediately through emergency changes to state regulations if inseason catch reports indicate that recreational harvests of overfished species are exceeding pre-season projections to the point where harvest guidelines are at risk of being exceeded.

Below is the projected mortality of overfished species in the groundfish fishery for 2013 and 2014 under the Alternative 2.

Table C-94. Washington Recreational Harvest Guidelines and Projected Mortality under Alternative 2.

Alternative 2	WA Recreational Harvest Guideline (mt) 2013/2014	Projected Mortality (mt)
Canary rockfish	2.6 / 2.7	1.0
Yelloweye rockfish	2.9	2.4

Community Impacts
Under Alternative 2, management measures necessary to keep recreational harvest of yelloweye rockfish within harvest guidelines, which are the same as the No Action Alternative, require closure or significant restriction of the groundfish fishery in areas deeper than 20 and 30 fathoms along the majority of the Washington coast, restrictions to groundfish retention during peak recreational fishing periods, and closed areas. While these restrictions have been effective at keeping recreational catch of overfished species under specified harvest guidelines in the past they are limiting to recreational fishing opportunity since areas are closed, season length is restricted, bag limits are reduced, and retention for some species is prohibited.

Projected mortality of overfished species and angler effort in 2013 and 2014 under No Action management measures are expected to be similar to previous seasons however, if anger effort and fishing success result in catch estimates higher than what is projected, additional fishing restrictions may be needed to ensure that harvest of overfished species do not exceed harvest guidelines.

C.4.4 Washington Recreational: Alternative 3

Under Alternative 3, Washington recreational fisheries would operate under ACL's for yelloweye rockfish of 18 mt and canary rockfish of 116 and 119 mt, and the associated Washington recreational harvest guidelines of 2.9 mt for yelloweye rockfish and 3.1 and 3.2 mt for canary rockfish in 2013 and 2014 (Table C-95). These are the same ACL's and Washington recreational allocations as Alternative 1 so in addition to being the same as the No Action Alternative, management measures and resulting projected mortality under Alternative 3 are the same as under Alternative 1.

Table C-95. Washington Recreational Allocations under Alternative 3.

Species	2013 Recreational Allocation (mt)	2014 Recreational Allocation (mt)
Canary rockfish	3.1	3.2
Yelloweye rockfish	2.9	2.9

Groundfish Seasons and Area Restrictions
Season Structure
Under Alternative 3, the Washington recreational fishery would operate under the same management measures as the No Action Alternative. The recreational fishery would be open year round for groundfish except lingcod. Washington would continue to prohibit the retention of canary and yelloweye rockfish in all areas.

Depth restrictions are the primary tool used to keep recreational mortality of yelloweye and canary rockfish within specified harvest guidelines. Restrictions limiting the depth where groundfish fisheries are permitted are more severe in the area north of the Queets River (Washington management areas 3 and 4) where yelloweye and canary rockfish abundance is higher and therefore caught incidentally at a higher rate. Depth restrictions are less restrictive as you move south along the coast where incidental catch of yelloweye and canary becomes progressively less.

There is little flexibility to consider less restrictive management measure options that would allow access to higher recreational harvest guidelines under higher canary rockfish ACL alternatives because less restrictive depth restrictions or other management measures that allow access to canary rockfish have the potential to increase yelloweye rockfish mortality.

North Coast (Marine Areas 3 and 4)
The retention of bottomfish would be prohibited seaward of a line approximating 20 fathoms from June 1- September 30, except on days that halibut fishing would be open. Fishing for, retention or possession of groundfish and halibut would be prohibited in the C-shaped yelloweye rockfish conservation area (YRCA) (Figure C-22).

South Coast (Marine Area 2)
The retention of bottomfish, except rockfish, would be prohibited seaward of 30 fathoms from March 15 through June 15, except sablefish and Pacific cod retention would be allowed May 1 through June 15; retention of lingcod would be allowed on days open to the primary halibut season; the retention of lingcod would be prohibited south of 46 deg. 58’ and seaward of 30 fathoms on Fridays and Saturdays from July 1 through August 31; fishing for, retention or possession of lingcod would be prohibited in deepwater areas seaward of a line extending from 47°31.70’ N. lat., 124°45.00’ W. long., to 46°38.17’ N. lat., 124°30.00’ W. long. year round except as allowed on days open to the Pacific halibut fishery (Figure C-24); fishing for, retention or possession of bottomfish or halibut would be prohibited in the South Coast YRCA and Westport Offshore YRCA (Figure C-23).

Columbia River (Marine Area 1)
The retention of bottomfish, except sablefish and Pacific cod, would be prohibited with halibut onboard from May 1 through September 30 and; fishing for, retention or possession of lingcod in deepwater areas seaward of a line extending from 46°38.17’ N. lat., 124°21.00’ W. long. to 46°25.00’ N. lat., 124°21.00’ W. long would be prohibited year round (Figure C-24).

Table C-96. Washington Recreational Seasons and Groundfish Retention Restrictions under Alternative 3.

Marine Area	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
3 & 4 (N. Coast)	Open all depths					Open <20 fm June 1-Sep 30 a/				Open all depths		
2 (S. Coast)	Open all depths		Open <30 fm Mar 15 - June 15 b/, c/, d/, g/			Open all depths except lingcod prohibited on Fri. and Sat. >30 fm e/,g			Open all depths g/			
1 (Col. R.)	Open all depths g/				Open all depths f/, g/					Open all depths g/		

a/ Groundfish retention allowed >20 fm on days when Pacific halibut would be open.
b/ Retention of sablefish and Pacific cod allowed seaward of 30 fm from May 1- June 15.
c/ Retention of rockfish allowed seaward of 30 fm.
d/ Retention of lingcod allowed seaward of 30 fm on days that the primary halibut season would be open.
e/ Retention of lingcod prohibited >30 fm, south of 46°58 on Fri. and Sat. from July 1 – August 31.
f/ Retention of groundfish, except sablefish and Pacific cod, prohibited with Pacific halibut on board.
g/ Retention of lingcod prohibited in deepwater areas at all times.

Area Restrictions
The same area restrictions that were in place under the No Action Alternative would be implemented under Alternative 3. Fishing for, retention or possession of groundfish and halibut during the Washington recreational groundfish and Pacific halibut fisheries would be prohibited in the C-shaped yelloweye rockfish conservation area (YRCA) in the north coast (Figure C-22), and the South Coast and Westport YRCAs in the south coast (Figure C-23) as they were during the 2011 and 2012 seasons.

Fishing for, retention or possession of lingcod would be prohibited seaward of a line from the Queets River (47°31.70' N. lat., 124° 45.00' W. long.) to 46°25.00' N. lat, 124°21.00' W. long., year round except as allowed in Washington Marine Area 2 on days open to the primary halibut fishery (Figure C-24) as was in place in 2012.

Groundfish Bag Limits
No changes to groundfish bag limits would be made under Alternative 3 compared to the No Action Alternative, the recreational groundfish bag limit would be 12 fish per day including rockfish and lingcod. Of the 12 recreational groundfish allowed to be landed per day, sub limits of 10 rockfish, 2 lingcod and 2 cabezon would apply.

Lingcod Seasons and Size Limits
No changes to the lingcod seasons would be made under Alternative 3 compared to the No Action Alternative, the lingcod seasons and size limits in 2013 and 2014 would be as follows:

- Marine Areas 1-3: March 16 through October 12 in 2013 and March 15 through October 18 in 2014. Minimum size, 22 inches.

- Marine Area 4: April 16 through October 12 in 2013 and April 16 to October 15 in 2014. Minimum size, 24 inches.

Pacific Halibut Seasons
It is expected that the Pacific halibut seasons in 2013 and 2014 will be similar to the halibut seasons in 2011 and 2012. There are no changes to the restrictions on groundfish retention during the Pacific halibut season proposed under the Alternative 3.

Additional Management Measures Analyzed
Washington recreational harvest guidelines for yelloweye and canary rockfish under Alternative 3 are somewhat similar to what was in place for 2011 and 2012 and as such no additional management measures were analyzed. The management measures outlined under No Action Alternative will be used to keep recreational harvests of overfished species within specified harvest guidelines for 2013 and 2014.

Projected Impacts and Inseason Management Response
Projected mortality for Washington's recreational fishery are based upon the previous season's harvest estimated by the Ocean Sampling Program (OSP) and incorporated in RecFIN. It should be noted that the precision of recreational groundfish catch estimates based upon previous seasons will continue to be influenced by factors such as the length and success of salmon and halibut seasons, weather and unforeseen factors.

Washington's Ocean Sampling Program is able to produce estimates of groundfish catch with a one month lag time. Management measures such as more restrictive depth closures, area closures, groundfish retention restrictions or changes to seasons can be implemented immediately through emergency changes to state regulations if inseason catch reports indicate that recreational harvests of overfished species are exceeding pre-season projections to the point where harvest guidelines are at risk of being exceeded.

The projected mortality for overfished species in the groundfish fishery for 2013 and 2014 under the Alternative 3 are in Table C-97.

Table C-97. Washington Recreational Harvest Guidelines and Projected Mortality under Alternative 3.

Alternative 3	WA Recreational Harvest Guideline (mt) 2013/2014	Projected Mortality (mt)
Canary rockfish	3.1 / 3.2	1.0
Yelloweye rockfish	2.9	2.4

Community Impacts
Under Alternative 3, management measures necessary to keep recreational harvest of yelloweye rockfish within harvest guidelines, which are the same as the No Action Alternative, require closure or significant restriction of the groundfish fishery in areas deeper than 20 and 30 fathoms along the majority of the Washington coast, restrictions to groundfish retention during peak recreational fishing periods, and area closures. While these restrictions have been effective at keeping recreational catch of overfished species under specified harvest guidelines in the past they are limiting to recreational fishing opportunity since areas are closed, season length is restricted, bag limits are reduced, and retention for some species is prohibited.

Projected mortality of overfished species and angler effort in 2013 and 2014 under No Action management measures are expected to be similar to previous seasons however, if anger effort and fishing success result in catch estimates higher than what is projected, additional fishing restrictions may be needed to ensure that harvest of overfished species do not exceed harvest guidelines.

C.4.5 Washington Recreational: Alternative 4

Under Alternative 4, Washington recreational fisheries would operate under ACL's for yelloweye rockfish of 18 mt and canary rockfish of 48 and 49 mt respectively, and the associated Washington recreational harvest guidelines of 2.9 mt for yelloweye rockfish and 1.0 mt for canary rockfish in 2013 and 2014 (Table C-98).

Table C-98. Washington Recreational Allocations under Alternative 4.

Species	2013 Recreational Allocation (mt)	2014 Recreational Allocation (mt)
Canary rockfish	1.0	1.0
Yelloweye rockfish	2.9	2.9

Groundfish Seasons and Area Restrictions
Season Structure
Under Alternative 4, the Washington recreational fishery would operate under the same management measures as the No Action Alternative. The recreational fishery would be open year round for groundfish except lingcod. Washington would continue to prohibit the retention of canary and yelloweye rockfish in all areas.

Depth restrictions are the primary tool used to keep recreational mortality of yelloweye and canary rockfish within specified harvest guidelines. Restrictions limiting the depth where groundfish fisheries are permitted are more severe in the area north of the Queets River (Washington management areas 3 and 4) where yelloweye and canary rockfish abundance is higher and therefore caught incidentally at a higher rate. Depth restrictions are less restrictive as you move south along the coast where incidental catch of yelloweye and canary becomes progressively less.

North Coast (Marine Areas 3 and 4)
The retention of bottomfish would be prohibited seaward of a line approximating 20 fathoms from June 1-September 30, except on days that halibut fishing would be open. Fishing for, retention or possession of groundfish and halibut would be prohibited in the C-shaped yelloweye rockfish conservation area (YRCA) (Figure C-22).

South Coast (Marine Area 2)
The retention of bottomfish, except rockfish, would be prohibited seaward of 30 fathoms from March 15 through June 15, except sablefish and Pacific cod retention would be allowed May 1 through June 15; retention of lingcod would be allowed on days open to the primary halibut season; the retention of lingcod would be prohibited south of 46 deg. 58' and seaward of 30 fathoms on Fridays and Saturdays from July 1 through August 31; fishing for, retention or possession of lingcod would be prohibited in deepwater areas seaward of a line extending from 47°31.70' N. lat., 124°45.00' W. long., to 46°38.17' N. lat., 124°30.00' W. long. year round except as allowed on days open to the Pacific halibut fishery (figure 3); fishing for, retention or possession of bottomfish or halibut would be prohibited in the South Coast YRCA and Westport Offshore YRCA (Figure C-23).

Columbia River (Marine Area 1)
The retention of bottomfish, except sablefish and Pacific cod, would be prohibited with halibut onboard from May 1 through September 30 and; fishing for, retention or possession of lingcod in deepwater areas seaward of a line extending from 46°38.17' N. lat., 124°21.00' W. long. to 46°25.00' N. lat., 124°21.00' W. long would be prohibited year round (Figure C-25).

Table C-99. Washington Recreational Seasons and Groundfish Retention Restrictions under Alternative 4.

Marine Area	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
3 & 4 (N. Coast)	Open all depths					Open <20 fm June 1-Sep 30 a/				Open all depths		
2 (S. Coast)	Open all depths		Open <30 fm Mar 15 - June 15 b/, c/, d/, g/				Open all depths except lingcod prohibited on Fri. and Sat. >30 fm e/,g		Open all depths g/			
1 (Col. R.)	Open all depths g/				Open all depths f/, g/					Open all depths g/		

a/ Groundfish retention allowed >20 fm on days when Pacific halibut would be open.
b/ Retention of sablefish and Pacific cod allowed seaward of 30 fm from May 1- June 15.
c/ Retention of rockfish allowed seaward of 30 fm.
d/ Retention of lingcod allowed seaward of 30 fm on days that the primary halibut season would be open.
e/ Retention of lingcod prohibited >30 fm, south of 46°58 on Fri. and Sat. from July 1 – August 31.
f/ Retention of groundfish, except sablefish and Pacific cod, prohibited with Pacific halibut on board.
g/ Retention of lingcod prohibited in deepwater areas at all times.

Area Restrictions
The same area restrictions that were in place under the No Action Alternative would be implemented under Alternative 4. Fishing for, retention or possession of groundfish and halibut would be prohibited in the C-shaped yelloweye rockfish conservation area (YRCA) in the north coast (Figure C-22), and the South Coast and Westport YRCAs in the south coast (Figure C-23) as they were during the 2011 and 2012 seasons.

Fishing for, retention or possession of lingcod would be prohibited seaward of a line extending from the Queets River (47°31.70' N. lat., 124° 45.00' W. long.) to 46°25.00' N. lat, 124°21.00' W. long., year round except as allowed in Washington Marine Area 2 on days open to the primary halibut fishery (Figure C-24) as was in place in 2012.

Groundfish Bag Limits
No changes to groundfish bag limits would be made under Alternative 4 compared to the No Action Alternative, the recreational groundfish bag limit would be 12 fish per day including rockfish and lingcod. Of the 12 recreational groundfish allowed to be landed per day, sub limits of 10 rockfish, 2 lingcod and 2 cabezon would apply.

Lingcod Seasons and Size Limits
No changes to the lingcod seasons would be made under Alternative 4 compared to the No Action Alternative, the lingcod seasons and size limits in 2013 and 2014 would be as follows:

- Marine Areas 1-3: March 16 through October 12 in 2013 and March 15 through October 18 in 2014. Minimum size, 22 inches.

- Marine Area 4: April 16 through October 12 in 2013 and April 16 to October 15 in 2014. Minimum size, 24 inches.

Pacific Halibut Seasons
It is expected that the Pacific halibut seasons in 2013 and 2014 will be similar to the halibut seasons in 2011 and 2012. There are no changes to the restrictions on groundfish retention during the Pacific halibut season proposed under the Alternative 4.

Additional Management Measures Analyzed
Although the Washington recreational harvest guideline for canary rockfish is the most restrictive under Alternative 4, mortality of overfished species under No Action management measures as described in the No Action Alternative are projected to be within specified harvest guidelines. Management measures outlined under the No Action Alternative will be used to keep recreational harvests of overfished species within specified harvest guidelines for 2013 and 2014.

Projected Impacts and Inseason Management Response
Projected mortality for Washington's recreational fishery are based upon the previous season's harvest estimated by the Ocean Sampling Program (OSP) and incorporated in RecFIN. It should be noted that the precision of recreational groundfish catch estimates based upon previous seasons will continue to be influenced by factors such as the length and success of salmon and halibut seasons, weather and unforeseen factors.

Washington's Ocean Sampling Program is able to produce estimates of groundfish catch with a one month lag time. Management measures such as more restrictive depth closures, area closures, groundfish retention restrictions or changes to seasons can be implemented immediately through emergency changes to state regulations if inseason catch reports indicate that recreational harvests of overfished species are exceeding pre-season projections to the point where harvest guidelines are at risk of being exceeded.

The projected mortality for overfished species in the groundfish fishery for 2013 and 2014 under the Alternative 4 is displayed in Table C-100.

Table C-100. Washington Recreational Harvest Guidelines and Projected Mortality under Alternative 4.

Alternative 4	**WA Recreational Harvest Guideline (mt) 2013/2014**	**Projected Mortality (mt)**
Canary rockfish	1.0	1.0
Yelloweye rockfish	2.9	2.4

Community Impacts
Under Alternative 4, management measures necessary to keep recreational harvest of yelloweye rockfish within harvest guidelines, which are the same as the No Action Alternative, require closure or significant restriction of the groundfish fishery in areas deeper than 20 and 30 fathoms along the majority of the Washington coast, restrictions to groundfish retention during peak recreational fishing periods, and closed areas. While these restrictions have been effective at keeping recreational catch of overfished species under specified harvest guidelines in the past they are limiting to recreational fishing opportunity since areas are closed, season length is restricted, bag limits are reduced, and retention for some species is prohibited.

Projected mortality of overfished species and angler effort in 2013 and 2014 under No Action management measures are expected to be similar to previous seasons however, if anger effort and fishing success result in catch estimates higher than what is projected, additional fishing restrictions may be needed to ensure that harvest of overfished species do not exceed harvest guidelines.

C.4.6 Washington Recreational: Alternative 5

Under Alternative 5, Washington recreational fisheries would operate under ACL's for yelloweye rockfish of 18 mt and canary rockfish of 216 and 220 mt, and the associated Washington recreational harvest guidelines of 2.9 mt for yelloweye rockfish and 6.2 and 6.4 mt for canary rockfish in 2013 and 2014 (Table C-100).

Table C-101. Washington Recreational Allocations under Alternative 5.

Species	2013 Recreational Allocation (mt)	2014 Recreational Allocation (mt)
Canary rockfish	6.2	6.4
Yelloweye rockfish	2.9	2.9

Groundfish Seasons and Area Restrictions
Season Structure
Under Alternative 5, the Washington recreational fishery would operate under the same management measures as the No Action Alternative. The recreational fishery would be open year round for groundfish except lingcod. Washington would continue to prohibit the retention of canary and yelloweye rockfish in all areas.

Depth restrictions are the primary tool used to keep recreational mortality of yelloweye and canary rockfish within specified harvest guidelines. Restrictions limiting the depth where groundfish fisheries are permitted are more severe in the area north of the Queets River (Washington management areas 3 and 4) where yelloweye and canary rockfish abundance is higher and therefore caught incidentally at a higher rate. Depth restrictions are less restrictive as you move south along the coast where incidental catch of yelloweye and canary becomes progressively less.

There is little flexibility to consider less restrictive management measure options that would allow access to higher recreational harvest guidelines under higher canary rockfish ACL alternatives because less restrictive depth restrictions or other management measures that allow access to canary rockfish have the potential to increase yelloweye rockfish mortality.

North Coast (Marine Areas 3 and 4)
The retention of bottomfish would be prohibited seaward of a line approximating 20 fathoms from June 1- September 30, except on days that halibut fishing would be open. Fishing for, retention or possession of groundfish and halibut would be prohibited in the C-shaped yelloweye rockfish conservation area (YRCA) (Figure C-22).

South Coast (Marine Area 2)
The retention of bottomfish, except rockfish, would be prohibited seaward of 30 fathoms from March 15 through June 15, except sablefish and Pacific cod retention would be allowed May 1 through June 15; retention of lingcod would be allowed on days open to the primary halibut season; the retention of lingcod would be prohibited south of 46 deg. 58' and seaward of 30 fathoms on Fridays and Saturdays from July 1 through August 31; fishing for, retention or possession of lingcod would be prohibited in deepwater areas seaward of a line extending from 47°31.70' N. lat., 124°45.00' W. long., to 46°38.17' N. lat., 124°30.00' W. long. year round except as allowed on days open to the Pacific halibut fishery (figure

3); fishing for, retention or possession of bottomfish or halibut would be prohibited in the South Coast YRCA and Westport Offshore YRCA (Figure C-23).

Columbia River (Marine Area 1)
The retention of bottomfish, except sablefish and Pacific cod, would be prohibited with halibut onboard from May 1 through September 30 and; fishing for, retention or possession of lingcod in deepwater areas seaward of a line extending from 46°38.17' N. lat., 124°21.00' W. long. to 46°25.00' N. lat., 124°21.00' W. long would be prohibited year round (Figure C-24).

Table C-102. Washington Recreational Seasons and Groundfish Retention Restrictions under Alternative 5.

Marine Area	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
3 & 4 (N. Coast)	Open all depths					Open <20 fm June 1-Sep 30 a/				Open all depths		
2 (S. Coast)	Open all depths			Open <30 fm Mar 15 - June 15 b/, c/, d/, g/			Open all depths except lingcod prohibited on Fri. and Sat. >30 fm e/,g			Open all depths g/		
1 (Col. R.)	Open all depths g/				Open all depths f/, g/					Open all depths g/		

a/ Groundfish retention allowed >20 fm on days when Pacific halibut would be open.
b/ Retention of sablefish and Pacific cod allowed seaward of 30 fm from May 1- June 15.
c/ Retention of rockfish allowed seaward of 30 fm.
d/ Retention of lingcod allowed seaward of 30 fm on days that the primary halibut season would be open.
e/ Retention of lingcod prohibited >30 fm, south of 46°58 on Fri. and Sat. from July 1 – August 31.
f/ Retention of groundfish, except sablefish and Pacific cod, prohibited with Pacific halibut on board.
g/ Retention of lingcod prohibited in deepwater areas at all times.

Area Restrictions
The same area restrictions that were in place under the No Action Alternative would be implemented under Alternative 5. Fishing for, retention or possession of groundfish and halibut would be prohibited in the C-shaped YRCA in the north coast (Figure C-22), and the South Coast and Westport YRCAs in the south coast (Figure C-23) as they were during the 2011 and 2012 seasons.

Fishing for, retention or possession of lingcod would be prohibited seaward of a line from the Queets River (47°31.70' N. lat., 124° 45.00' W. long.) to 46°25.00' N. lat, 124°21.00' W. long., year round except as allowed in Washington Marine Area 2 on days open to the primary halibut fishery (Figure C-24) as was in place in 2012.

Groundfish Bag Limits
No changes to groundfish bag limits would be made under Alternative 5 compared to the No Action Alternative, the recreational groundfish bag limit would be 12 fish per day including rockfish and lingcod. Of the 12 recreational groundfish allowed to be landed per day, sub limits of 10 rockfish, 2 lingcod and 2 cabezon would apply.

Lingcod Seasons and Size Limits

No changes to the lingcod seasons would be made under Alternative 5 compared to the No Action Alternative, the lingcod seasons and size limits in 2013 and 2014 would be as follows:

- Marine Areas 1-3: March 16 through October 12 in 2013 and March 15 through October 18 in 2014. Minimum size, 22 inches.

- Marine Area 4: April 16 through October 12 in 2013 and April 16 to October 15 in 2014. Minimum size, 24 inches.

Pacific Halibut Seasons
It is expected that the Pacific halibut seasons in 2013 and 2014 will be similar to the halibut seasons in 2011 and 2012. There are no changes to the restrictions on groundfish retention during the Pacific halibut season proposed under the Alternative 5.

Additional Management Measures Analyzed
Washington recreational harvest guidelines for yelloweye and canary rockfish under Alternative 5 are somewhat similar to what was in place for 2011 and 2012 and described in the No Action Alternative and as such no additional management measures were analyzed. Management measures outlined under the No Action Alternative will be used to keep recreational harvests of overfished species within specified harvest guidelines for 2013 and 2014.

Projected Impacts and Inseason Management Response
Projected mortality for Washington's recreational fishery are based upon the previous season's harvest estimated by the Ocean Sampling Program (OSP) and incorporated in RecFIN. It should be noted that the precision of recreational groundfish catch estimates based upon previous seasons will continue to be influenced by factors such as the length and success of salmon and halibut seasons, weather and unforeseen factors.

Washington's Ocean Sampling Program is able to produce estimates of groundfish catch with a one month lag time. Management measures such as more restrictive depth closures, area closures, groundfish retention restrictions or changes to seasons can be implemented immediately through emergency changes to state regulations if inseason catch reports indicate that recreational harvests of overfished species are exceeding pre-season projections to the point where harvest guidelines are at risk of being exceeded.

The projected mortality of overfished species in the groundfish fishery for 2013 and 2014 under the Alternative 5 can be found in Table C-103.

Table C-103. Washington Recreational Harvest Guidelines and Projected Impacts under Alternative 5.

Alternative 5	WA Recreational Harvest Guideline (mt) 2013/2014	Projected Impacts (mt)
Canary rockfish	6.2 / 6.4	1.0
Yelloweye rockfish	2.9	2.4

Community Impacts
Under Alternative 5, management measures necessary to keep recreational harvest of yelloweye rockfish within harvest guidelines, which are the same as the No Action Alternative, require closure or significant restriction of the groundfish fishery in areas deeper than 20 and 30 fathoms along the majority of the Washington coast, restrictions to groundfish retention during peak recreational fishing periods, and closed areas. While these restrictions have been effective at keeping recreational catch of overfished species

under specified harvest guidelines in the past they are limiting to recreational fishing opportunity since areas are closed, season length is restricted, bag limits are reduced, and retention for some species is prohibited.

Projected mortality of overfished species and angler effort in 2013 and 2014 under No Action management measures are expected to be similar to previous seasons however, if anger effort and fishing success result in catch estimates higher than what is projected, additional fishing restrictions may be needed to ensure that harvest of overfished species do not exceed harvest guidelines.

C.4.7 Washington Recreational: Alternative 6

Under Alternative 6, Washington recreational fisheries would operate under ACL's for yelloweye rockfish of 18 mt and canary rockfish of 101 and 104 mt, and the associated Washington recreational harvest guidelines of 2.9 mt for yelloweye rockfish and 2.6 and 2.7 mt for canary rockfish in 2013 and 2014 (Table C-104). These are the same ACL's and allocations as Alternative 2 and therefore, in addition to being the same as the No Action Alternative, the management measures and projected mortalities are the same as presented in Alternative 2.

Table C-104. Washington Recreational Allocations under Alternative 6.

Species	2013 Recreational Allocation (mt)	2014 Recreational Allocation (mt)
Canary rockfish	2.6	2.7
Yelloweye rockfish	2.9	2.9

Groundfish Seasons and Area Restrictions
Under Alternative 6, the Washington recreational fishery would operate under the same management measures as the No Action Alternative. The recreational fishery would be open year round for groundfish except lingcod. Washington would continue to prohibit the retention of canary and yelloweye rockfish in all areas.

Depth restrictions are the primary tool used to keep recreational mortality of yelloweye and canary rockfish within specified harvest guidelines. Restrictions limiting the depth where groundfish fisheries are permitted are more severe in the area north of the Queets River (Washington management areas 3 and 4) where yelloweye and canary rockfish abundance is higher and therefore caught incidentally at a higher rate. Depth restrictions are less restrictive as you move south along the coast where incidental catch of yelloweye and canary becomes progressively less.

North Coast (Marine Areas 3 and 4)
The retention of bottomfish would be prohibited seaward of a line approximating 20 fathoms from June 1- September 30, except on days that halibut fishing would be open. Fishing for, retention or possession of groundfish and halibut would be prohibited in the C-shaped YRCA (Figure C-22).

South Coast (Marine Area 2)
The retention of bottomfish, except rockfish, would be prohibited seaward of 30 fathoms from March 15 through June 15, except sablefish and Pacific cod retention would be allowed May 1 through June 15; retention of lingcod would be allowed on days open to the primary halibut season; the retention of lingcod would be prohibited south of 46 deg. 58' and seaward of 30 fathoms on Fridays and Saturdays from July 1 through August 31; fishing for, retention or possession of lingcod would be prohibited in deepwater areas seaward of a line extending from 47°31.70' N. lat., 124°45.00' W. long., to 46°38.17' N. lat., 124°30.00' W. long. year round except as allowed on days open to the Pacific halibut fishery (Figure

C-24); fishing for, retention or possession of bottomfish or halibut would be prohibited in the South Coast YRCA and Westport Offshore YRCA (figure 2).

Columbia River (Marine Area 1)
The retention of bottomfish, except sablefish and Pacific cod, would be prohibited with halibut onboard from May 1 through September 30 and; fishing for, retention or possession of lingcod in deepwater areas seaward of a line extending from 46°38.17' N. lat., 124°21.00' W. long. to 46°25.00' N. lat., 124°21.00' W. long would be prohibited year round (Figure C-24).

Table C-105. Washington Recreational Seasons and Groundfish Retention Restrictions under Alternative 6.

<table>
<tr><th>Marine Area</th><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>June</th><th>July</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
<tr><td>3 & 4 (N. Coast)</td><td colspan="5">Open all depths</td><td colspan="4">Open <20 fm June 1-Sep 30 a/</td><td colspan="3">Open all depths</td></tr>
<tr><td>2 (S. Coast)</td><td colspan="2">Open all depths</td><td colspan="3">Open <30 fm Mar 15 - June 15 b/, c/, d/, g/</td><td colspan="3">Open all depths except lingcod prohibited on Fri. and Sat. >30 fm e/,g</td><td colspan="4">Open all depths g/</td></tr>
<tr><td>1 (Col. R.)</td><td colspan="4">Open all depths g/</td><td colspan="5">Open all depths f/, g/</td><td colspan="3">Open all depths g/</td></tr>
<tr><td colspan="13">a/ Groundfish retention allowed >20 fm on days when Pacific halibut would be open.
b/ Retention of sablefish and Pacific cod allowed seaward of 30 fm from May 1- June 15.
c/ Retention of rockfish allowed seaward of 30 fm.
d/ Retention of lingcod allowed seaward of 30 fm on days that the primary halibut season would be open.
e/ Retention of lingcod prohibited >30 fm, south of 46°58 on Fri. and Sat. from July 1 – August 31.
f/ Retention of groundfish, except sablefish and Pacific cod, prohibited with Pacific halibut on board.
g/ Retention of lingcod prohibited in deepwater areas at all times.</td></tr>
</table>

Area Restrictions
The same area restrictions that were in place under the No Action Alternative would be implemented under Alternative 6. Fishing for, retention or possession of groundfish and halibut during the Washington recreational groundfish and Pacific halibut fisheries would be prohibited in the C-shaped YRCA in the north coast (Figure C-22), and the South Coast and Westport YRCAs in the south coast (Figure C-23) as they were during the 2011 and 2012 seasons.

Fishing for, retention or possession of lingcod would be prohibited seaward of a line from the Queets River (47°31.70' N. lat., 124° 45.00' W. long.) to 46°25.00' N. lat, 124°21.00' W. long., year round except as allowed in Washington Marine Area 2 on days open to the primary halibut fishery (Figure C-24) as was in place in 2012.

Groundfish Bag Limits
No changes to groundfish bag limits would be made under Alternative 6 compared to the No Action Alternative, the recreational groundfish bag limit would be 12 fish per day including rockfish and lingcod. Of the 12 recreational groundfish allowed to be landed per day, sub limits of 10 rockfish, 2 lingcod and 2 cabezon would apply.

Lingcod Seasons and Size Limits
No changes to the lingcod seasons would be made under Alternative 6 compared to the No Action Alternative, the lingcod seasons and size limits in 2013 and 2014 would be as follows:

- Marine Areas 1-3: March 16 through October 12 in 2013 and March 15 through October 18 in 2014. Minimum size, 22 inches.

- Marine Area 4: April 16 through October 12 in 2013 and April 16 to October 15 in 2014. Minimum size, 24 inches.

Pacific Halibut Seasons
It is expected that the Pacific halibut seasons in 2013 and 2014 will be similar to the halibut seasons in 2011 and 2012. There are no changes to the restrictions on groundfish retention during the Pacific halibut season proposed under the Alternative 6.

Additional Management Measures Analyzed
Washington recreational harvest guidelines for yelloweye and canary rockfish under Alternative 6 are very similar to what was in place for 2011 and 2012 and described in the No Action Alternative and as such no additional management measures were analyzed. Management measures outlined under the No Action Alternative will be used to keep recreational harvests of overfished species within specified harvest guidelines for 2013 and 2014.

Projected Impacts and Inseason Management Response
Projected mortality for Washington's recreational fishery are based upon the previous season's harvest estimated by the Ocean Sampling Program (OSP) and incorporated in RecFIN. It should be noted that the precision of recreational groundfish catch estimates based upon previous seasons will continue to be influenced by factors such as the length and success of salmon and halibut seasons, weather and unforeseen factors.

Washington's Ocean Sampling Program is able to produce estimates of groundfish catch with a one month lag time. Management measures such as more restrictive depth closures, area closures, groundfish retention restrictions or changes to seasons can be implemented immediately through emergency changes to state regulations if inseason catch reports indicate that recreational harvests of overfished species are exceeding pre-season projections to the point where harvest guidelines are at risk of being exceeded.

The projected mortality of overfished species in the groundfish fishery for 2013 and 2014 under the Alternative 6 is displayed in Table C-106.

Table C-106. Washington Recreational Harvest Guidelines and Projected Mortality under Alternative 6.

Alternative 6	WA Recreational Harvest Guideline (mt) 2013/2014	Projected Mortality (mt)
Canary rockfish	2.6 / 2.7	1.0
Yelloweye rockfish	2.9	2.4

Community Impacts
Under Alternative 6, management measures necessary to keep recreational harvest of yelloweye rockfish within harvest guidelines, which are the same as the No Action Alternative, require closure or significant restriction of the groundfish fishery in areas deeper than 20 and 30 fathoms along the majority of the Washington coast, restrictions to groundfish retention during peak recreational fishing periods, and area

closures. While these restrictions have been effective at keeping recreational catch of overfished species under specified harvest guidelines in the past they are limiting to recreational fishing opportunity since areas are closed, season length is restricted, bag limits are reduced, and retention for some species is prohibited.

Projected mortality of overfished species and angler effort in 2013 and 2014 under No Action management measures are expected to be similar to previous seasons however, if anger effort and fishing success result in catch estimates higher than what is projected, additional fishing restrictions may be needed to ensure that harvest of overfished species do not exceed harvest guidelines.

C.4.8 Washington Recreational: Alternative 7

Under Alternative 7, Washington recreational fisheries would operate under ACL's for yelloweye rockfish of 18 mt and canary rockfish of 147 and 151 mt respectively, and the associated Washington recreational harvest guidelines of 2.9 mt for yelloweye rockfish and 4.1 and 4.2 mt for canary rockfish in 2013 and 2014 (Table C-107).

Table C-107. Washington Recreational Allocations under Alternative 7.

Species	2013 Recreational Allocation (mt)	2014 Recreational Allocation (mt)
Canary rockfish	4.1	4.2
Yelloweye rockfish	2.9	2.9

Groundfish Seasons and Area Restrictions
Under Alternative 7, the Washington recreational fishery would operate under the same management measures as the No Action Alternative. The recreational fishery would be open year round for groundfish except lingcod. Washington would continue to prohibit the retention of canary and yelloweye rockfish in all areas.

Depth restrictions are the primary tool used to keep recreational mortality of yelloweye and canary rockfish within specified harvest guidelines. Restrictions limiting the depth where groundfish fisheries are permitted are more severe in the area north of the Queets River (Washington management areas 3 and 4) where yelloweye and canary rockfish abundance is higher and therefore caught incidentally at a higher rate. Depth restrictions are less restrictive as you move south along the coast where incidental catch of yelloweye and canary becomes progressively less.

There is little flexibility to consider less restrictive management measure options that would allow access to higher recreational harvest guidelines under higher canary rockfish ACL alternatives because less restrictive depth restrictions or other management measures that allow access to canary rockfish have the potential to increase yelloweye rockfish mortality.

North Coast (Marine Areas 3 and 4)
The retention of bottomfish would be prohibited seaward of a line approximating 20 fathoms from June 1- September 30, except on days that halibut fishing would be open. Fishing for, retention or possession of groundfish and halibut would be prohibited in the C-shaped YRCA (Figure C-22).

South Coast (Marine Area 2)
The retention of bottomfish, except rockfish, would be prohibited seaward of 30 fathoms from March 15 through June 15, except sablefish and Pacific cod retention would be allowed May 1 through June 15; retention of lingcod would be allowed on days open to the primary halibut season; the retention of

lingcod would be prohibited south of 46 deg. 58’ and seaward of 30 fathoms on Fridays and Saturdays from July 1 through August 31; fishing for, retention or possession of lingcod would be prohibited in deepwater areas seaward of a line extending from 47°31.70’ N. lat., 124°45.00’ W. long., to 46°38.17’ N. lat., 124°30.00’ W. long. year round except as allowed on days open to the Pacific halibut fishery (Figure C-24); fishing for, retention or possession of bottomfish or halibut would be prohibited in the South Coast YRCA and Westport Offshore YRCA (Figure C-23).

Columbia River (Marine Area 1)
The retention of bottomfish, except sablefish and Pacific cod, would be prohibited with halibut onboard from May 1 through September 30 and; fishing for, retention or possession of lingcod in deepwater areas seaward of a line extending from 46°38.17’ N. lat., 124°21.00’ W. long. to 46°25.00’ N. lat., 124°21.00’ W. long would be prohibited year round (Figure C-24).

Table C-108. Washington Recreational Seasons and Groundfish Retention Restrictions under Alternative 7.

<table>
<tr><th>Marine Area</th><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>June</th><th>July</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
<tr><td>3 & 4 (N. Coast)</td><td colspan="5">Open all depths</td><td colspan="4">Open <20 fm June 1-Sep 30 a/</td><td colspan="3">Open all depths</td></tr>
<tr><td>2 (S. Coast)</td><td colspan="2">Open all depths</td><td colspan="4">Open <30 fm Mar 15 - June 15 b/, c/, d/, g/</td><td colspan="2">Open all depths except lingcod prohibited on Fri. and Sat. >30 fm e/,g</td><td colspan="4">Open all depths g/</td></tr>
<tr><td>1 (Col. R.)</td><td colspan="4">Open all depths g/</td><td colspan="5">Open all depths f/, g/</td><td colspan="3">Open all depths g/</td></tr>
<tr><td colspan="13">a/ Groundfish retention allowed >20 fm on days when Pacific halibut would be open.
b/ Retention of sablefish and Pacific cod allowed seaward of 30 fm from May 1- June 15.
c/ Retention of rockfish allowed seaward of 30 fm.
d/ Retention of lingcod allowed seaward of 30 fm on days that the primary halibut season would be open.
e/ Retention of lingcod prohibited >30 fm, south of 46°58 on Fri. and Sat. from July 1 – August 31.
f/ Retention of groundfish, except sablefish and Pacific cod, prohibited with Pacific halibut on board.
g/ Retention of lingcod prohibited in deepwater areas at all times.</td></tr>
</table>

Area Restrictions
The same area restrictions that were in place under the No Action Alternative would be implemented under Alternative 7. Fishing for, retention or possession of groundfish and halibut during the Washington recreational groundfish and Pacific halibut fisheries would be prohibited in the C-shaped YRCA in the north coast (Figure C-22), and the South Coast and Westport YRCAs in the south coast (Figure C-23) as they were during the 2011 and 2012 seasons.

Fishing for, retention or possession of lingcod would be prohibited seaward of a line extending from the Queets River (47°31.70’ N. lat., 124° 45.00’ W. long.) to 46°25.00’ N. lat, 124°21.00’ W. long., year round except as allowed in Washington Marine Area 2 on days open to the primary halibut fishery (Figure C-24) as was in place in 2012.

Groundfish Bag Limits

No changes to groundfish bag limits would be made under Alternative 7 compared to the No Action Alternative, the recreational groundfish bag limit would be 12 fish per day including rockfish and lingcod. Of the 12 recreational groundfish allowed to be landed per day, sub limits of 10 rockfish, 2 lingcod and 2 cabezon would apply.

Lingcod Seasons and Size Limits
No changes to the lingcod seasons would be made under Alternative 7 compared to the No Action Alternative, the lingcod seasons and size limits in 2013 and 2014 would be as follows:

- Marine Areas 1-3: March 16 through October 12 in 2013 and March 15 through October 18 in 2014. Minimum size, 22 inches.

- Marine Area 4: April 16 through October 12 in 2013 and April 16 to October 15 in 2014. Minimum size, 24 inches.

Pacific Halibut Seasons
It is expected that the Pacific halibut seasons in 2013 and 2014 will be similar to the halibut seasons in 2011 and 2012. There are no changes to the restrictions on groundfish retention during the Pacific halibut season proposed under the Alternative 7.

Additional Management Measures Analyzed
Washington recreational harvest guidelines for yelloweye and canary rockfish under Alternative 7 are somewhat similar to what was in place for 2011 and 2012 and described in the No Action Alternative and as such no additional management measures were analyzed. Management measures outlined under the No Action Alternative will be used to keep recreational harvests of overfished species within specified harvest guidelines for 2013 and 2014.

Projected Impacts and Inseason Management Response
Projected mortality for the Washington recreational fishery is based upon the previous season's harvest estimated by the Ocean Sampling Program (OSP) and incorporated in RecFIN. It should be noted that the precision of recreational groundfish catch estimates based upon previous seasons will continue to be influenced by factors such as the length and success of salmon and halibut seasons, weather and unforeseen factors.

Washington's Ocean Sampling Program is able to produce estimates of groundfish catch with a one month lag time. Management measures such as more restrictive depth closures, area closures, groundfish retention restrictions or changes to seasons can be implemented immediately through emergency changes to state regulations if inseason catch reports indicate that recreational harvests of overfished species are exceeding pre-season projections to the point where harvest guidelines are at risk of being exceeded.

The projected mortality of overfished species in the groundfish fishery for 2013 and 2014 under the Alternative 7 is found in Table C-109.

Table C-109. Washington Recreational Harvest Guidelines and Projected Mortality under Alternative 7.

Alternative 7	WA Recreational Harvest Guideline (mt) 2013/2014	Projected Mortality (mt)
Canary rockfish	4.1 / 4.2	1.0
Yelloweye rockfish	2.9	2.4

Community Impacts

Under Alternative 7, management measures necessary to keep recreational harvest of yelloweye rockfish within harvest guidelines, which are the same as the No Action Alternative, require closure or significant restriction of the groundfish fishery in areas deeper than 20 and 30 fathoms along the majority of the Washington coast, restrictions to groundfish retention during peak recreational fishing periods, and closed areas. While these restrictions have been effective at keeping recreational catch of overfished species under specified harvest guidelines in the past they are limiting to recreational fishing opportunities.

Projected mortality of overfished species and angler effort in 2013 and 2014 under No Action management measures are expected to be similar to previous seasons however, if anger effort and fishing success result in catch estimates higher than what is projected, additional fishing restrictions may be needed to ensure that harvest of overfished species do not exceed harvest guidelines.

C.4.9 Washington Recreational: Summary of the Integrated Alternatives

Management measures considered for the Washington recreational fishery in 2013 and 2014 are designed to keep overfished species mortality within harvest guidelines based on allocation of the various annual catch limit (ACL) alternatives approved by the Pacific Fishery Management Council for public review. Yelloweye and canary rockfish are the two overfished species encountered in the Washington recreational fisheries. Management measures analyzed for 2011 and 2012 under the No Action Alternative were designed to keep yelloweye rockfish mortality within the Washington recreational yelloweye harvest guideline of 2.6 mt, and canary harvest guideline of 2.0 mt while allowing access to healthy groundfish stocks. For 2013 and 2014 the Council is only considering one yelloweye rockfish ACL alternative (18 mt), which represents the No Action rebuilding time throughout all of the integrated alternatives. Based on allocations adopted by the Council, the Washington recreational harvest guideline for yelloweye rockfish in 2013 and 2014 under the 18 mt ACL is 2.9 mt. This harvest guideline is very close to the 2.6 mt harvest guideline in place for 2011 and 2012.

Although the Integrated Alternatives represent a wider range of ACL options for canary rockfish with some recreational harvest guidelines for the Washington recreational fishery higher than was in place for 2011 and 2012, there is no flexibility to analyze less restrictive management measures that would utilize higher canary allocations because they would result in yelloweye rockfish mortality that is higher than the allowed harvest guideline.

Because the Washington recreational harvest guideline for yelloweye rockfish under all of the Integrated Alternatives is similar to what was in place for 2011 and 2012 and because management measure alternatives that would allow access to higher canary rockfish harvest guidelines would compromise the ability to keep yelloweye mortality to specified levels, Washington is proposing No Action management measures (No Action Alternative) under all of the ACL options presented in the Integrated Alternatives.

With the Washington recreational fishery operating under the same management measures that were in place in 2011 and 2012 for each of the Integrated Alternatives in 2013 and 2014, the projected mortality of overfished species and the number of angler trips in the recreational bottomfish fishery are expected to be the same under each of the Integrated Alternatives.

Table C-110. Washington Recreational Seasons Structure and Groundfish Retention Restrictions by Area for all of the Integrated Alternatives.

<table>
<tr><th>Marine Area</th><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>June</th><th>July</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
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c/ Retention of rockfish allowed seaward of 30 fm.
d/ Retention of lingcod allowed seaward of 30 fm on days that the primary halibut season is open.
e/ Retention of lingcod prohibited >30 fm, south of 46°58 on Fri. and Sat. from July 1 – August 31.
f/ Retention of groundfish, except sablefish and Pacific cod, prohibited with Pacific halibut on board.
g/ Retention of lingcod prohibited in deepwater areas at all times.</td></tr>
</table>

Table C-111. Washington Recreational Harvest Guidelines and Projected Impacts (mt) under the Integrated Alternatives.

	Canary Rockfish		**Yelloweye Rockfish**	
Integrated Alternative	**Harvest Guideline 2013 / 2014**	**Projected Impacts 2013 / 2014**	**Harvest Guideline 2013 / 2014**	**Projected Impacts 2013 / 2014**
No Action	2.0	1.0	2.6	2.4
Alternative 1	3.1 / 3.2	1.0	2.9	2.4
Alternative 2	2.6 / 2.7	1.0	2.9	2.4
Alternative 3	3.1 / 3.2	1.0	2.9	2.4
Alternative 4	1.0	1.0	2.9	2.4
Alternative 5	6.2 / 6.4	1.0	2.9	2.4
Alternative 6	2.6 / 2.7	1.0	2.9	2.4
Alternative 7	4.1 / 4.2	1.0	2.9	2.4

Table C-112. Estimated Effort in the Washington Recreational Bottomfish Fishery (angler trips) under the Integrated Alternatives by Management Area.

Management Area	No Action Alternative	Alternatives 1-7
North Coast		
Charter	781	781
Private	6035	6035
South Coast		
Charter	9788	9788
Private	1483	1483
Columbia River		
Charter	655	655
Private	781	781

C.5 Oregon Recreational

Table C-113. The Integrated Alternatives of overfished species annual catch limits for 2013.

Species	No Action	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
Bocaccio	274	320	320	320	320	320	320	320
Canary	107	116	101	116	48	216	101	147
Cowcod	3	3	3	3	3	3	3	3
Darkblotched	296	317	317	317	317	317	317	317
POP a/	183	150	150	74	247	74	222	222
Petrale	1,160	2,592	2,592	2,592	2,592	2,592	2,592	2,592
Yelloweye	17	18	18	18	18	18	18	18

a/ Under No Action, a 157 mt ACT is implemented.

Table C-114. The Integrated Alternatives of overfished species annual catch limits for 2014.

Species	No Action	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
Bocaccio	274	337	337	337	337	337	337	337
Canary	107	119	104	119	49	220	104	151
Cowcod	3	3	3	3	3	3	3	3
Darkblotched	296	330	330	330	330	330	330	330
POP a/	183	153	153	76	251	76	226	226
Petrale	1,160	2,652	2,652	2,652	2,652	2,652	2,652	2,652
Yelloweye	17	18	18	18	18	18	18	18

a/ Under No Action, a 157 mt ACT is implemented.

C.5.1 Oregon Recreational: No-Action Alternative

The No-Action Alternative analyzes the annual catch limits (ACLs) in place for 2012 (107 mt for canary rockfish and 17 mt for yelloweye rockfish; Table C-113 and Table C-114) and sector specific allocations. Table C-115 shows the allocations, or model targets, for black, canary and yelloweye rockfish (species with a federal harvest guideline) for the Oregon recreational fisheries under the No-Action Alternative.

Table C-115. Oregon recreational allocations or model targets under the No-Action Alternative.

Species	2013 Recreational Allocation or Model Target (mt)	2014 Recreational Allocation or Model Target (mt)
Black rockfish	440.8	440.8
Canary rockfish	7.0	7.0
Yelloweye rockfish	2.4	2.4

Groundfish Seasons and Area Restrictions

Under the No-Action Alternative, the Oregon recreational groundfish fishery will be open offshore year-round, except from April 1 to September 30 when fishing is only allowed shoreward of 40 fm, (Figure C-25), as defined by waypoints, the same as in 2011-2012. Closing the fishery outside of 40 fm from April 1 to September 30, months when angler effort and yelloweye rockfish encounters are greatest, mitigate catches of yelloweye rockfish. The shore-based fishery will be open year-round as depleted canary and yelloweye rockfish are not impacted.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Groundfish Season	Open all depths			Open < 40 fm						Open all depths		
Marine Bag Limit [1]	Ten (10)			1 Fish Cabezon Sub-Bag [2]						Ten (10)		
Lingcod Bag Limit	Three (3)											
Flatfish Bag Limit [3]	Twenty Five (25)											

[1] *Marine bag limit includes all species other than lingcod, salmon, steelhead, Pacific halibut, flatfish, surfperch, sturgeon, striped bass, pelagic tuna and mackerel species, and bait fish such as herring, anchovy, sardine, and smelt.*
[2] *From April 1 through September 30, the marine bag limit is Ten (10) fish per day, of which no more than one (1) may be cabezon.*
[3] *Flounders, soles, sanddabs, turbots and halibuts except Pacific halibut*

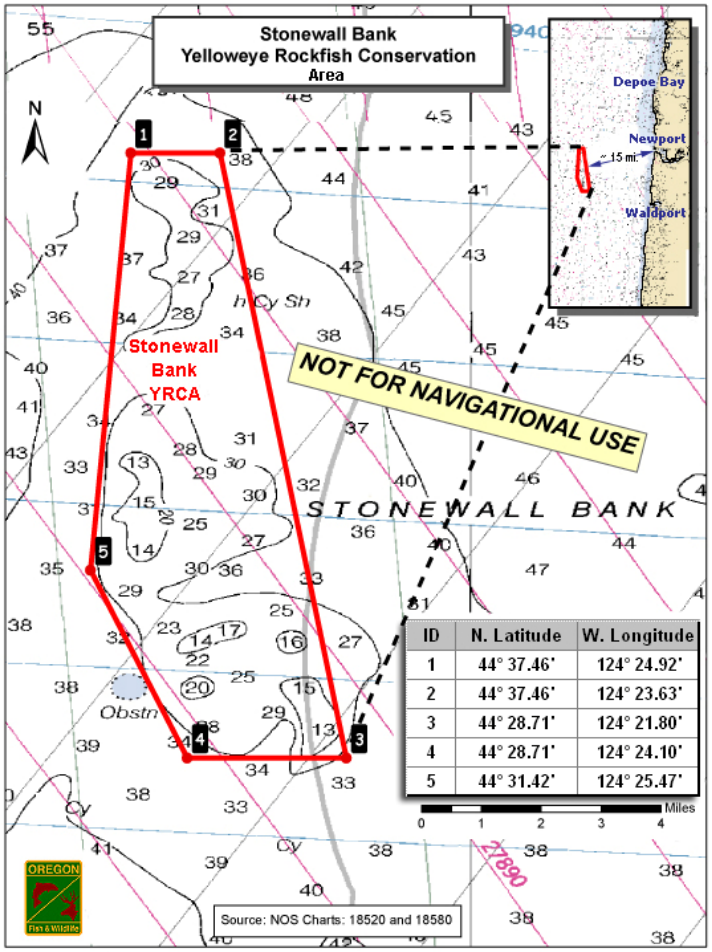
Figure C-25. Oregon recreational groundfish season structure and bag limits in 2013-14 under the No-Action Alternative.

Area Closures

A yelloweye rockfish conservation area (YRCA) has been in place on Stonewall Bank since 2006 and would also remain under the No Action alternative (Figure C-26). The YRCA is located approximately 15 miles west of the Port of Newport and consists of the high-relief area of Stonewall Bank, an area of high yelloweye rockfish encounters. No recreational fishing for groundfish and Pacific halibut can occur within this YRCA, which is bounded by the following waypoints:

44°37.458’ N lat. 124°24.918’ W long.
44°37.458’ N lat. 124°23.628’ W long.

44°28.710’ N lat.	124°21.798’ W long.
44°28.710’ N lat.	124°24.102’ W long.
44°31.422’ N lat.	124°25.500’ W long.



ODFW, 05/22/06. Reprinted 12/12/06

Figure C-26. The Stonewall Bank Yelloweye Rockfish Conservation Area where recreational fishing for groundfish and Pacific halibut is prohibited. Under the No Action alternative, the area would remain closed.

Groundfish Bag Limits and Size Limits

Under the No Action alternative, the marine fish daily bag limit of ten fish in aggregate that was allowed in 2011-2012 Oregon recreational fisheries would carry forward for 2013-2014 (Figure C-25). The marine bag includes all species other than lingcod, salmon, steelhead, Pacific halibut, flatfish, surfperch, sturgeon, striped bass, pelagic tuna and mackerel species, and bait fish such as herring, anchovy, sardine and smelt. During April through September, there was a one fish sub-bag limit for cabezon (of the 10 fish marine bag limit no more than one could be cabezon). This cabezon sub-bag limit would also carry forward for 2013-2014. A flatfish daily bag limit of 25, which includes all soles and flounders except Pacific halibut, was allowed in addition to the marine fish daily bag limit. Additionally a three fish bag limit was allowed for lingcod. Retention of canary and yelloweye rockfish was prohibited in 2011-2012 and would continue to be prohibited under the No Action alternative.

The following minimum size limits applied to 2011-2012 Oregon recreational fisheries and would be carried forward under the No Action alternative:

lingcod – 22 in.
cabezon – 16 in.
kelp greenling – 10 in.

Pacific Halibut Seasons
Under the No-Action Alternative, the recreational Pacific halibut fisheries should be able to proceed as in 2011 and 2012, in regards to days and areas open, etc., depending on the halibut quota. Since 2009, only sablefish and Pacific cod may be retained in the Pacific halibut fishery at any depth in the area north of Humbug Mountain, Oregon. It is expected that groundfish retention in the all-depth Pacific halibut fishery will be similarly limited in 2013 and 2014.

Additional Management Measures Analyzed
Under the No Action Alternative, no additional management measures were analyzed for the Oregon recreational fisheries. Since projected mortality is within the limits for the No Action Alternative, the NO Action season structure and regulations should be sufficient, no additional management measures were analyzed.

Projected Impacts and Inseason Management Response
Under the No Action Alternative, and associated season structure and bag limits detailed above, the annual projected mortality of black, canary and yelloweye rockfish are in Table C-116.

Table C-117 shows the recent mortality of the ten most landed species in the Oregon recreational fishery, including black rockfish. Species in Table C-117, other than black rockfish, are not modeled; therefore a projected mortality for 2013-2014 is unavailable. This table represents recent mortality under similar season structure and bag limits to what will be in place under the No Action Alternative and may serve as a proxy for projections.

Table C-116. Projected Mortality of species with Oregon recreational specific allocations under the No-Action Alternative.

Species	Impacts (mt)
Black rockfish	297.7
Canary rockfish	4.7
Yelloweye rockfish	2.5

Table C-117. Recent mortality (mt) of the ten most landed species in the Oregon recreational fishery under the season structure, bag limits, area restrictions, etc. in the No-Action Alternative.

Species	2008	2009	2010	Average
Black rockfish	227.5	267.6	284.1	259.7
Lingcod	75.6	63.2	76.6	71.8
Blue rockfish	14.7	14.4	2.5	10.5
Cabezon	16.0	14.2	15.3	15.2
Yellowtail rockfish	4.8	8.3	6.7	6.6
Kelp greenling	3.5	3.6	6.2	4.4
Vermilion rockfish	5.5	3.6	4.4	4.5
Quillback rockfish	3.9	3.3	4.0	3.7
Copper rockfish	3.6	2.6	3.5	3.2
China rockfish	2.6	2.1	2.4	2.4

Inseason Management Tools

Oregon has a responsive port based monitoring program through their Ocean Recreational Boat Survey (ORBS) and regulatory processes in place to track harvest and take actions inseason if necessary. The following are suggested management measures that could be implemented inseason if the 2013 (or 2014) fishery does not proceed as expected.

Inseason management tools, designed to mitigate catches, include bag limit adjustments (including non-retention), length limit adjustments, gear restrictions, and season, days per week, depth, and area closures.

Season, depth, days open per week, and area closures are the primary inseason tools for limiting yelloweye rockfish and canary rockfish mortality, since retention of this species is prohibited. If catch rates indicate that the HGs for yelloweye rockfish will be reached prematurely, offshore depth closures may be implemented inseason at 30, 25, or 20 fm as these two species are less abundant nearshore and release survival rates are higher in shallow waters. Additionally, days per week may also be closed to reduced mortality. ODFW will monitor inseason progress toward HGs for canary rockfish and yelloweye rockfish. Regulations will depend upon the timing of the determination for their need.

Adjustments to the marine fish daily-bag limit to no more than 10 fish may be implemented to achieve season duration goals in the event of accelerated or decelerated black rockfish or other nearshore rockfish harvest. The lingcod daily bag limits may be adjusted to no more than 3 fish in the event the marine bag limit changes or the halibut catch limit is reduced from 2011 levels. Season and/or area closures may also be considered if harvest targets or HGs are projected to be attained. Closing one or more days per week is an inseason tool that could be used to limit mortality for any managed species. Closing certain days each week would help lengthen the duration of a fishery approaching a harvest guideline.

Non-retention and length restrictions are the likely inseason tools to use for cabezon and greenling as release survival is very high. They may also be used to reduce mortality of nearshore species, such as black rockfish and other nearshore rockfish species.

Gear restrictions and/or release technique requirements may be implemented to reduce the impact of depleted rockfish species if successful techniques are developed, researched, reviewed, and accepted. Research in this area is currently being conducted and will continue into 2013-2014, testing the effectiveness and selectivity of various gears and the survivability of rockfish released at depth.

Directed yellowtail rockfish and/or flatfish fisheries may be implemented inseason, as were implemented in 2004, in the event of a closure of the recreational groundfish fishery due to attainment federal or state HGs or targets. Specific gear restrictions may be implemented in the event that yellowtail rockfish and/or flatfish fisheries remain open during a groundfish closure. Additionally, the fishery may be expanded to waters seaward of the RCA, promoting directed yellowtail rockfish opportunity. Directed flatfish fisheries would be legal year round and open shoreward of 40 fm during any period the groundfish fishery has any depth restrictions (i.e. 40, 30, 25, and 20 fathom lines). The flatfish fishery would not have any depth restrictions when the groundfish fishery has no depth restrictions. Fisheries will be monitored to ensure that mortality of yelloweye and canary rockfish are within the harvest targets or HGs.

In the event that the duration of total season is reduced from 12 months; the nearshore waters are closed to groundfish fishing due to management of nearshore species; or the Pacific halibut catch limit is reduced from 2011 levels, the fishery may be expanded to waters seaward of the RCA that is in effect at the time, promoting directed yellowtail rockfish and offshore lingcod opportunity. Fisheries will be monitored to ensure that yelloweye and canary rockfish mortality is not in excess of the harvest guidelines.

Community Impacts

Depth restrictions for the recreational groundfish fishery are the primary management method used to keep overfished yelloweye and canary rockfish mortality within their respective harvest guidelines (HG) in the Oregon recreational fisheries. Depth restrictions reduce mortality of overfished species because catch rates and discard mortality rates of overfished species are lesser in shallower depths. The depth restrictions under the No Action Alternative are all-depths from Jan-Feb, 40 fm from Apr-Sep, and all-depths Oct-Dec (Figure C-25).

Although depth restrictions reduce mortality of overfished species, they can also decrease angler trips by reducing the quantity and quality of fishable bottomfish grounds. Ports are disproportionately affected by depth restrictions due to varying amounts of fishing grounds by depth (PFMC 2011). For example, Newport is relatively unaffected by a 40 fm depth restriction because the majority (98%) of bottomfish grounds are shallower than 20 fm (Figure C-27). In contrast, Winchester Bay and Florence are greatly impacted by depth restrictions because nearly all bottomfish grounds are deeper than 40 fm. Other ports, such as Garibaldi and Gold Beach, where the majority of bottomfish grounds are between 20-40 fm, are relatively unaffected by 40 fm depth restrictions, but are greatly affected by 20 fm depth restrictions.

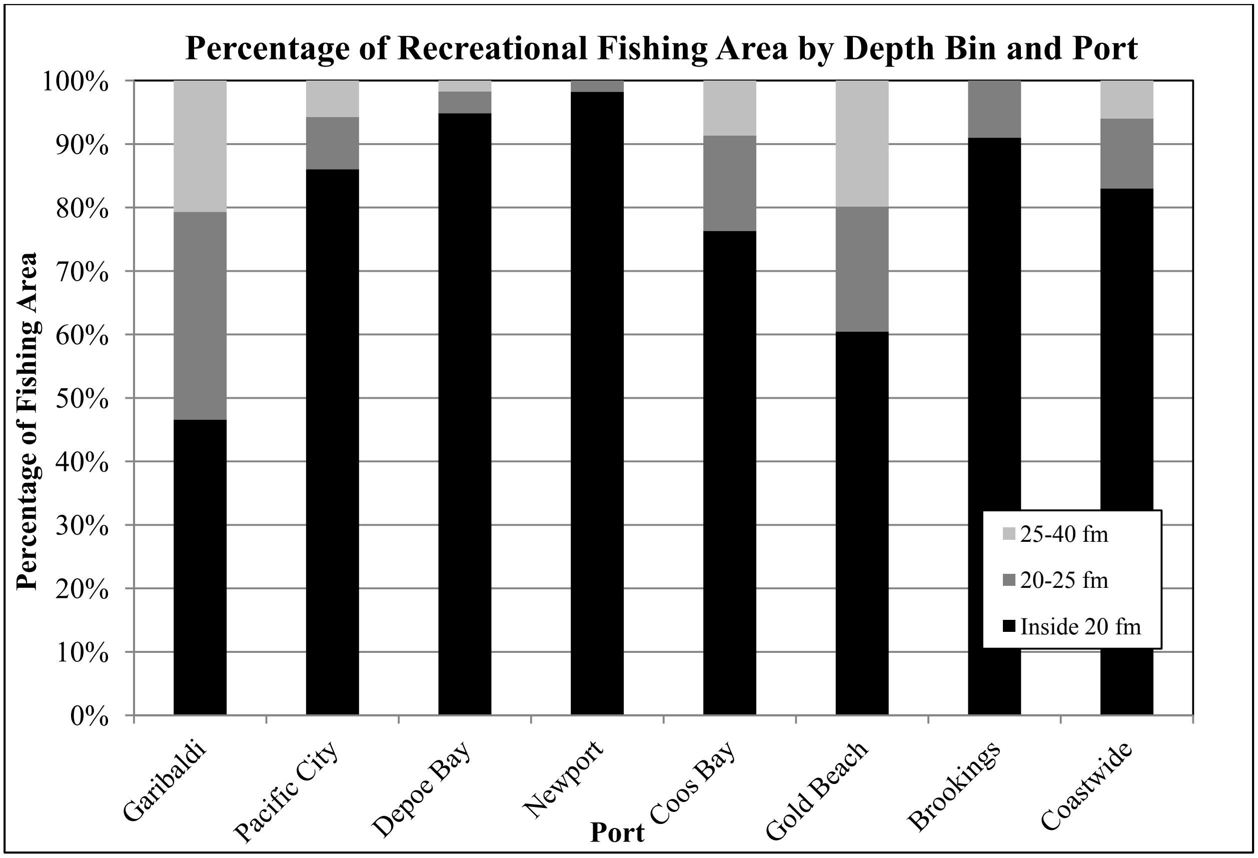


Figure C-27. Percentage of Marine Area by Depth Bin and Port for the Oregon Coast.

Under the No-Acton Alternative, mortality of canary and yelloweye rockfish in the groundfish fishery and the Pacific halibut fishery are projected to be within allocations (Table C-115) and expected angler trips are anticipated to be similar to what has been seen in recent years (Table C-118 and Table C-119). However, projections are based on past catch rates and angler trips, and greater than expected values for these parameters could necessitate more conservative inseason depth restrictions and/or closures of the fisheries.

Table C-118. Average bottomfish angler trips per month by port and boat type for months without depth restrictions (all-depth), 2007-2010.

Port	Charter						Private						Total					
	Jan	Feb	Mar	Oct	Nov	Dec	Jan	Feb	Mar	Oct	Nov	Dec	Jan	Feb	Mar	Oct	Nov	Dec
Astoria	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Garibaldi	46	125	101	120	17	19	52	63	39	2,225	64	20	98	187	140	2,345	81	39
Pacific City	5	13	24	16	2	2	71	85	126	111	30	26	76	98	150	127	32	28
Depoe Bay	54	191	389	423	57	15	51	75	63	102	23	17	105	266	452	525	80	32
Newport	156	399	870	618	190	78	98	179	193	292	36	66	254	578	1,063	909	226	144
Winchester	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Charleston	31	84	125	158	13	14	98	124	189	315	16	40	129	208	314	473	29	54
Bandon	3	5	17	40	14	5	20	23	37	39	10	9	23	27	54	79	24	14
Port Orford	0	0	0	0	0	0	6	7	9	10	2	3	6	7	9	10	2	3
Gold Beach	6	16	30	16	10	3	41	54	72	47	19	18	47	70	102	63	29	21
Brookings	34	66	162	135	81	13	441	393	592	1,939	192	96	475	459	754	2,074	273	109
Total	334	898	1,718	1,525	382	148	878	1,002	1,320	5,079	391	295	1,213	1,900	3,038	6,604	773	443

Table C-119. Average bottomfish angler trips per month by port and boat type for months with 40 fm depth restrictions, 2007-2010.

Port	Charter						Private						Total					
	Apr	May	Jun	Jul	Aug	Sep	Apr	May	Jun	Jul	Aug	Sep	Apr	May	Jun	Jul	Aug	Sep
Astoria	0	8	22	1	6	0	1	113	105	15	6	3	1	121	127	16	12	3
Garibaldi	133	399	761	667	761	400	97	382	454	161	165	92	230	782	1,216	828	925	491
Pacific City	34	51	54	62	55	22	289	650	511	416	325	112	323	701	565	478	380	133
Depoe Bay	602	1,008	1,683	1,687	2,098	1,002	157	362	432	180	159	93	759	1,370	2,115	1,867	2,256	1,095
Newport	991	1,063	1,807	1,612	1,960	1,243	572	1,066	985	616	610	377	1,563	2,129	2,792	2,228	2,570	1,620
Winchester	0	0	4	1	0	0	0	9	7	2	13	0	0	9	11	3	13	0
Charleston	270	436	598	492	620	380	390	902	1,220	626	1,214	661	661	1,339	1,818	1,118	1,833	1,041
Bandon	59	75	193	200	284	39	87	195	184	159	247	84	146	271	377	359	531	122
Port Orford	0	11	19	0	0	0	25	65	57	132	83	33	25	76	76	132	83	33
Gold Beach	63	75	105	137	210	61	126	318	282	362	627	407	189	392	387	499	837	468
Brookings	274	364	504	491	703	320	1,121	2,311	2,499	2,302	2,293	1,294	1,395	2,675	3,003	2,793	2,996	1,614
Total	2,426	3,490	5,749	5,350	6,695	3,465	2,864	6,374	6,737	4,970	5,739	3,154	5,290	9,865	12,487	10,320	12,434	6,619

C.5.2 Oregon Recreational: Alternative 1 (Preferred)

Alternative 1 analyzes the Council's preliminary preferred ACLs (116/118 mt for canary rockfish and 18 mt for yelloweye rockfish; Table C-113and Table C-114) and allocations.

Table C-120 shows the allocations, or model targets, for black, canary and yelloweye rockfish for the Oregon recreational fisheries under Alternative 1.

Table C-120. Oregon recreational allocations or model targets under Alternative 1.

Species	2013 Recreational Allocation or Model Target (mt)	2014 Recreational Allocation or Model Target (mt)
Black rockfish	440.8	440.8
Canary rockfish	10.9	11.2
Yelloweye rockfish	2.6	2.6

Groundfish Seasons and Area Restrictions
Under Alternative 1, the Oregon recreational groundfish fishery will be open offshore year-round, except from April 1 to September 30 when fishing is only allowed shoreward of 40 fm, the same as under the No-Action Alternative (Figure C-25). Closing the fishery outside of 40 fm from April 1 to September 30, months when yelloweye rockfish bycatch is the highest, mitigate the impacts to depleted yelloweye rockfish. The shore-based fishery will be open year-round as depleted canary and yelloweye rockfish are not impacted.

Area Closures
Under Alternative 1, as in the No-Action Alternative, targeting and retaining groundfish and Pacific halibut will be prohibited year-round in the Stonewall Bank YRCA, a high relief rocky habitat approximately 15 miles offshore from Newport, Oregon (Figure C-26). Targeting and retaining Pacific halibut and groundfish within the Stonewall Bank YRCA was prohibited to reduce yelloweye rockfish bycatch.

Groundfish Bag Limits and Size Limits
Under Alternative 1, the Oregon recreational groundfish fishery will have a marine fish daily-bag-limit of ten fish in aggregate (Figure C-25), the same as the No-Action Alternative. The marine fish daily-bag-limit includes all species other than lingcod, salmon, steelhead, Pacific halibut, flatfish, surfperch, sturgeon, striped bass, pelagic tuna and mackerel species, and bait fish such as herring, anchovy, sardine and smelt. This daily-bag-limit provides the flexibility to make necessary adjustments through the yearly state process, reflecting the progression of the current year's fishery. The state process will likely reduce the marine fish daily-bag-limit from ten fish in aggregate to manage the harvest of the "other nearshore" rockfish complex within the recreational fishery state ocean boat landing cap, which is adopted in the yearly state process. Reducing the marine fish daily-bag-limit will also affect black rockfish harvest rates and may prevent the fishery from harvesting its total allocation. The status of black rockfish was assessed in 2007 as healthy and the preliminary Council adopted preferred OY was 1,000 mt for the area off Oregon and California with an Oregon harvest guideline of 580 mt, which has been in place since 2009. Assuming the recreational share continues to be seventy-six percent as determined through the state process, the Oregon recreational fishery harvest guideline for black rockfish would be 440.8 mt. Reductions in the marine fish daily bag limit are not expected to reduce yelloweye rockfish bycatch, since catch rates (per angler day) were similar for 10, 8, 6, or 5 marine fish bag limits.

Under Alternative 1, the Oregon recreational fishery will have a cabezon seasonal sub-bag limit of 1 fish (Figure C-25), concurrent with the seasonal depth restrictions, the same as the No-Action Alternative. This seasonal sub-bag limit is intended to reduce cabezon mortality, while still allowing for at least some retention.

Under Alternative 1, the Oregon recreational fishery will have a lingcod daily-bag-limit of three fish (Figure C-25), the same as the No-Action Alternative. This daily bag-limit provides the flexibility to make necessary adjustments through the yearly state process, reflecting the progression of the current year's fishery. The state process will likely reduce the lingcod bag limit to two fish for the opening of the

2013 season. In the event the Pacific halibut catch allocation is reduced significantly from 2011 levels or the marine bag limit is further reduced inseason, the lingcod daily bag limit could be increased to three fish so long as the harvest guidelines for depleted canary and yelloweye rockfish are not exceeded.

Under Alternative 1, the Oregon recreational fishery will have a flatfish daily-bag-limit of 25 fish in aggregate (Figure C-25), consistent with the No Action management measures effective since 2007. The flatfish daily-bag limit consists of all soles and flounders except Pacific halibut. Adoption of the flatfish daily-bag-limit of 25 fish in aggregate promotes simplicity in regulations and provides the flexibility to create additional regulations specific to flatfish (i.e. allowed retention of flatfish in the Pacific halibut fishery, or allowed targeting of flatfish in the event of a closure due to rockfish harvest guideline attainment).

Alternative 1 includes minimum length limits:

lingcod – 22 in.
cabezon – 16 in.
kelp greenling – 10 in.

These length limits are consistent with the No Action management measures effective since 2007. These length limits are effective tools in reducing harvest of these species, primarily in the shore and estuary fishery.

Pacific Halibut Seasons

Under Alternative 1, the recreational Pacific halibut fisheries should be able to proceed as in 2011 and 2012, in regards to days and areas open, etc., depending on the annual halibut quota. Since 2009, only sablefish and Pacific cod may be retained in the Pacific halibut fishery at any depth in the area north of Humbug Mountain, Oregon. It is expected that groundfish retention in the all-depth Pacific halibut fishery will be similarly limited in 2013 and 2014.

Additional Management Measures Analyzed

In keeping with the Council's intent of limiting the scope and number of changes to the No Action harvest specifications and management measures during the 2013-2014 cycle, no additional management measures were analyzed for the Oregon recreational fisheries. The No Action management measures (bag limits, depth restrictions, etc.) will provide the basis for keeping recreational impacts of overfished species within sector specific harvest guidelines for 2013-2014.

Projected Impacts and Inseason Management Response

Under Alternative 1, and associated season structure and bag limits detailed above, the annual projected mortality of black, canary and yelloweye rockfish are in Table C-121.

Table C-117 shows recent mortality of the ten most landed species in the Oregon recreational fishery, including black rockfish. Species in

Table C-117, other than black rockfish, are not modeled; therefore a projection for 2013-2014 is unavailable. This table represents recent mortality under similar season structure and bag limits to what will be in place under the No Action Alternative and may serve as a proxy for projections.

Table C-121. Projected mortality of species with Oregon recreational specific allocations under Alternative 1.

Species	Impacts (mt)
Black rockfish	297.7
Canary rockfish	4.7
Yelloweye rockfish	2.5

Inseason Management Tools
Oregon has a responsive port based monitoring program through their Ocean Recreational Boat Survey (ORBS) and regulatory processes in place to track harvest and take actions inseason if necessary. The following are suggested management measures that could be implemented inseason if the 2013 (or 2014) fishery does not proceed as expected.

Inseason management action may be implemented in 2013 or 2014 to reduce the mortality in the Oregon recreational groundfish fishery. Inseason management tools, designed to mitigate mortality, include bag limit adjustments (including non-retention), length limit adjustments, gear restrictions, and season, days per week, depth, and area closures.

Season, depth, days open per week, and area closures are the primary inseason tools for limiting yelloweye rockfish and canary rockfish mortality, since retention of this species is prohibited. If catch rates indicate that the HGs for yelloweye rockfish will be reached prematurely, offshore depth closures may be implemented inseason at 30, 25, or 20 fm as these two species are less abundant nearshore and release survival rates are higher in shallow waters. Additionally, days per week may also be closed to reduce mortality. ODFW will monitor inseason progress toward recreational harvest guidelines for canary rockfish and yelloweye rockfish. Regulations will depend upon the timing of the determination for their need.

Adjustments to the marine fish daily-bag limit to no more than ten fish may be implemented to achieve season duration goals in the event of accelerated or decelerated black rockfish or other nearshore rockfish harvest. The lingcod daily bag limits may be adjusted to no more than three fish in the event the marine bag limit changes or the halibut catch limit is reduced from 2011 levels. Season and/or area closures may also be considered if harvest targets or HGs are projected to be attained. Closing one or more days per week is an inseason tool that could be used to limit mortality of any managed species. Closing certain days each week would help lengthen the duration of a fishery approaching a harvest guideline.

Non-retention and length restrictions are the likely inseason tools to use for cabezon and greenling as release survival is very high. They may also be used to reduce mortality of nearshore species, such as black rockfish and other nearshore rockfish species.

Gear restrictions and/or release technique requirements may be implemented to reduce the impact of depleted rockfish species if successful techniques are developed, researched, reviewed, and accepted. Research in this area is currently being conducted and will continue into 2013-2014, testing the effectiveness and selectivity of various gears and the survivability of rockfish released at depth.

Directed yellowtail rockfish and/or flatfish fisheries may be implemented inseason, as were implemented in 2004, in the event of a closure of the recreational groundfish fishery due to attainment federal or state HGs or targets. Specific gear restrictions may be implemented in the event that yellowtail rockfish and/or flatfish fisheries remain open during a groundfish closure. Additionally, the fishery may be expanded to waters seaward of the RCA, promoting directed yellowtail rockfish opportunity. Directed flatfish fisheries would be legal year round and open shoreward of 40 fm during any period the groundfish fishery has any depth restrictions (i.e. 40, 30, 25, and 20 fathom lines). The flatfish fishery would not have any depth restrictions when the groundfish fishery has no depth restrictions. Fisheries will be monitored to ensure that mortality of yelloweye and canary rockfish are within the harvest guidelines.

In the event that the duration of total season is reduced from 12 months; the nearshore waters are closed to groundfish fishing due to management of nearshore species; or the Pacific halibut catch limit is reduced from 2011 levels, the fishery may be expanded to waters seaward of the RCA that is in effect at the time, promoting directed yellowtail rockfish and offshore lingcod opportunity. Fisheries will be monitored to ensure that mortality of yelloweye and canary rockfish are not in excess of the harvest guidelines.

Community Impacts

Depth restrictions for the recreational bottomfish fishery are the primary management method used to keep mortality of yelloweye and canary rockfish within their respective harvest guidelines (HG) in the Oregon recreational fisheries. Depth restrictions reduce overfished mortality because catch rates and discard mortality rates of overfished species are lesser in shallower depths. The No Action depth restrictions are all-depths from Jan-Feb, 40 fm from Apr-Sep, and all-depths Oct-Dec.

Although depth restrictions reduce overfished species mortality, they can also decrease angler trips by reducing the quantity and quality of fishable bottomfish grounds. Ports are disproportionately affected by depth restrictions due to varying amounts of fishing grounds by depth (PFMC 2011). For example, Newport is relatively unaffected by a 40 fm depth restriction because the majority (98%) of bottomfish grounds are shallower than 20 fm (Figure C-27). In contrast, Winchester Bay and Florence are greatly impacted by depth restrictions because nearly all bottomfish grounds are deeper than 40 fm. Other ports, such as Garibaldi and Gold Beach, where the majority of bottomfish grounds are between 20-40 fm, are relatively unaffected by 40 fm depth restrictions, but are greatly affected by 20 fm depth restrictions.

Under Alternative 1 mortality of yelloweye and canary rockfish in the groundfish fishery (under the No Action depth restrictions) and the Pacific halibut fishery are projected to be within the allocations (Table C-121) and expected angler trips are anticipated to be similar to what has been seen in recent years (Table C-118 and

Table C-119). However, projections are based on past catch rates and angler trips, and greater than expected values for these parameters could necessitate more conservative inseason depth restrictions and/or closures of the fisheries.

C.5.3 Oregon Recreational: Alternative 2

Alternative 2 analyzes ACLs of 101/104 mt for canary rockfish and 18 mt for yelloweye rockfish in 2013/14 (Table C-113) and sector specific allocations. Table C-122 shows the allocations, or model targets, for black, canary and yelloweye rockfish for the Oregon recreational fisheries.

Table C-122. Oregon Recreational Allocations or Model Targets under Alternative 2.

Species	**2013 Recreational Allocation or Model Target (mt)**	**2014 Recreational Allocation or Model Target (mt)**
Black rockfish	440.8	440.8
Canary rockfish	9.3	9.6
Yelloweye rockfish	2.6	2.6

Groundfish Seasons and Area Restrictions

Under Alternative 2, the season structure and area closures will all be the same as under the No Action Alternative and Alternative 1 above as yelloweye rockfish will be the most restrictive species under either alternative.

Groundfish Bag Limits and Size Limits
Under Alternative 2, the bag and size limits will all be the same as under the No Action Alternative and Alternative 1 above as yelloweye rockfish will be the most restrictive species under either alternative.

Pacific Halibut Seasons
Under Alternative 2, the recreational Pacific halibut fisheries should be able to proceed as in 2011 and 2012, in regards to days and areas open, etc., depending on the annual halibut quota. Since 2009, only sablefish and Pacific cod may be retained in the Pacific halibut fishery at any depth in the area north of Humbug Mountain, Oregon. It is expected that groundfish retention in the all-depth Pacific halibut fishery will be similarly limited in 2013 and 2014.

Additional Management Measures Analyzed
In keeping with the Council's intent of limiting the scope and number of changes to the No Action harvest specifications and management measures during the 2013-2014 cycle, no additional management measures were analyzed for the Oregon recreational fisheries. The No Action management measures (bag limits, depth restrictions, etc.) will provide the basis for keeping mortality of overfished species within sector specific HGs for 2013-2014.

Projected Impacts and Inseason Management Response
Under Alternative 2, and associated season structure and bag limits detailed above, the annual projected mortality of black, canary and yelloweye rockfish are in Table C-123.

Table C-117 shows recent mortality for the ten most landed species in the Oregon recreational fishery, including black rockfish. Species in

Table C-117, other than black rockfish, are not modeled; therefore a projections for 2013-2014 are unavailable. This table represents mortalties under similar season structure and bag limits to what will be in place under the No Action Alternative and may serve as a proxy for projections.

Table C-123. Projected mortality of species with Oregon recreational specific allocations under Alternative 2.

Species	Impacts (mt)
Black rockfish	297.7
Canary rockfish	4.7
Yelloweye rockfish	2.5

Community Impacts
Under Alternative 2, the community impacts, number of angler trips, will all be the same as under the No Action Alternative and Alternative 1 above as yelloweye rockfish will be the most restrictive species under either alternative.

C.5.4 Oregon Recreational: Alternative 3

Alternative 3 analyzes ACLs of 116/118 mt for canary rockfish and 18 mt for yelloweye rockfish (Table C-113 and Table C-114) and allocations.

Table C-120 shows the allocations, or model targets, for black, canary and yelloweye rockfish for the Oregon recreational fisheries under Alternative 3, which are the same as under Alternative 1.

Groundfish Seasons and Area Restrictions
Under Alternative 3, the season structure and area closures will all be the same as under the No Action Alternative and Alternative 1 above as yelloweye rockfish will be the most restrictive species under either alternative.

Groundfish Bag Limits and Size Limits
Under Alternative 3, the bag and size limits will all be the same as under the No Action Alternative and Alternative 1 above as yelloweye rockfish will be the most restrictive species under either alternative.

Pacific Halibut Seasons
Under Integrated Alternative 3, the recreational Pacific halibut fisheries should be able to proceed as in 2011 and 2012, in regards to days and areas open, etc., depending on the annual halibut quota. Since 2009, only sablefish and Pacific cod may be retained in the Pacific halibut fishery at any depth in the area north of Humbug Mountain, Oregon. It is expected that groundfish retention in the all-depth Pacific halibut fishery will be similarly limited in 2013 and 2014.

Additional Management Measures Analyzed
In keeping with the Council's intent of limiting the scope and number of changes to the No Action harvest specifications and management measures during the 2013-2014 cycle, no additional management measures were analyzed for the Oregon recreational fisheries. The No Action management measures (bag limits, depth restrictions, etc.) will provide the basis for keeping recreational overfished species mortality within the HGs for 2013-2014.

Projected Impacts and Inseason Management Response
Under Alternative 3, and associated season structure and bag limits detailed above, the annual projected mortality of black, canary and yelloweye rockfish are in Table C-123.

Table C-117 shows the mortatliy of the ten most landed species in the Oregon recreational fishery, including black rockfish. Species in

Table C-117, other than black rockfish, are not modeled; therefore projections for 2013-2014 are unavailable. This table represents recent mortality under similar season structures and bag limits to what will be in place under the No Action Alternative and may serve as a proxy for projections.

Community Impacts
Under Alternative 3, the community impacts, number of angler trips, will all be the same as under the No Action Alternative and Alternative 1 above as yelloweye rockfish will be the most restrictive species under either alternative.

C.5.5 Oregon Recreational: Alternative 4

Alternative 4 analyzes ACLs of 48/49 mt for canary rockfish and 18 met for yelloweye rockfish (Table C-113 and Table C-114) and sector specific allocations. Table C-124 shows the allocations, or model targets, for black, canary and yelloweye rockfish for the Oregon recreational fisheries. Under Integrated Alternative 4 canary rockfish will be the most restrictive species; therefore all management measures, will all be designed to reduce canary rockfish mortality from the No-Action Alternative.

Table C-124. Oregon Recreational Allocations or Model Targets under Alternative 4.

Species	2013 Recreational Allocation or Model Target (mt)	2014 Recreational Allocation or Model Target (mt)
Black rockfish	440.8	440.8
Canary rockfish	3.5	3.6
Yelloweye rockfish	2.6	2.6

Groundfish Seasons and Area Restrictions

Under Alternative 4, the Oregon recreational groundfish fishery should able to operate a year round fishery with further depth restrictions (25 or 20 fathoms) than are in place under No Actions. The groundfish fishery could be somewhat less restricted (30 fathoms instead of 25 or 20 fathoms) if the recreational Pacific halibut fishery were cancelled (Figure C-28).

Depth management is the main tool used for controlling canary and yelloweye rockfish catch in the Oregon recreational fishery. Two options are shown under Alternative 4: a year round groundfish fishery restricted to inside of 20 fm for the entire year and a year round groundfish fishery restricted to inside of 30 fm year round but with the Pacific halibut fishery cancelled. Both alternatives (4A and 4B) are more restrictive than the 2011-2012 Oregon recreational groundfish season under the No Action alternative. The options in the figure below will be refined for the Final EIS, once the council and public have had the opportunity to discuss the options.

Alt.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SQ	All depth			40 fm						All depth		
4A	20 fm											
4B	30 fm --No Halibut											

Figure C-28. Alternatives for the Oregon recreational fishery season in 2013-14 under Alternative 4.

Area Restriction Alternatives

No changes to the boundary of the Stonewall Bank YRCA would occur from those listed in the No-Action Alternative under Alternative 4, as the YRCA is a yelloweye rockfish savings area and has little effect on canary rockfish bycatch.

Groundfish Bag Limits and Size Limits

Under Alternative 4, the No-Action alternative bag limits for marine fish, lingcod, and flatfish would remain in place (Figure C-29) including no retention of yelloweye or canary rockfish at any time or depth. These daily-bag-limits provide the flexibility to make necessary adjustments through the yearly state process, reflecting the progression of the current year's fishery. The state process will likely start off each season with reduced marine and lingcod daily bag limits and may increase or further reduced them inseason depending on the progression of the fishery relative to the impact on species with harvest targets/guidelines and state landing caps.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Marine Bag Limit [1]	Ten (10)			1 Fish Cabezon Sub-Bag [2]						Ten (10)		
Lingcod Bag Limit	Three (3)											
Flatfish Bag Limit [3]	Twenty Five (25)											

Marine bag limit includes all species other than lingcod, salmon, steelhead, Pacific halibut, flatfish, surfperch, sturgeon, striped bass, pelagic tuna and mackerel species, and bait fish such as herring, anchovy, sardine, and smelt
From April 1 through September 30, the marine bag limit is Ten (10) fish per day, of which no more than one (1) may be cabezon
Flounders, soles, sanddabs, turbots and halibuts except Pacific halibut

Figure C-29. Oregon recreational groundfish season in 2013-14 under Integrate Alternative 4.

The shorebased fishery would be managed for a year round season as canary yelloweye rockfish are not impacted. Also, fishing for, take, retention and possession of sanddabs and "other flatfishes", excluding Pacific halibut could be legal year round and open shoreward of 40 fathoms during any period the groundfish fishery has any depth restrictions. The flatfish fishery would not have any depth restrictions when the groundfish fishery has no depth restrictions (i.e. 40, 30, 25 and 20 fm lines).

Pacific Halibut Seasons
Under Alternative 4A (Figure C-28), the Pacific halibut fishery would be able to proceed as under the No-Action alternative, however the groundfish fishery would have further depth restrictions than the No-Action Alternative. Under Alternative 4B, the groundfish fishery would be somewhat less restricted than under Alternative 4A; however the Pacific halibut fishery would not be allowed. Since 2009, only sablefish and Pacific cod may be retained in the Pacific halibut fishery at any depth in the area north of Humbug Mountain, Oregon. It is expected that groundfish retention in the all-depth Pacific halibut fishery will be similarly limited in 2013 and 2014, if the halibut fishery were allowed to proceed.

Additional Management Measures Analyzed
In keeping with the Council's intent of limiting the scope and number of changes to the No Action harvest specifications and management measures during the 2013-2014 cycle, no additional management measures were analyzed for the Oregon recreational fisheries. The No Action management measures (bag limits, depth restrictions, etc.) will provide the basis for keeping mortality of overfished species within the HGs for 2013-2014.

Projected Impacts and Inseason Management Response
Under Alternative 4, and associated season structure (Alternatives 4A and 4B) and bag limits detailed above, the annual projected mortality of black, canary and yelloweye rockfish are in Table C-125.

Table C-117 shows mortality for the ten most landed species in the Oregon recreational fishery, including black rockfish. Species in

Table C-117, other than black rockfish, are not modeled; therefore projections for 2013-2014 is unavailable. However it is anticipated that the further depth restrictions may increase catches of nearshore species, such as rockfish in the "other nearshore" group from what has occurred under the No Action regulations.

Table C-125. Projected Impacts of species with Oregon recreational specific allocations under Alternative 4.

Species	Allocation	SQ	Alt. 4A	Alt. 4B
Black rockfish	440.8	297.7	311.1	304.4
Canary rockfish	3.5/3.6	4.7	3.5	3.5
Yelloweye rockfish	2.6	2.5	1.5	1.6

Inseason Management Tools

Oregon has a responsive port based monitoring program through their Ocean Recreational Boat Survey (ORBS) and regulatory processes in place to track harvest and take actions inseason if necessary. The following are suggested management measures that could be implemented inseason if the 2013 (or 2014) fishery does not proceed as expected.

Inseason management action may be implemented in 2013 or 2014 to reduce the impacts of the Oregon recreational groundfish fishery. Inseason management tools, designed to mitigate mortality, include bag limit adjustments (including non-retention), length limit adjustments, gear restrictions, and season, days per week, depth, and area closures.

Season, depth, days open per week, and area closures are the primary inseason tools for limiting yelloweye rockfish and canary rockfish mortality, since retention of this species is prohibited. If catch rates indicate that the HGs for yelloweye rockfish will be reached prematurely, offshore depth closures may be implemented inseason at 30, 25, or 20 fm as these two species are less abundant nearshore and release survival rates are higher in shallow waters. Additionally, days per week may also be closed to reduce mortality. ODFW will monitor inseason progress toward the HG for canary rockfish and yelloweye rockfish. Regulations will depend upon the timing of the determination for their need.

Adjustments to the marine fish daily-bag limit to no more than 10 fish may be implemented to achieve season duration goals in the event of accelerated or decelerated black rockfish or other nearshore rockfish harvest. The lingcod daily bag limits may be adjusted to no more than 3 fish in the event the marine bag limit changes or the halibut catch limit is reduced from 2011 levels. Season and/or area closures may also be considered if harvest targets are projected to be attained. Closing one or more days per week is an inseason tool that could be used to limit mortality of any managed species. Closing certain days each week would help lengthen the duration of a fishery approaching a harvest guideline.

Non-retention and length restrictions are the likely inseason tools to use for cabezon and greenling as release survival is very high. They may also be used to reduce mortality of nearshore species, such as black rockfish and other nearshore rockfish species.

Gear restrictions and/or release technique requirements may be implemented to reduce the impact of depleted rockfish species if successful techniques are developed, researched, reviewed, and accepted. Research in this area is currently being conducted and will continue into 2013-2014, testing the effectiveness and selectivity of various gears and the survivability of rockfish released at depth.

Directed yellowtail rockfish and/or flatfish fisheries may be implemented inseason, as were implemented in 2004, in the event of a closure of the recreational groundfish fishery due to attainment federal or state harvest guidelines or targets. Specific gear restrictions may be implemented in the event that yellowtail rockfish and/or flatfish fisheries remain open during a groundfish closure. Additionally, the fishery may be expanded to waters seaward of the RCA, promoting directed yellowtail rockfish opportunity. Directed flatfish fisheries would be legal year round and open shoreward of 40 fm during any period the groundfish fishery has any depth restrictions (i.e. 40, 30, 25, and 20 fathom lines). The flatfish fishery would not have any depth restrictions when the groundfish fishery has no depth restrictions. Fisheries will be monitored to ensure that mortality of yelloweye and canary rockfish are within the HGs.

In the event that the duration of total season is reduced from 12 months; the nearshore waters are closed to groundfish fishing due to management of nearshore species; or the Pacific halibut catch limit is reduced from 2011 levels, the fishery may be expanded to waters seaward of the RCA that is in effect at the time, promoting directed yellowtail rockfish and offshore lingcod opportunity. Fisheries will be monitored to ensure that mortality of yelloweye and canary rockfish are not in excess of the HGs.

Community Impacts
Canary rockfish mortality from the bottomfish fishery under the No Action groundfish depth restrictions and the Pacific halibut fishery (4.68 mt) are projected to exceed the HG under Alternative 4 (Table C-124). If the 48 mt canary rockfish ACL is adopted, then much more restrictive bottomfish depth restrictions than No Action and/or closures of the Pacific halibut will be needed to keep projected mortality within the HG (Alternatives 4A and 4B; Figure C-28). As for yelloweye rockfish, greater than expected catch rates of canary rockfish and/or angler trips could result in even more restrictive depths restrictions and/or closures of the fisheries.

Decreases in angler trips from the No Action Alternative are expected for Alternatives 4A and 4B (Figure C-29) if Alternative 4 is adopted. Projections of decreases in groundfish angler trips were calculated by multiplying average groundfish angler trips during months with No Action depth restrictions (Table C-118 and

Table C-119) by the percentage of these trips that occurred deeper than the proposed depth restrictions during months with No Action depth restrictions (

Table C-126 and

Table C-127). This calculation removes angler trips that happened under No Action depth restrictions but would have been illegal under the proposed depth restrictions.

These projections represent the maximum number of angler trips that would have been expected to have been eliminated since anglers would have had the option of fishing shallower (permissible) depths, if possible or desired.

Table C-126. Percentage of bottomfish angler trips by depth bin (column labels) and port during months without depth restrictions (all-depth), 2009-2011. Data is unavailable prior to 2009 because anglers were not asked depth at which they fished.

Port	Charter				Private				Total			
	< 20	20-25	25-30	> 30	< 20	20-25	25-30	> 30	< 20	20-25	25-30	> 30
Astoria	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Garibaldi	19.1	0.0	2.4	78.5	15.8	9.4	0.0	74.8	18.1	3.0	1.6	77.3
Pacific City	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
Depoe Bay	69.3	9.0	1.8	19.9	84.1	2.7	0.0	13.2	71.4	8.1	1.5	19.0
Newport	89.6	0.0	0.0	10.4	92.2	0.0	0.5	7.2	90.0	0.0	0.1	9.9
Winchester	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Charleston	76.1	22.2	1.7	0.0	50.7	6.0	2.3	40.9	67.4	16.7	1.9	14.0
Bandon	100.0	0.0	0.0	0.0	79.1	20.9	0.0	0.0	82.0	18.0	0.0	0.0
Port Orford	53.8	0.0	0.0	46.2	85.2	14.8	0.0	0.0	75.0	10.0	0.0	15.0
Gold Beach	0.0	0.0	0.0	0.0	88.0	8.0	4.0	0.0	88.0	8.0	4.0	0.0
Brookings	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0

Table C-127. Percentage of bottomfish angler trips by depth bin (column labels) and port during months with 40 fm depth restrictions, 2009-2011.

Port	Charter				Private				Total			
	< 20	20-25	25-30	> 30	< 20	20-25	25-30	> 30	< 20	20-25	25-30	> 30
Astoria	66.9	0.0	0.0	33.1	96.5	0.0	0.0	3.5	88.2	0.0	0.0	11.8
Garibaldi	53.7	39.7	4.3	2.3	66.5	23.5	8.5	1.5	57.3	35.3	5.4	2.1
Pacific City	98.1	1.9	0.0	0.0	99.0	1.0	0.0	0.0	98.8	1.2	0.0	0.0
Depoe Bay	92.3	5.6	1.4	0.7	94.4	4.9	0.2	0.4	92.6	5.5	1.2	0.6
Newport	96.5	1.8	0.1	1.6	98.4	0.5	0.3	0.8	97.0	1.4	0.2	1.4
Winchester	0.0	0.0	0.0	0.0	76.1	0.0	0.0	23.9	76.1	0.0	0.0	23.9
Charleston	90.6	7.4	0.3	1.7	89.4	7.8	2.0	0.8	89.9	7.6	1.2	1.3
Bandon	83.4	13.9	2.7	0.0	79.1	15.0	5.2	0.8	81.7	14.3	3.7	0.3
Port Orford	76.5	11.8	11.8	0.0	85.5	10.9	3.6	0.0	83.1	11.1	5.8	0.0
Gold Beach	90.0	7.8	0.0	2.2	92.5	6.3	1.2	0.0	91.6	6.8	0.8	0.8
Brookings	92.8	3.0	3.7	0.6	99.2	0.4	0.2	0.2	97.8	1.0	1.0	0.3

The number of 2011 Pacific halibut angler trips (22,884) was used to project the number of trips that would be expected with cancelation of the fishery. Pacific halibut angler trips are related to the quota, and 2011 data was used because 2013-2014 quotas are unknown, but are expected to be similar to 2011.

Table C-128. Projected decreases in angler trips by boat type, port, and fishery for Alternatives 4A and 4B of Figure C-28. The number of trips and percent decrease from No Action regulations is shown for reference.

Port	Decline in trips with Alternative A									Status quo trips					
	Bottomfish			Pacific halibut			Combined			Bottomfish		Pacific halibut			%
	Charter	Private	Total	Charter	Private	Total	Charter	Private	Total	Charter	Private	Charter	Private	Total	decrease
Astoria	12	9	21	0	0	0	12	9	21	37	243	159	148	587	3.5
Garibaldi	1,789	2,525	4,314	0	0	0	1,789	2,525	4,314	3,548	3,812	574	2,457	10,392	41.5
Pacific City	5	24	29	0	0	0	5	24	29	337	2,753	6	705	3,801	0.8
Depoe Bay	970	129	1,099	0	0	0	970	129	1,099	9,208	1,713	1,211	552	12,684	8.7
Newport	546	135	680	0	0	0	546	135	680	10,984	5,089	1,781	9,505	27,359	2.5
Florence	0	0	0	0	0	0	0	0	0	0	0	0	241	241	0.0
Winchester	5	7	13	0	0	0	5	7	13	5	31	0	265	302	4.2
Charleston	365	917	1,282	0	0	0	365	917	1,282	3,221	5,794	325	969	10,309	12.4
Bandon	141	229	370	0	0	0	141	229	370	932	1,094	79	423	2,527	14.6
Port Orford	7	62	70	0	0	0	7	62	70	30	430	147	104	711	9.8
Gold Beach	145	190	335	0	0	0	145	190	335	731	2,372	9	106	3,218	10.4
Brookings	191	89	281	0	0	0	191	89	281	3,146	15,472	19	3,127	21,764	1.3
Total	4,178	4,315	8,493	0	0	0	4,178	4,315	8,493	32,181	38,804	4,310	18,602	93,896	9.0

Port	Decline in trips with Alternative B									Status quo trips					
	Bottomfish			Pacific halibut			Combined			Bottomfish		Pacific halibut			%
	Charter	Private	Total	Charter	Private	Total	Charter	Private	Total	Charter	Private	Charter	Private	Total	decrease
Astoria	12	9	21	159	148	307	171	156	328	37	243	159	148	587	55.8
Garibaldi	407	1,863	2,269	574	2,457	3,031	981	4,320	5,300	3,548	3,812	574	2,457	10,392	51.0
Pacific City	0	0	0	6	705	711	6	705	711	337	2,753	6	705	3,801	18.7
Depoe Bay	279	49	329	1,211	552	1,763	1,490	601	2,091	9,208	1,713	1,211	552	12,684	16.5
Newport	380	97	477	1,781	9,505	11,286	2,161	9,602	11,763	10,984	5,089	1,781	9,505	27,359	43.0
Florence	0	0	0	0	241	241	0	241	241	0	0	0	241	241	100.0
Winchester	5	7	13	0	265	265	5	273	278	5	31	0	265	302	92.2
Charleston	49	362	411	325	969	1,294	374	1,332	1,705	3,221	5,794	325	969	10,309	16.5
Bandon	0	7	7	79	423	502	79	430	509	932	1,094	79	423	2,527	20.1
Port Orford	0	0	0	147	104	251	147	104	251	30	430	147	104	711	35.3
Gold Beach	95	0	95	9	106	115	104	106	209	731	2,372	9	106	3,218	6.5
Brookings	15	19	34	19	3,127	3,146	34	3,146	3,180	3,146	15,472	19	3,127	21,764	14.6
Total	1,242	2,413	3,655	4,310	18,602	22,912	5,552	21,015	26,567	32,181	38,804	4,310	18,602	93,896	28.3

If the 48 mt Canary rockfish ACL alternative is adopted, Alternative 4A would be the preferred management measure alternative to keep mortality within the HG because fewer declines in angler trips are expected with Alternative 4A (8,493) than with Alternative 4B (26,567; Table C-128). With Alternative 4A, percent decreases of angler trips would be expected to be similar for the charter and private fleets (13% and 11% respectively). Declines would be expected for all ports (except for Florence, which has very few reefs, and Garibaldi (41.5% reduction) would be impacted much greater than the other ports (<15%) because there are few shallow water reefs in depths less than 20 fm.

Alternative 4A is projected to reduce annual saltwater angler expenditures (i.e., gas, lodging, food, charter tickets, tackle, bait, licenses, etc.) by $5.160 million, and more than half of this loss would be expected from Tillamook County ($3.626 million; Table C-129). Alternative 4B is projected to reduce annual saltwater angler expenditures by $14.265 million (nearly three times that of Alternative A).

Decreases in saltwater angler expenditures by county were calculated by multiplying saltwater angler expenditures (Dean Runyan Associates 2009) by the percent reduction in expected bottomfish angler trips due to the Alternative 4A and 4B depth restrictions and Alternative 4B cancellation of the Pacific halibut fishery.

Table C-129. Expected decreases in saltwater angler expenditures (all costs related to fishing trip) by county if the 48 mt canary rockfish ACL alternative is adopted and Alternatives A or B management measures (Figure C-28) are consequently implemented to keep mortality within the harvest guideline.

County	No Action $ (millions)	No Action Trips	Option 1 Δ Trips	Option 1 % Decrease	Option 1 Δ $	Option 2 Δ Trips	Option 2 % Decrease	Option 2 Δ $
Clatsop	5.766	5,545	-21	0.38	-0.022	-328	5.92	-0.342
Tillamook	21.235	24,026	-4,103	17.08	-3.626	-6,011	25.02	-5.313
Lincoln	21.466	51,353	-1,645	3.20	-0.687	-13,854	26.98	-5.791
Lane	2.628	814	0	0.00	0	-241	29.61	-0.778
Douglas	6.998	6,386	-13	0.20	-0.014	-278	4.35	-0.305
Coos	8.365	17,722	-1,456	8.22	-0.687	-2,214	12.49	-1.045
Curry	5.183	27,273	-650	2.38	-0.124	-3,640	13.35	-0.692
Total	71.641	133,119	-7,888	5.93	-5.16	-26,566	19.96	-14.266

$= millions of dollars of angler expenditures; trips = angler trips for all target species (e.g., tuna, salmon, bottomfish, halibut); Δ trips = projected decline in angler trips; Δ $ = projected decrease in angler expenditures. Clatsop= Astoria; Tillamook= Garibaldi and Pacific City; Lincoln= Depoe Bay and Newport; Lane= Florence; Douglas= Winchester Bay; Coos= Charleston and Bandon; Curry= Port Orford, Gold Beach, and Brookings.

Projected decreases in angler trips and angler expenditures are upper range projections because the model assumes that angler trips that occurred deeper than proposed depth restriction options would be eliminated; however, these anglers could have either fished shallower depths, targeted other species (i.e., salmon, Pacific halibut, or tuna), or moved to ports with greater quantities of groundfish reefs within the proposed depth restrictions. Therefore, it is possible, although unlikely, that there could be minimal declines in angler trips due to Alternatives 4A and 4B (lower range projection No Action trips). The most probable decrease in angler trips is between the upper and lower ranges because it would be assumed that a portion of anglers would not fish given the new regulations and the other portion would find substitute opportunities; however, only range projections can be made given current data. Better predictions of decreases in angler trips and expenditures due to new regulations could be made if data existed regarding potential changes in angler behaviors in response to regulatory changes. This data could be obtained via consultations with anglers or through a socio-economic survey.

C.5.6 Oregon Recreational: Alternative 5

Alternative 5 analyzes ACLs of 216 and 220 mt for canary rockfish and 18 mt for yelloweye rockfish in 2013/14 (Table C-113 and Table C-114) and sector specific allocations. Table C-130 shows the allocations, or model targets, for black, canary and yelloweye rockfish for the Oregon recreational fisheries.

Table C-130. Oregon Recreational Allocations or Model Targets under Alternative 5.

Species	2013 Recreational Allocation or Model Target (mt)	2014 Recreational Allocation or Model Target (mt)
Black rockfish	440.8	440.8
Canary rockfish	21.9	22.3
Yelloweye rockfish	2.6	2.6

Groundfish Seasons and Area Restrictions
Under Alternative 5, the season structure and area closures will all be the same as under the No Action Alternative and Alternative 1 above as yelloweye rockfish will be the most restrictive species under either alternative.

Groundfish Bag Limits and Size Limits
Under Alternative 5, the bag and size limits will all be the same as under the No Action Alternative and Alternative 1 above as yelloweye rockfish will be the most restrictive species under either alternative.

Pacific Halibut Seasons
Under Alternative 5, the recreational Pacific halibut fisheries should be able to proceed as in 2011 and 2012, in regards to days and areas open, etc., depending on the annual halibut quota. Since 2009, only sablefish and Pacific cod may be retained in the Pacific halibut fishery at any depth in the area north of Humbug Mountain, Oregon. It is expected that groundfish retention in the all-depth Pacific halibut fishery will be similarly limited in 2013 and 2014.

Additional Management Measures Analyzed
In keeping with the Council's intent of limiting the scope and number of changes to No Action harvest specifications and management measures during the 2013-2014 cycle, no additional management measures were analyzed for the Oregon recreational fisheries. No Action management measures (bag limits, depth restrictions, etc.) will provide the basis for keeping overfished species mortality within the HGs for 2013-2014.

Projected Impacts and Inseason Management Response
Under Integrated Alternative 5, and associated season structure and bag limits detailed above, the annual projected mortality of black, canary and yelloweye rockfish are in Table C-131.

Table C-117 shows recent mortality for the ten most landed species in the Oregon recreational fishery, including black rockfish. Species in

Table C-117, other than black rockfish, are not modeled; therefore projections for 2013-2014 are unavailable. This table represents recent mortality under similar season structure and bag limits to what will be in place under the No Action Alternative and may serve as a proxy for projections.

Table C-131. Projected mortality of species with Oregon recreational specific allocations under Alternative 5.

Species	Impacts (mt)
Black rockfish	297.7
Canary rockfish	4.7
Yelloweye rockfish	2.5

Community Impacts
Under Alternative 5, the community impacts, number of angler trips, will all be the same as under the No Action Alternative and Alternative 1 above as yelloweye rockfish will be the most restrictive species under either alternative.

C.5.7 Oregon Recreational: Alternative 6

Alternative 6 analyzes ACLs of 101 and 104 mt for canary rockfish and 18 mt for yelloweye rockfish in 2013/14 (Table C-113 and Table C-114) and sector specific allocations. Table C-132 shows the allocations, or model targets, for black, canary and yelloweye rockfish for the Oregon recreational fisheries, which is the same as Alternative 2.

Table C-132. Oregon Recreational Allocations or Model Targets under Alternative 6.

Species	2013 Recreational Allocation or Model Target (mt)	2014 Recreational Allocation or Model Target (mt)
Black rockfish	440.8	440.8
Canary rockfish	9.3	9.6
Yelloweye rockfish	2.6	2.6

Groundfish Seasons and Area Restrictions
Under Alternative 6, the season structure and area closures will all be the same as under the No Action Alternative and Alternative 2 above as yelloweye rockfish will be the most restrictive species under either alternative.

Groundfish Bag Limits and Size Limits
Under Alternative 6, the bag and size limits will all be the same as under the No Action Alternative and Alternative 2 above as yelloweye rockfish will be the most restrictive species under either alternative.

Pacific Halibut Seasons
Under Integrated Alternative 6, the recreational Pacific halibut fisheries should be able to proceed as in 2011 and 2012, in regards to days and areas open, etc., depending on the annual halibut quota. Since 2009, only sablefish and Pacific cod may be retained in the Pacific halibut fishery at any depth in the area north of Humbug Mountain, Oregon. It is expected that groundfish retention in the all-depth Pacific halibut fishery will be similarly limited in 2013 and 2014.

Additional Management Measures Analyzed
In keeping with the Council's intent of limiting the scope and number of changes to No Action harvest specifications and management measures during the 2013-2014 cycle, no additional management measures were analyzed for the Oregon recreational fisheries. No Action management measures (bag limits, depth restrictions, etc.) will provide the basis for keeping mortality of overfished species within the HGs for 2013-2014.

Projected Impacts and Inseason Management Response
Under Alternative 6, and associated season structure and bag limits detailed above, the annual projected mortality of black, canary and yelloweye rockfish are in Table C-133.

Table C-117 shows recent mortality for the ten most landed species in the Oregon recreational fishery, including black rockfish. Species in

Table C-117, other than black rockfish, are not modeled; therefore projections for 2013-2014 are unavailable. This table represents recent mortality under similar season structure and bag limits to what will be in place under the No Action Alternative and may serve as a proxy for projections.

Table C-133. Projected mortality of species with Oregon recreational specific allocations under Alternative 6.

Species	Impacts (mt)
Black rockfish	297.7
Canary rockfish	4.7
Yelloweye rockfish	2.5

Community Impacts
Under Alternative 6, the community impacts, number of angler trips, will all be the same as under the No Action Alternative and Alternative 2 above as yelloweye rockfish will be the most restrictive species under either alternative.

C.5.8 Oregon Recreational: Alternative 7

Alternative 7 analyzes ACLs of 147 and 151 mt for canary rockfish and 18 mt for yelloweye rockfish in 2013/14 (Table C-113 and Table C-114) and sector specific allocations. Table C-134 shows the allocations, or model targets, for black, canary and yelloweye rockfish for the Oregon recreational fisheries.

Table C-134. Oregon Recreational Allocations or Model Targets under Alternative 7.

Species	2013 Recreational Allocation or Model Target (mt)	2014 Recreational Allocation or Model Target (mt)
Black rockfish	440.8	440.8
Canary rockfish	14.3	14.7
Yelloweye rockfish	2.6	2.6

Groundfish Seasons and Area Restrictions
Under Alternative 7, the season structure and area closures will all be the same as under the No Action Alternative and Alternative 1 above as yelloweye rockfish will be the most restrictive species under either alternative.

Groundfish Bag Limits and Size Limits
Under Alternative 7, the bag and size limits will all be the same as under the No Action Alternative and Alternative 1 above as yelloweye rockfish will be the most restrictive species under either alternative.

Pacific Halibut Seasons
Under Alternative 7, the recreational Pacific halibut fisheries should be able to proceed as in 2011 and 2012, in regards to days and areas open, etc., depending on the annual halibut quota. Since 2009, only sablefish and Pacific cod may be retained in the Pacific halibut fishery at any depth in the area north of Humbug Mountain, Oregon. It is expected that groundfish retention in the all-depth Pacific halibut fishery will be similarly limited in 2013 and 2014.

Additional Management Measures Analyzed

In keeping with the Council's intent of limiting the scope and number of changes to No Action harvest specifications and management measures during the 2013-2014 cycle, no additional management measures were analyzed for the Oregon recreational fisheries. No Action management measures (bag limits, depth restrictions, etc.) will provide the basis for keeping mortality of overfished species within HGs for 2013-2014.

Projected Impacts and Inseason Management Response
Under Alternative 7, and associated season structure and bag limits detailed above, the annual projected mortality of black, canary and yelloweye rockfish are in Table C-135.

Table C-117 shows recent mortality for the ten most landed species in the Oregon recreational fishery, including black rockfish. Species in

Table C-117, other than black rockfish, are not modeled; therefore projections for 2013-2014 are unavailable. This table represents recent mortality under similar season structure and bag limits to what will be in place under the No Action Alternative and may serve as a proxy for projected impacts.

Table C-135. Projected mortality of species with Oregon recreational specific allocations under Alternative 7.

Species	Impacts (mt)
Black rockfish	297.7
Canary rockfish	4.7
Yelloweye rockfish	2.5

Community Impacts
Under Alternative 7, the community impacts, number of angler trips, will all be the same as under the No Action Alternative and Alternative 1 above as yelloweye rockfish will be the most restrictive species under either alternative.

C.5.9 Oregon Recreational: Summary of the Alternatives

This section summarizes the key effects of the No Action Alternative and the alternative for the Oregon recreational fishery. The alternatives are affected by the alternative ACLs for the overfished species, which are affected by the rebuilding alternatives for these stocks. For the Oregon recreational fishery, canary or yelloweye rockfish are the driving stock, depending on the alternative. This summary focuses on the effects of rebuilding the canary rockfish under alternative rebuilding plans (yelloweye rockfish ACL is held constant under all alternatives), expressed as alternative ACLs, including the time to rebuild the stocks; the corresponding economic implications to groundfish sectors, port groups, and fishing communities; the interaction of overfished species within the marine ecosystem; and the effects on non-groundfish species and the marine ecosystem. Alternative 2013-2014 groundfish management measures are designed to provide fishing opportunities to harvest healthy species within the constraints of alternative overfished species' ACLs. The following tables and figures provide an estimate of the bottom line biological and socioeconomic effects of the alternatives on the Oregon recreational fishery:

Table C-136. Change in Oregon Recreational Fishing Seasons and RCAs by Month under the Integrate Alternatives for 2013.

Alternative	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
No Action	all depth				40 fm				all depth			
1 (116 mt)	all depth				40 fm				all depth			
2 (101 mt)	all depth				40 fm				all depth			
3 (116 mt)	all depth				40 fm				all depth			
4A (48 mt)	20 fm											
4B (48 mt)	30 fm --No Halibut											
5 (516 mt)	all depth				40 fm				all depth			
6 (101 mt)	all depth				40 fm				all depth			
7 (147 mt)	all depth				40 fm				all depth			

Table C-137. Oregon recreational fishery bag limits under all Alternatives (no differences between the alternatives).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Marine Bag Limit [1]	Ten (10)				1 Fish Cabezon Sub-Bag [2]				Ten (10)			
Lingcod Bag Limit	Three (3)											
Flatfish Bag Limit [3]	Twenty Five (25)											

[1] *Marine bag limit includes all species other than lingcod, salmon, steelhead, Pacific halibut, flatfish, surfperch, sturgeon, striped bass, pelagic tuna and mackerel species, and bait fish such as herring, anchovy, sardine, and smelt*
[2] *From April 1 through September 30, the marine bag limit is Ten (10) fish per day, of which no more than one (1) may be cabezon*
[3] *Flounders, soles, sanddabs, turbots and halibuts except Pacific halibut*

Table C-138. Oregon recreational fishery mortality (in mt) of yelloweye (YE), canary (CAN) and black (BLK) rockfish under the alternatives and associated season structures (

Table C-136).

Integrated Alternative	YE	CAN	BLK
No Action	2.5	4.7	297.7
1 (116 mt)	2.5	4.7	297.7
2 (101 mt)	2.5	4.7	297.7
3 (116 mt)	2.5	4.7	297.7
4A (48 mt)	1.5	3.5	311.1
4B (48 mt)	1.6	3.5	304.4
5 (216 mt)	2.5	4.7	297.7
6 (101 mt)	2.5	4.7	297.7
7 (147 mt)	2.5	4.7	297.7

Table C-139. Estimated annual number of charter and private angler trips in the Oregon recreational bottomfish and halibut fisheries under the integrated alternatives and associated season structure.

Alternative	Bottomfish			Halibut			Combined		
	Charter	Private	Total	Charter	Private	Total	Charter	Private	Total
No Action	32,181	38,804	70,985	4,310	18,602	22,912	36,491	57,406	93,897
1 (116 mt)	32,181	38,804	70,985	4,310	18,602	22,912	36,491	57,406	93,897
2 (101 mt)	32,181	38,804	70,985	4,310	18,602	22,912	36,491	57,406	93,897
3 (116 mt)	32,181	38,804	70,985	4,310	18,602	22,912	36,491	57,406	93,897
4A (48 mt)	28,003	34,489	62,492	4,310	18,602	22,912	32,313	53,091	85,404
4B (48 mt)	30,939	36,391	67,330	0	0	0	30,939	36,391	67,330
5 (216 mt)	32,181	38,804	70,985	4,310	18,602	22,912	36,491	57,406	93,897
6 (101 mt)	32,181	38,804	70,985	4,310	18,602	22,912	36,491	57,406	93,897
7 (147 mt)	32,181	38,804	70,985	4,310	18,602	22,912	36,491	57,406	93,897

No Action
If no action were taken by the Council, the 2012 ACLs (17 mt for yelloweye rockfish and 107 mt for canary rockfish) and management measures (season structure, Table C-136; and bag limits

Table C-137) currently in place for the Oregon recreational fishery would remain in place for 2013-2014. The season structures, including depth restrictions, are intended to allow for a year round recreational bottomfish fishery, along with the recreational Pacific halibut fishery. Restricting the fishery to inside of 40 fm from April through September is designed to reduce yelloweye rockfish bycatch during months of high angler effort and yelloweye rockfish encounters. The projected mortality of black (297.7 mt), canary (4.7 mt) and yelloweye rockfish (2.5 mt) under this alternative are in

Table C-138. The projected numbers of charter and private angler trips (bottomfish, halibut and total) are included in Table C-139 and are similar to what has been seen in recent years under similar season structure. Angler expenditures are also expected to be similar to what has been seen in recent years.

Alternatives 1, 2, 3, 5, 6, and 7
Under Alternatives 1, 2, 3, 5, 6, and 7 the canary rockfish ACL is roughly equivalent to or higher than the No Action Alternative. The yelloweye rockfish ACL under all alternatives is 18 mt (compared to 17 mt under No Action) and will be the most limiting species to Oregon recreational fisheries, similar to the No Action Alternative. Based on this, no changes to the Oregon recreational fishery management measures (bag limit, season structure, size limits, etc.) are proposed. Therefore projected mortality (

Table C-138), angler trips (Table C-139), and angler expenditures are expected to be the same as with the No Action Alternative.

Alternatives 4
Under Alternative 4, canary rockfish will be the most limiting species to the Oregon recreational fisheries. Management measures will need to be put in place to reduce mortality of canary rockfish compared to No Action. Depth management is the main tool for controlling canary and yelloweye rockfish mortality in the Oregon recreational fishery. Two alternatives (A and B) of season/depth restrictions were considered under Alternative 4 (Table C-136). Alternative A has a year round season open only shoreward of 20 fathoms, with the Pacific halibut fishery proceeding as under the No Action Alternative. Alternative B has a year round season open only shoreward of 30 fm, with the Pacific halibut fishery cancelled. Catch projections for both alternatives A and B under Alternatives 4 and 8 are in

Table C-138. Projected mortality of canary and yelloweye rockfish are reduced from the No Action Alternative under alternatives A and B. Mortality of black rockfish increases from the No Action Alternative (311.1 mt for alternative A and 304.4 mt for alternative B,

Table C-138), however are still below the 440.8 mt harvest guideline. Bag limits for marine fish, lingcod and flatfish under the No Action Alternative would remain in place under both options under Alternative 4. In the Oregon recreational fishery model, changes to the bag limit do not have an effect on the projected mortality of canary or yelloweye rockfish. The seasonal cabezon 1 fish sub-bag limit (of the 7 fish marine bag limit, no more than one can be cabezon; April-September) will also remain in effect under these alternatives, as well as the No Action Alternative. The shore fishery would be a year round fishery as canary and yelloweye rockfish are not impacted. Fishing for sanddabs and “other flatfishes”, excluding Pacific halibut, would be legal year round without depth restrictions, except that fishing would be restricted to shoreward of 40 fathoms during any period the groundfish fishery has any depth restrictions. Extensions of the Stonewall Bank YRCA would not be necessary as it is not an area of high canary rockfish encounters.

The depth restrictions and possible cancellation of the Pacific halibut fishery necessary to reduce canary rockfish mortality under Alternative 4 will cause a reduction in the number of angler trips, both charter and private (Table C-139). The reduction in angler trips under alternative A (8,493 or 9% coastwide; Table C-128) is due to the depth restrictions in the bottomfish fishery. By restricting the bottomfish fishery to inside of 20 fathoms, the quantity and quality of fishing areas is greatly reduced from the 40 fm restriction under the No Action Alternative. The port of Garibaldi is expected to see the greatest decrease, 41.5 percent, as there are few fishable areas inside of 20 fathoms near that port. Additionally, the ports of Charleston/Coos Bay, Bandon, and Gold Beach are expected are projected to have greater than a ten percent reduction in the number of angler trips, while the port of Newport is only projected to have a 2.5 percent decrease in the number of angler trips. The projected decrease in angler expenditures under alternative A is $5.6 million coastwide, the majority ($3.6 million) coming from Tillamook County (port of Garibaldi; Table C-129).

The reduction in angler trips under alternative B (26,657 or 28.3 percent coastwide; Table C-128) is due to a combination of the depth restrictions in the bottomfish fishery (3,655 angler trips) and the cancellation of the Pacific halibut fishery (22,912 angler trips). By restricting the bottomfish fishery to inside of 30 fathoms, the quantity and quality of fishing areas is reduced from the 40 fm restriction under the No Action Alternative, but not as severely as under alternative A. However, cancelling the Pacific halibut fishery causes an even greater reduction in the number of angler trips. The ports of Astoria (5.8%), Garibaldi (51.0%), Newport (43.0%), Florence (100%), Winchester Bay (92.2%), and Port Orford (35.3%) are expected to see the number of angler trips decrease by greater than one third (Table C-128) from the No Action Alternative. The projected decrease in angler expenditures under alternative B is $14.3 million coastwide, with $5.3 million from Tillamook County (port of Garibaldi) and $5.8 million coming from Lincoln County (ports of Depoe Bay and Newport; Table C-129). The decrease in angler expenditures is primarily due to the cancellation of the Pacific halibut fishery.

C.6 California Recreational

C.6.1 California Recreational: No Action

Projected mortality and season structures for 2013-2014 under the No Action alternative are based on CDFG's updated RecFISH model. Model projections were calculated for the five recreational groundfish management areas using updated 2008, 2009, and 2010 RecFIN estimates; overfished species mortality are reported statewide. Recreational harvest guidelines for the No Action Alternative are reported in Table C-140. Under the No Action alternative, depth constraints and season length remain unchanged statewide (PFMC and NMFS. 2009).

Table C-140. No Action: California recreational allocations/harvest guidelines

Species	Harvest Guideline (mt)
Bocaccio	131
Canary Rockfish	14.5
Cowcod*	0.9
Yelloweye Rockfish	3.1

*Non-trawl allocation

Groundfish Seasons and Area Restrictions

The following recreational season applied in 2012 would remain in place under the No Action alternative (

Figure C-30). All divers and shore-based anglers are exempt from the seasonal closures for rockfish, cabezon, greenlings, lingcod, and California scorpionfish.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed				May 12–Oct 31 <20fm						Closed	
Mendocino	Closed				May 12–Aug 15<20fm			Closed				
San Francisco	Closed					Jun 1 – Dec 31 <30fm						
Central	Closed				May 1 – Dec 31 <40fm							
Southern	Closed		Mar 1 – Dec 31 <60fm									

Figure C-30. No Action: California recreational groundfish season structure for 2013-2014.

In 2009, four yelloweye rockfish conservation areas (YRCA) were adopted in the Northern and Mendocino Management Areas for use in management. The YRCAs include habitat in both state and Federal waters and can be implemented inseason (if needed) to reduce yelloweye rockfish mortality. To date, these YRCAs have not been implemented but would remain available under the No Action Alternative.

The California Fish and Game Commission (Commission) has implemented or is currently in the process of implementing marine protected areas (MPAs) throughout the entire state. When MPA implementation is complete, more than of 124 MPAs covering approximately 848 square miles (16 percent) of state waters will be in effect (CDFG 2011). Since most of these MPAs occur in state waters, many in 20 fathom or less, the available fishing areas, particularly in the Northern and Mendocino Management Areas, will be reduced.

Groundfish Bag Limits and Size Limits

Under the No Action Alternative, a statewide 10 fish rockfish, cabezon, and greenling bag limit with a sub-bag limit of 2 fish for bocaccio and greenlings and a 3 fish sub-bag limit for cabezon would remain in place. Retention of bronzespotted, canary, cowcod, and yelloweye rockfish was prohibited in 2011-2012 and would continue to be prohibited under the No Action alternative. The following bag limits would also apply:

- California scorpionfish – 5 fish
- Leopard shark – 3 fish
- Lingcod – 2 fish
- Sanddabs – None
- Soupfin shark – 1 fish

There is no bag limit for Pacific sanddab, Petrale sole and starry flounder. A bag limit of 10 fish of any one species within the 20 finfish maximum bag limit would apply to the remaining species in the groundfish FMP.

The following minimum size limits applied to 2011-2012 California recreational fisheries would be carried forward under the No Action alternative:

- Bocaccio – 10 inches
- California scorpionfish – 10 inches
- Cabezon – 15 inches
- Kelp greenling – 12 inches

- Leopard shark – 36 inches
- Lingcod – 22 inches

Projected Impacts and Inseason Management Response

Based on the updated model all overfished species, except yelloweye rockfish, are projected to be within allowable limits under the No Action (Table C-141). CDFG's RecFISH projection model was updated with 2010 data from RecFIN. These values are just pre-season projections and actual mortality may be different.

CDFG closely monitors yelloweye rockfish and cowcod – performing weekly tracking using preliminary CRFS field reports. These preliminary CFRS reports are converted into an anticipated catch value (ACV) in metric tons using catch and effort data from previous years. This weekly "proxy" value is then used to approximate catch during the five to eight week lag time in CRFS catch estimates. If angler effort or bycatch of overfished groundfish species changes dramatically from prior years, actual mortality can be higher or lower than projected. Based on the inseason tracking, if any of the overfished species harvest guidelines are projected to be attained inseason, CDFG could enact emergency management actions to slow and/or reduce catches. Management measures include closing one or more recreational groundfish management areas for boat based anglers, restricting recreational fishery seasons, and/or modifying depth restrictions.

Projections for non-overfished species are provided in Table C-142.

Table C-141. No Action: California recreational projected mortality of overfished species for 2013-2014.

Species	Projected Impacts (mt)
Bocaccio	50.7
Canary Rockfish	11.1
Cowcod	0.3
Yelloweye Rockfish	3.2

Table C-142. No Action: California recreational projected mortality of non-overfished species for 2013-2014.

Species	Projected Impacts (mt)
Black Rockfish	161.2
Blue Rockfish	56.7
Cabezon	23.9
California scorpionfish	77.0
Greenlings	14.4
Lingcod	117.4
Minor Nearshore Rockfish North	7.8
Minor Nearshore Rockfish South	245.7
Widow Rockfish	2.2

Community Impacts

Under the No Action alternative, California communities will continue to be negatively impacted by existing shallow depth restrictions and shorten seasons. The California recreational groundfish fishery has historically operated in deeper depths with longer seasons (PFMC. 2003); however, with more restrictive recreational harvest guidelines for overfished groundfish species, communities in all the management areas coast wide have seen drastic reductions in season length and considerable increases in depth restrictions. Management areas north of Point Arena have seen the most restrictive season and depth constraints. Due to these restrictions placed on the groundfish fishery and other marine fisheries in the region (e.g., salmon), many communities along the North Coast have seen a decrease in angler effort. In particular, the northern California ports of Crescent City, Humboldt Bay, Shelter Cove, and Fort Bragg have seen their season length slowly reduced over the past decade.

In addition to reduced season lengths and shallower depth restrictions, California coastal communities were impacted by a tsunami in March 2011, which temporarily closed some ports, damaged infrastructure, and destroyed vessels. Crescent City and Santa Cruz were both highly impacted by the disaster. As a result, boat launch ramps and gas stations were closed for evaluation, and private boat slips were repaired or completely rebuilt in both these communities.

C.6.2 California Recreational: Alternative 1 (Preferred)

The 2013-2014 California recreational groundfish season projected mortality and season structure under Alternative 1 are based on CDFG's updated RecFISH model. Model projections were calculated for the five recreational groundfish management areas using updated 2008, 2009, and 2010 RecFIN estimates; overfished species mortality are reported statewide. Table C-143 depicts Alternative 1 harvest guidelines for the 2013-2014 California recreational groundfish seasons. The proposed groundfish season structure and depth constraints listed out by recreational management area can be seen in

Figure C-31.

Under Alternative 1, overfished species allocations to the California recreational fishery are higher than the No Action alternative. Although there will be some increased opportunity compared to No Action, management measures will still have to be more restrictive than previous years (PFMC. 2003). Communities such as Shelter Cove will continue to be adversely impacted by the low yelloweye rockfish harvest guideline based on the Council's preferred catch sharing. The recreational fishery will not be able to fully utilize the available canary rockfish allocation under this alternative due to the low amount of yelloweye rockfish.

Table C-143. Alternative 1: California recreational allocations/harvest guidelines for 2013-2014.

Species	Harvest Guideline (mt)
Bocaccio	167.9/174.2
Canary Rockfish	22.6/23.3
Cowcod*	1.0
Yelloweye Rockfish	3.4

*Non-trawl allocation

Groundfish Seasons and Area Restrictions

Under Alternative 1, the season structure would be similar to the No Action alternative except for an increase in the season length for the Mendocino Management Area (

Figure C-31). All divers and shore-based anglers are exempt from the seasonal closures for rockfish, cabezon, greenlings, lingcod, and California scorpionfish.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed				May 15 – Oct 30 <20fm						Closed	
Mendocino	Closed				May 15 – Sept 2 <20fm				Closed			
San Francisco	Closed					Jun 1 – Dec 31 <30fm						
Central	Closed				May 1 – Dec 31 <40fm							
Southern	Closed		Mar 1 – Dec 31 <60fm									

Figure C-31. Alternative 1: California recreational groundfish season structure and depth constraints for 2013-2014.

Similar to No Action, yelloweye rockfish conservation areas (YRCA) would be available under this alternative and could be implemented inseason if catches are projected to exceed harvest guidelines.

The Commission has implemented or is currently in the process of implementing MPAs throughout the entire state. When MPA implementation is complete, more than of 124 MPAs covering approximately 848 square miles (16 percent) of state waters will be in effect (CDFG 2011). Since most of these MPAs occur in state waters, many in 20 fathom or less, the available fishing areas, particularly in the Northern and Mendocino Management Areas, will be reduced.

Groundfish Bag Limits and Size Limits

Under Alternative 1, there are no changes to the groundfish bag limits or size limits except for the following:

Bocaccio – Under Alternative 1, the No Action sub-bag limit for bocaccio is two fish, with a minimum size limit of 10 inches. CDFG is proposing to increase the sub-bag limit from two fish to three fish. The increase in the sub-bag limit is only expected to increase total bocaccio mortality by 11.5 percent (5.8 mt; Table C-144). CDFG is also proposing to remove the minimum size limit of ten inches. Removing the size limit is expected to increase total bocaccio mortality by 0.4 percent (0.2 mt; Table C-144). The proposed changes are not mutually exclusive and the impacts are additive. Currently bocaccio is the only rockfish species in the recreational sector that has a size limit and removing the size limit would reduce regulatory complexity. There are no expected increases to mortality for other overfished species as a result of these management measures.

Greenlings – Under Alternative 1, the No Action sub-bag limit for greenlings is two fish. CDFG is proposing to increase the sub-bag limit to 10 fish to maintain consistency with state regulations, which were modified to reflect the increased contribution to the “other fish” complex analyzed in the 2011-12 FEIS. By increasing the sub-bag limit, the estimated take would be approximately 15 mt (Table C-145). The Department is not proposing any changes to the minimum size restriction. There are no expected increases to other overfished species as a result of this increase.

Additional Management Measures Analyzed

Shelf Rockfish Retention in Cowcod Conservation Area (CCA)

Under Alternative 1, CDFG is requesting a modification to existing regulations governing recreational groundfish fishing within the Cowcod Conservation Areas (CCA) to allow retention of shelf rockfish taken during the open season for groundfish within the existing depth constraint of 20 fm. Removing the prohibition on shelf rockfish retention in depths of 20 fm or less in the CCA when fishing for rockfish is open will reduce discard mortality that currently occurs while in pursuit of other species within the 10 fish RCG bag limit. Under the proposed action, recreational anglers will meet their RCG bag limit sooner and with less discarding; reducing the chances of encounters with overfished species. Also, this change will make regulations more consistent with those in other management areas and other fisheries.

Increased mortality of shelf rockfish is expected to be minimal and can easily be accommodated within the recreational harvest guideline with a minimal risk of exceeding the ACLs. No ACLs for target or overfished species are expected to be exceeded as a result of this action.

Projected Impacts and Inseason Management Response
Under Alternative 1 the projected mortality of yelloweye rockfish increases by 0.2 mt compared to the No Action alternative, due to the increased season length in the Mendocino Management Area (Table C-144). No increases to other overfished species are expected. The number of angler trips is expected to increase under this alternative for both private/rental boats (PR) and the commercial passenger fishing vessels (CPFV). CDFG estimates that an increase of approximately 1,600 angler trips on PR boats and 300 angler trips on CPFVs could occur in the Mendocino Management Area.

Projections for non-overfished species are provided in Table C-145.

Table C-144. Alternative 1: California recreational projected mortality of overfished species for 2013-2014, including mortality from proposed changes to management measure.

Species	Projected Mortality (mt)	
Bocaccio	Two fish sub-bag limit (No Action)	50.7
	Three fish sub-bag limit	5.8
	Removing 10' minimum size length	0.2
	Total	56.7
Canary Rockfish	11.3	
Cowcod	0.3	
Yelloweye Rockfish	3.4	

Table C-145. Alternative 1: California recreational projected mortality of non-overfished species for 2013-2014. Results in parenthesis reflect changes to management measures other than season and depth.

Species	Projected Mortality (mt)
Black Rockfish	164.2
Blue Rockfish	57.1
Cabezon	24.2
California scorpionfish	77.0
Greenlings	14.4 (15.5)
Lingcod	119.3
Minor Nearshore Rockfish North	7.8
Minor Nearshore Rockfish South	248.0
Widow Rockfish	2.2

Similar to the No Action alternative, inseason management response would include closing one or more recreational groundfish management areas for boat based anglers, restricting recreational fishery seasons, and/or modifying depth restrictions.

Community Impacts
Under the preliminary preferred yelloweye rockfish ACL, the California recreational harvest guideline is 3.4 metric tons. This will allow the Mendocino Management Area season length to extend through the Labor Day holiday weekend (September 2). Under this scenario, the season length in the Mendocino

Management Area would be increased by 18 days relative to No Action, which is a 19.5 percent increase in angler days. Extending the season through Labor Day is critical for this area as it has one of the highest effort and profit potential because it is the prime camping and fishing season. Extending the season to September 2nd is expected to result in increased profits to business, benefiting local communities. Other California recreational groundfish management areas would not see an extension to the season length or reduction of the depth constraints under this alternative.

Under Alternative 1, California communities, particularly in the northern management areas, will continue to be negatively impacted by reduced season lengths and increased depth restrictions. Under this alternative, the Northern Management Area would have a five and a half month season length and a depth restriction of 20 fathoms where as the South region in Oregon, which is adjacent to this area, has an unrestricted depth constraint and a year-round season. One would theoretically expect management in both areas to be the same since they are located adjacent to one another – but that is not the case.

The California recreational groundfish fishery has historically operated in deeper depths with longer seasons (PFMC. 2003); however, with more restrictive recreational harvest guidelines for the overfished groundfish species, communities in all the management areas coast wide have seen drastic reductions in season length and considerable increases in depth restrictions. Management areas north of Point Arena have been subject to the most restrictive season and depth constraints. Due to these restrictions to the groundfish fishery and other marine fisheries in the region (e.g., salmon), many communities along the north coast have seen a decrease in angler effort. The port of Crescent City often competes with the Oregon ports of Brookings and Gold Beach, where fewer restrictions and lower fuel prices have attracted many anglers who used to fish out of Crescent City (Pomeroy et al. 2010).

In addition to reduced season lengths and shallower depth restrictions, California coastal communities were impacted by a tsunami in March 2011, which temporarily closed some ports, damaged infrastructure, and destroyed vessels. Crescent City and Santa Cruz were both highly impacted by the disaster. As a result, boat launch ramps and gas stations were closed for evaluation, and private boat slips were repaired or completely rebuilt in both these communities.

C.6.3 California Recreational: Alternative 2

The 2013-2014 California recreational groundfish season projected mortality and season structure under Alternative 2 are based on CDFG's updated RecFISH model. Model projections were calculated for the five recreational groundfish management areas using 2008, 2009, and 2010 RecFIN estimates; overfished species mortality are reported statewide. Table C-146 depicts Alternative 2 harvest guidelines for the 2013-2014 California recreational groundfish seasons. The proposed groundfish season structure and depth constraints listed out by recreational management area can be seen in

Figure C-32.

Under Alternative 2, allocations to the California recreational fishery are higher than the No Action alternative. Although there will be some increased opportunity compared to No Action, management measures will still have to be more restrictive than previous years (PFMC. 2003). Communities such as Shelter Cove will continue to be adversely impacted by the low yelloweye rockfish harvest guideline based on the Council's preferred catch sharing. The recreational fishery will not be able to fully utilize the available canary allocation under this alternative due to the low amount of yelloweye rockfish.

Table C-146. Alternative 2: California recreational allocations/harvest guidelines for 2013-2014.

Species	Harvest Guideline (mt)
Bocaccio	167.9/174.2
Canary Rockfish	19.2/19.9
Cowcod*	1.0
Yelloweye Rockfish	3.4

*Non-trawl allocation

Groundfish Seasons and Area Restrictions

Under Alternative 2, the season structure would be similar to the No Action alternative except for an increase in the season length for the Mendocino Management Area (

Figure C-32). All divers and shore-based anglers are exempt from the seasonal closures for rockfish, cabezon, greenlings, lingcod, and California scorpionfish.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed				May 15 – Oct 31 <20fm						Closed	
Mendocino	Closed				May 15 – Sept 2 <20fm				Closed			
San Francisco	Closed					Jun 1 – Dec 31 <30fm						
Central	Closed				May 1 – Dec 31 <40fm							
Southern	Closed		Mar 1 – Dec 31 <60fm									

Figure C-32. Alternative 2: California recreational groundfish season structure and depth constraints for 2013-2014.

Similar to No Action, the YRCAs would be available under this alternative and could be implemented inseason if catches are projected to exceed harvest guidelines.

The Commission has implemented or is currently in the process of implementing MPAs throughout the entire state. When MPA implementation is complete, more than of 124 MPAs covering approximately 848 square miles (16 percent) of state waters will be in effect (CDFG 2011). Since most of these MPAs occur in state waters, many in 20 fathom or less, the available fishing areas, particularly in the Northern and Mendocino Management Areas, will be reduced.

Groundfish Bag Limits and Size Limits

Under Alternative 2, there are no changes to the groundfish bag limits or size limits except for the following:

Bocaccio – Under Alternative 2, the No Action sub-bag limit for bocaccio is two fish, with a minimum size limit of 10 inches. CDFG is proposing to increase the sub-bag limit from two fish to three fish. The increase in the sub-bag limit is only expected to increase total bocaccio mortality by 11.5 percent (5.8 mt; Table C-147). CDFG is also proposing to remove the minimum size limit of ten inches. Removing the size limit is expected to increase total bocaccio mortality by 0.4 percent (0.2 mt; Table C-147). The proposed changes are not mutually exclusive and the impacts are additive. Currently bocaccio is the only rockfish species in the recreational sector that has a size limit and removing the size limit would reduce regulatory complexity. There are no expected increases to other overfished species mortality as a result of these management measures.

Greenlings – Under Alternative 2, the No Action sub-bag limit for greenlings is two fish. CDFG is proposing to increase the sub-bag limit to 10 fish to maintain consistency with state regulations, which were modified to reflect the increased contribution to the "other fish" complex analyzed in the 2011-12 FEIS. By increasing the sub-bag limit, the estimated take would be approximately 15.5 mt (Table C-148). The Department is not proposing any changes to the minimum size restriction. There are no expected increases to overfished species mortality as a result of this increase.

Additional Management Measures Analyzed
Shelf Rockfish Retention in Cowcod Conservation Area (CCA)
Under Alternative 2, CDFG is requesting a modification to existing regulations governing recreational groundfish fishing within the Cowcod Conservation Areas (CCA) to allow retention of shelf rockfish taken during the open season for groundfish within the existing depth constraint of 20 fm. Removing the prohibition on shelf rockfish retention in depths of 20 fm or less in the CCA when fishing for rockfish is open will reduce discard mortality that currently occurs while in pursuit of other species within the 10 fish RCG bag limit. Under the proposed action, recreational anglers will meet their RCG bag limit sooner and with less discarding; reducing the chances of encounters with overfished species. Also, this change will make regulations more consistent with those in other management areas and other fisheries.

Increased mortality of shelf rockfish is expected to be minimal and can easily be accommodated within the recreational harvest guideline with a minimal risk of exceeding the ACLs. No ACLs for target or overfished species are expected to be exceeded as a result of this action.

Projected Impacts and Inseason Management Response
Under Alternative 2 the projected mortality of yelloweye rockfish increases by 0.2 mt compared to the No Action alternative, due to the increased season length in the Mendocino Management Area (Table C-147). No increases to other overfished species are expected. The number of angler trips is expected to increase under this alternative for both private/rental boats (PR) and the commercial passenger fishing vessels (CPFV). CDFG estimates that an increase of approximately 1,600 angler trips on PR boats and 300 angler trips on CPFVs could occur in the Mendocino Management Area.

Projected mortality of non-overfished species are provided in Table C-148.

Table C-147. Alternative 2: California recreational projected mortality of overfished species for 2013-2014, including mortality from proposed changes to management measures.

Species	Projected Mortality (mt)	
Bocaccio	Two fish sub-bag limit (No Action)	50.7
	Three fish sub-bag limit	5.8
	Removing 10' minimum size length	0.2
	Total	56.7
Canary Rockfish	11.3	
Cowcod	0.3	
Yelloweye Rockfish	3.4	

Table C-148. Alternative 2: California recreational projected mortality of non-overfished species for 2013-2014. Results in parenthesis reflect changes to management measures other than season and depth.

Species	Projected Impacts (mt)
Black Rockfish	164.1
Blue Rockfish	57.1
Cabezon	24.2
California scorpionfish	77.0
Greenlings	14.4 (15.5)
Lingcod	119.3
Minor Nearshore Rockfish North	7.8
Minor Nearshore Rockfish South	248.0
Widow Rockfish	2.2

Similar to the No Action alternative, inseason management response would include closing one or more recreational groundfish management areas for boat based anglers, restricting recreational fishery seasons, and/or modifying depth restrictions.

Community Impacts

Under the preliminary preferred yelloweye rockfish ACL, the California recreational harvest guideline is 3.4 metric tons. This will allow the Mendocino Management Area season length to extend through the Labor Day holiday weekend (September 2). Under this scenario, the season length in the Mendocino Management Area would be increased by 18 days relative to No Action, which is a 19.5 percent increase in angler days. Extending the season through Labor Day is critical for this area as it has one of the highest effort and profit potential because it is the prime camping and fishing season. Extending the season to September 2nd is expected to result in increased profits to business, benefiting local communities. Other California recreational groundfish management areas would not see an extension to the season length or reduction of the depth constraints under this alternative.

Under Alternative 2, California communities, particularly in the northern management areas, will continue to be negatively impacted by reduced season lengths and increased depth restrictions. Under this alternative, the Northern Management Area would have a five and a half month season length and a depth restriction of 20 fathoms where as the South region in Oregon, which is adjacent to this area, has an unrestricted depth constraint and a year-round season. One would theoretically expect management in both areas to be the same since they are located adjacent to one another – but that is not the case.

The California recreational groundfish fishery has historically operated in deeper depths with longer seasons (PFMC. 2003); however, with more restrictive recreational harvest guidelines for the overfished groundfish species, communities in all the management areas coast wide have seen drastic reductions in season length and considerable increases in depth restrictions. Management areas north of Point Arena have been subject to the most restrictive season and depth constraints. Due to these restrictions to the groundfish fishery and other marine fisheries in the region (e.g., salmon), many communities along the north coast have seen a decrease in angler effort. The port of Crescent City often competes with the Oregon ports of Brookings and Gold Beach, where fewer restrictions and lower fuel prices have attracted many anglers who used to fish out of Crescent City (Pomeroy et al. 2010).

In addition to reduced season lengths and shallower depth restrictions, California coastal communities were impacted by a tsunami in March 2011, which temporarily closed some ports, damaged infrastructure, and destroyed vessels. Crescent City and Santa Cruz were both highly impacted by the disaster. As a result, boat launch ramps and gas stations were closed for evaluation, and private boat slips were repaired or completely rebuilt in both these communities.

C.6.4 California Recreational: Alternative 3

The 2013-2014 California recreational groundfish season projected mortality and season structure under Alternative 3 are based on CDFG's updated RecFISH model. Model projections were calculated for the five recreational groundfish management areas using updated 2008, 2009, and 2010 RecFIN estimates; overfished species mortality are reported statewide. Table C-149 depicts Alternative 3 harvest guidelines for the 2013-2014 California recreational groundfish seasons. The proposed groundfish season structure and depth constraints listed out by recreational management area can be seen in

Figure C-33.

Under Alternative 3, allocations to the California recreational fishery are higher than the No Action alternative. Although there will be some increased opportunity compared to No Action, management measures will still have to be more restrictive than previous years (PFMC. 2003). Communities such as Shelter Cove will continue to be adversely impacted by the low yelloweye rockfish harvest guideline based on the Council's preferred catch sharing. The recreational fishery will not be able to fully utilize the available canary allocation under this alternative due to the low amount of yelloweye rockfish.

Table C-149. Alternative 3: California recreational allocations/harvest guidelines for 2013-2014.

Species	Harvest Guideline (mt)
Bocaccio	167.9/174.2
Canary Rockfish	22.6/23.3
Cowcod*	1.0
Yelloweye Rockfish	3.4

*Non-trawl allocation

Groundfish Seasons and Area Restrictions
Under Alternative 3, the season structure would be similar to the No Action alternative except for an increase in the season length for the Mendocino Management Area (

Figure C-33). All divers and shore-based anglers are exempt from the seasonal closures for rockfish, cabezon, greenlings, lingcod, and California scorpionfish.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed				May 15 – Oct 31 <20fm						Closed	
Mendocino	Closed				May 15 – Sept 2 <20fm				Closed			
San Francisco	Closed					Jun 1 – Dec 31 <30fm						
Central	Closed				May 1 – Dec 31 <40fm							
Southern	Closed		Mar 1 – Dec 31 <60fm									

Figure C-33. Alternative 3: California recreational groundfish season structure and depth constraints for 2013-2014.

Similar to No Action, the YRCAs would be available under this alternative and could be implemented inseason if catches are projected to exceed harvest guidelines.

The Commission has implemented or is currently in the process of implementing MPAs throughout the entire state. When MPA implementation is complete, more than of 124 MPAs covering approximately 848 square miles (16 percent) of state waters will be in effect (CDFG 2011). Since most of these MPAs occur in state waters, many in 20 fathom or less, the available fishing areas, particularly in the Northern and Mendocino Management Areas, will be reduced.

Groundfish Bag Limits and Size Limits
Under Alternative 3, there are no changes to the groundfish bag limits or size limits except for the following:

Bocaccio – Under Alternative 3, the No Action sub-bag limit for bocaccio is two fish, with a minimum size limit of 10 inches. CDFG is proposing to increase the sub-bag limit from two fish to three fish. The increase in the sub-bag limit is only expected to increase total bocaccio mortality by 11.5 percent (5.8 mt; Table C-150). CDFG is also proposing to remove the minimum size limit of ten inches. Removing the size limit is expected to increase total bocaccio mortality by 0.4 percent (0.2 mt; Table C-150). The proposed changes are not mutually exclusive and the impacts are additive. Currently bocaccio is the only rockfish species in the recreational sector that has a size limit and removing the size limit would reduce regulatory complexity. There are no expected increases to other overfished species mortality as a result of these management measures.

Greenlings – Under Alternative 3, the No Action sub-bag limit for greenlings is two fish. CDFG is proposing to increase the sub-bag limit to 10 fish to maintain consistency with state regulations, which were modified to reflect the increased contribution to the "other fish" complex analyzed in the 2011-12 FEIS. By increasing the sub-bag limit, the estimated take would be approximately 15.5 mt (Table C-151). The Department is not proposing any changes to the minimum size restriction. There are no expected increass to overfished species mortality as a result of this increase.

Additional Management Measures Analyzed

Shelf Rockfish Retention in Cowcod Conservation Area (CCA)
Under Alternative 3, CDFG is requesting a modification to existing regulations governing recreational groundfish fishing within the Cowcod Conservation Areas (CCA) to allow retention of shelf rockfish taken during the open season for groundfish within the existing depth constraint of 20 fm. Removing the prohibition on shelf rockfish retention in depths of 20 fm or less in the CCA when fishing for rockfish is open will reduce discard mortality that currently occurs while in pursuit of other species within the 10 fish RCG bag limit. Under the proposed action, recreational anglers will meet their RCG bag limit sooner and with less discarding; reducing the chances of encounters with overfished species. Also, this change will make regulations more consistent with those in other management areas and other fisheries.

Increased mortality of shelf rockfish is expected to be minimal and can easily be accommodated within the recreational harvest guideline with a minimal risk of exceeding the ACLs. No ACLs for target or overfished species are expected to be exceeded as a result of this action.

Projected Impacts and Inseason Management Response
Under Alternative 3 the projected mortality of yelloweye rockfish increase by 0.2 mt compared to the No Action alternative, due to the increased season length in the Mendocino Management Area. No increases to other overfished species are expected (Table C-150). The number of angler trips is expected to increase under this alternative for both private/rental boats (PR) and the commercial passenger fishing vessels (CPFV). CDFG estimates that an increase of approximately 1,600 angler trips on PR boats and 300 angler trips on CPFVs could occur in the Mendocino Management Area.

Projected mortality of non-overfished species are provided in Table C-151.

Table C-150. Alternative 3: California recreational projected mortality of overfished species for 2013-2014, including impacts from proposed changes to management measures.

Species	Projected Mortality (mt)	
Bocaccio	Two fish sub-bag limit (No Action)	50.7
	Three fish sub-bag limit	5.8
	Removing 10' minimum size length	0.2
	Total	56.7
Canary Rockfish	11.3	
Cowcod	0.3	
Yelloweye Rockfish	3.4	

Table C-151. Alternative 3: California recreational projected mortality of non-overfished species for 2013-2014. Results in parenthesis reflect changes to management measures other than season and depth.

Species	Projected mortality (mt)
Black Rockfish	164.1
Blue Rockfish	57.1
Cabezon	24.2
California scorpionfish	77.0
Greenlings	14.4 (15.4)
Lingcod	119.3
Minor Nearshore Rockfish North	7.8
Minor Nearshore Rockfish South	248.0
Widow Rockfish	2.2

Similar to the No Action alternative, inseason management response would include closing one or more recreational groundfish management areas for boat based anglers, restricting recreational fishery seasons, and/or modifying depth restrictions.

Community Impacts

Under the preliminary preferred yelloweye rockfish ACL, the California recreational harvest guideline is 3.4 metric tons. This will allow the Mendocino Management Area season length to extend through the Labor Day holiday weekend (September 2). Under this scenario, the season length in the Mendocino Management Area would be increased by 18 days relative to No Action, which is a 19.5 percent increase in angler days. Extending the season through Labor Day is critical for this area as it has one of the highest effort and profit potential because it is the prime camping and fishing season. Extending the season to September 2nd is expected to result in increased profits to business, benefiting local communities. Other California recreational groundfish management areas would not see an extension to the season length or reduction of the depth constraints under this alternative.

Under Alternative 3, California communities, particularly in the northern management areas, will continue to be negatively impacted by reduced season lengths and increased depth restrictions. Under this alternative, the Northern Management Area would have a five and a half month season length and a depth restriction of 20 fathoms where as the South region in Oregon, which is adjacent to this area, has an unrestricted depth constraint and a year-round season. One would theoretically expect management in both areas to be the same since they are located adjacent to one another – but that is not the case.

The California recreational groundfish fishery has historically operated in deeper depths with longer seasons (PFMC. 2003); however, with more restrictive recreational harvest guidelines for the overfished groundfish species, communities in all the management areas coast wide have seen drastic reductions in season length and considerable increases in depth restrictions. Management areas north of Point Arena have been subject to the most restrictive season and depth constraints. Due to these restrictions to the groundfish fishery and other marine fisheries in the region (e.g., salmon), many communities along the north coast have seen a decrease in angler effort. The port of Crescent City often competes with the Oregon ports of Brookings and Gold Beach, where fewer restrictions and lower fuel prices have attracted many anglers who used to fish out of Crescent City (Pomeroy et al. 2010).

In addition to reduced season lengths and shallower depth restrictions, California coastal communities were impacted by a tsunami in March 2011, which temporarily closed some ports, damaged infrastructure, and destroyed vessels. Crescent City and Santa Cruz were both highly impacted by the disaster. As a result, boat launch ramps and gas stations were closed for evaluation, and private boat slips were repaired or completely rebuilt in both these communities.

C.6.5 California Recreational: Alternative 4

The 2013-2014 California recreational groundfish season projected mortality and season structure under Alternative 4 are based on CDFG's updated RecFISH model. Model projections were calculated for the five recreational groundfish management areas using updated 2008, 2009, and 2010 RecFIN estimates; overfished species mortality are reported statewide. Table C-152 depicts the recreational harvest guidelines for the 2013-2014 California recreational groundfish seasons under this alternative. The proposed groundfish season structure and depth constraints listed out by recreational management area can be seen in

Figure C-34,

Figure C-35,

Figure C-36, and

Figure C-37.

Under Alternative 4, the allocations to the California recreational fishery are the same or higher than the No Action alternative except for canary rockfish, which is drastically reduced. As a result, the low canary rockfish allocation based on the Council's catch sharing plan will adversely impact communities statewide. These impacts on communities vary depending on which alternative is being evaluated. The recreational fishery will not be able to fully utilize the available yelloweye rockfish allocation under this alternative due to the low allocation of canary rockfish.

Table C-152. Alternative 4: California recreational harvest guidelines for 2013-2014.

Species	Harvest Guideline (mt)
Bocaccio	167.9/174.2
Canary Rockfish	7.1/7.4
Cowcod*	1.0
Yelloweye Rockfish	3.4

*Non-trawl allocation

Groundfish Seasons and Area Restrictions
Under this alternative, the tradeoffs between different season lengths and depth restrictions were explored (Alternatives a and b). Under Alternative a, longer seasons and more restrictive depth constraints were examined; whereas Alternative b explored shorter seasons and less restrictive depths.

Under Alternative a, the depth restrictions would be more constraining in most management areas compared to the No Action alternative, except for the northern management areas (

Figure C-34,

Figure C-35). Due to the low canary rockfish encounter rates, the season length in the Northern and Mendocino Management Areas could be extended under this alternative; the depth restrictions would be shallower as well. The San Francisco and Central Management Areas will see a decrease in season length and a significant increase in the depth restriction compared to the No Action Alternative. The San Francisco and Central Management Areas have historically seen the highest canary rockfish encounters. The Southern Management will see an increase in the depth restriction.

Competition for space with the commercial nearshore fishery and the potential for localized depletion become even more problematic under when the recreational fishery is open in the northern management areas because the two fisheries operate in similar depths.

2013												
Management Area	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Northern	Closed				May 1 – Oct 31 < 20fm						Closed	
Mendocino	Closed				May 1 – Oct 31 < 20fm						Closed	
San Francisco	Closed					June 1 – Nov 30 < 20fm						C
Central	Closed					June 1 – Nov 30 < 20fm						C
Southern	Closed		Mar 1 – Dec 31 <40fm									

Figure C-34. Alternative 4 (Alternative a): California recreational groundfish season structure and depth constraints for 2013.

2014												
Management Area	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Northern	Closed				May 1 – Nov 30 <20fm							C
Mendocino	Closed				May 1 – Nov 30 <20fm							C
San Francisco	Closed					June 1 – Nov 30 < 20fm						C
Central	Closed					June 1 – Dec 31 < 20fm						
Southern	Closed		March 1 – Dec 31 < 40fm									

Figure C-35. Alternative 4 (Alternative a): California recreational groundfish season structure and depth constraints for 2014.

Under Alternative b, the season lengths would be more constraining in most management areas compared to the No Action alternative, except for the Southern Management Area (

Figure C-36,

Figure C-37). In addition to season length, the Southern and Central Management Areas will see shallower depth restrictions as well. Due to the low canary encounter rates, the depth restrictions would be deeper in the Northern and Mendocino Management Areas under this alternative. The San Francisco and Central Management Areas will see a significant decrease in season length compared to the No Action Alternative. The San Francisco and Central Management Areas have historically seen the highest canary rockfish encounters. The Southern Management will have a shallower depth restriction.

2013												
Management Area	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Northern	Closed					Jun 1-Aug 31 <30fm			Closed			
Mendocino	Closed					Jun 1-Aug 31 <30fm			Closed			
San Francisco	Closed				May 15 - Aug 31 <30fm				Closed			
Central	Closed				May 15 - Aug 31 <30fm				Closed			
Southern	Closed		Mar 1 – Dec 31 < 40fm									

Figure C-36. Alternative 4 (Alternative b): California recreational groundfish season structure and depth constraints for 2013.

2014												
Management Area	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Northern	Closed					Jun 1-Aug 31<30fm			Closed			
Mendocino	Closed					Jun 1-Aug 31<30fm			Closed			
San Francisco	Closed				May 1-Aug 31<30fm				Closed			
Central	Closed				May 1-Aug 31<30fm				Closed			
Southern	Closed		March 1 – Dec 31 <40fm									

Figure C-37. Alternative 4 (Alternative b): California recreational groundfish season structure and depth constraints for 2014.

Similar to No Action alternative, the YRCAs would be available under this alternative and could be implemented inseason if catches are projected to exceed harvest guidelines.

The Commission has implemented or is currently in the process of implementing MPAs throughout the entire state. When MPA implementation is complete, more than of 124 MPAs covering approximately 848 square miles (16 percent) of state waters will be in effect (CDFG 2011). Since most of these MPAs occur in state waters, many in 20 fathom or less, the available fishing areas, particularly in the Northern and Mendocino Management Areas, will be reduced.

Groundfish Bag Limits and Size Limits

Under Alternative 4, there are no changes to the groundfish bag limits or size limits except for the following:

<u>Bocaccio</u> – Under Alternatives a and b, the No Action sub-bag limit for bocaccio is two fish, with a minimum size of ten inches. CDFG is proposing to increase the sub-bag limit from two fish to three fish. The increase in the sub-bag limit is only expected to increase total bocaccio mortality by 11.5 percent (2.3 mt under Alternative a and 2.6 under Alternative b; Table C-153, Table C-154). CDFG is also proposing to remove the minimum size limit of ten inches. Removing the size limit is expected to increase total bocaccio mortality by 0.1 mt (Table C-153, Table C-154). The proposed changes are not mutually exclusive, and the impacts are additive. The proposed changes are not mutually exclusive and the impacts are additive. Currently bocaccio is the only rockfish species in the recreational sector that has a size limit and removing the size limit would reduce regulatory complexity. There are no expected increases to other overfished species mortality as a result of these management measures.

<u>Greenlings</u> – Under Alternatives a and b, the No Action sub-bag limit for greenlings is two fish. CDFG is proposing to increase the sub-bag limit to 10 fish to maintain consistency with state regulations, which were modified to reflect the increased contribution to the "other fish" complex analyzed in the 2011-12 FEIS. By increasing the sub-bag limit, the estimated take under Alternative a would be approximately 16.9 mt and 17.7 mt (in 2013 and 2014); under Alternative b the estimated take would be 10.1 mt and 10.7 mt (Table C-155; Table C-156).

The Department is not proposing any changes to the minimum size restriction. There are no expected increases to overfished species mortality as a result of this increase.

Additional Management Measures Analyzed

Shelf Rockfish Retention in Cowcod Conservation Area (CCA)

Under Alternatives a and b, CDFG is requesting a modification to existing regulations governing recreational groundfish fishing within the Cowcod Conservation Areas (CCA) to allow retention of shelf rockfish taken during the open season for groundfish within the existing depth constraint of 20 fm. Removing the prohibition on shelf rockfish retention in depths of 20 fm or less in the CCA when fishing for rockfish is open will reduce discard mortality that currently occurs while in pursuit of other species within the 10 fish RCG bag limit. Under the proposed action, recreational anglers will meet their RCG bag limit sooner and with less discarding; reducing the chances of encounters with overfished species. Also, this change will make regulations more consistent with those in other management areas and other fisheries.

Increased mortality of shelf rockfish are expected to be minimal and can easily be accommodated within the recreational harvest guideline with a minimal risk of exceeding the ACLs. No ACLs for target or overfished species are expected to be exceeded as a result of this action.

Projected Impacts and Inseason Management Response

The projected mortality under Alternatives a and b, compared to the No Action alternative, includes a decrease of 0.1 metric ton of yelloweye rockfish, a decrease of 28 metric tons of bocaccio, 4.0 metric tons of canary rockfish and a decrease of 0.3 metric ton of cowcod. The projected mortality for all overfished species under this alternative are anticipated to stay below the harvest recreational guideline (Table C-153; Table C-154).

Projected mortality of non-overfished species are provided in Table C-155 and Table C-156.

Table C-153. Alternative 4 (Alternative a and b): California recreational projected mortality of overfished species for 2013, including impacts from proposed changes to management measures.

Species	Projected Mortality (mt)	
Bocaccio	Two fish sub-bag limit (No Action)	20.0/22.5
	Three fish sub-bag limit	2.3/2.6
	Removing 10' minimum size length	0.1/0.1
	Total	22.4/22.5
Canary Rockfish	7.1/7.1	
Cowcod	0/0	
Yelloweye Rockfish	2.8/3.1	

Table C-154. Alternative 4 (Alternative a and b): California recreational projected mortality of overfished species for 2014, including impacts from proposed changes to management measures.

Species	Projected Mortality (mt)	
Bocaccio	Two fish sub-bag limit (No Action)	20.1/22.8
	Three fish sub-bag limit	2.3/2.6
	Removing 10' minimum size length	0.1/0.3
	Total	22.5/25.5
Canary Rockfish	7.4/7.4	
Cowcod	0/0	
Yelloweye Rockfish	2.8/3.0	

Table C-155. Alternative 4 (Alternative a and b): California recreational projected mortality of non-overfished species for 2013. Results in parenthesis reflect changes to management measures other than season and depth.

Species	Projected Mortality (mt)	
	Alt a	Alt b
Black Rockfish	178.0	119.7
Blue Rockfish	36.2	27.9
Cabezon	24.8	17.4
California scorpionfish	77.0	69.7
Greenlings	15.7 (16.9)	9.4(10.1)
Lingcod	112.5	74.7
Minor Nearshore Rockfish North	8.4	4.6
Minor Nearshore Rockfish South	195	142.5
Widow Rockfish	0.4	0.6

Table C-156. Alternative 4 (Alternative a and b): California recreational projected mortality of non-overfished species for 2014. Results in parenthesis reflect changes to management measures other than season and depth.

Species	Projected Impacts (mt)	
	Alt a	Alt b
Black Rockfish	180.4	123.4
Blue Rockfish	37.7	30.1
Cabezon	25.4	18.1
California scorpionfish	69.7	69.7
Greenlings	16.5 (17.7)	10.0 (10.7)
Lingcod	115.9	78.3
Minor Nearshore Rockfish North	8.9	4.6
Minor Nearshore Rockfish South	202.9	152.5
Widow Rockfish	0.4	0.6

Similar to the No Action alternative, inseason management response would include closing one or more recreational groundfish management areas for boat based anglers, restricting recreational fishery seasons, and/or modifying depth restrictions.

Community Impacts

Under Alternatives a and b, the California recreational harvest guideline for canary rockfish is 7.1 metric ton in 2013 and 7.4 metric ton in 2014. These harvest guidelines make canary rockfish the most constraining species for the recreational sector. The recreational fishery will not be able to fully utilize the available yelloweye rockfish allocation under this alternative due to the low allocation of canary rockfish.

Under the Alternative a, the total season length in all the management areas will have been increased by 46 angler days in 2013 (4.6 percent increase) and 137 angler days in 2014 (13.8 percent increase) relative to the No Action alternative. However, due to projected high encounter rates of canary rockfish in deeper water, particularly in the San Francisco, Central and Southern Management Areas, the depth restrictions are increased significantly.

Under Alternative a, California communities, particularly in the northern management areas, will continue to be negatively impacted by reduced season lengths and increased depth restrictions. Under this alternative, the Northern Management Area would have a five and a half month season length and a depth restriction of 20 fathoms where as the South region in Oregon, which is adjacent to this area, has an unrestricted depth constraint and a year-round season. One would theoretically expect management in both areas to be the same since they are located adjacent to one another – but that is not the case.

The California recreational groundfish fishery has historically operated in deeper depths with longer seasons (PFMC. 2003); however, with more restrictive recreational harvest guidelines for the overfished groundfish species, communities in all the management areas coast wide have seen drastic reductions in season length and considerable increases in depth restrictions. Management areas north of Point Arena have been subject to the most restrictive season and depth constraints. Due to these restrictions to the groundfish fishery and other marine fisheries in the region (e.g., salmon), many communities along the north coast have seen a decrease in angler effort. The port of Crescent City often competes with the Oregon ports of Brookings and Gold Beach, where fewer restrictions and lower fuel prices have attracted many anglers who used to fish out of Crescent City (Pomeroy et al. 2010).

Under Alternative b, the total season length in all the management areas will have been decreased by approximately 300 angler days in 2013 (30 percent decrease) and 254 angler days in 2014 (26 percent decrease) relative to the No Action alternative. However, due to projected high encounter rates of canary rockfish in deeper water, particularly in the San Francisco, Central and Southern Management Areas, the depth restrictions are increased significantly along with a sharp decrease in season length.

Under Alternative b, California communities, particularly in the northern management areas, will continue to be negatively impacted by reduced season lengths and increased depth restrictions as described under Alternative a. Management areas north of Point Arena will see the most restrictive season length that region has ever seen.

In addition to reduced season lengths and increased depth restrictions, California coastal communities were impacted by a tsunami in March 2011, which temporarily closed some ports, damaged infrastructure, and destroyed vessels. Crescent City and Santa Cruz were both highly impacted by the disaster. As a result, boat launch ramps and gas stations were closed for evaluation, and private boat slips were repaired or completely rebuilt in both these communities.

C.6.6 California Recreational: Alternative 5

The 2013-2014 California recreational groundfish season projected mortality and season structure under Alternative 5 are based on CDFG's updated RecFISH model. Model projections were calculated for the five recreational groundfish management areas using updated 2008, 2009, and 2010 RecFIN estimates; overfished species mortality are reported statewide. Table C-157 depicts Alternative 5 harvest guidelines for the 2013-2014 California recreational groundfish seasons. The proposed groundfish season structure and depth constraints listed out by recreational management area can be seen in

Figure C-38.

Under Alternative 5, allocations to the California recreational fishery are higher than the No Action alternative. Although there will be some increased opportunity compared to No Action, management measures will still have to be more restrictive than previous years (PFMC. 2003). Communities such as Shelter Cove will continue to be adversely impacted by the low yelloweye rockfish harvest guideline based on the Council's preferred catch sharing. The recreational fishery will not be able to fully utilize the available canary allocation under this alternative due to the low amount of yelloweye rockfish.

Table C-157. Alternative 5: California recreational allocations/harvest guidelines for 2013-2014.

Species	Harvest Guideline (mt)
Bocaccio	167.9/174.2
Canary Rockfish	45.3/46.2
Cowcod*	1.0
Yelloweye Rockfish	3.4

*Non-trawl allocation

Groundfish Seasons and Area Restrictions
Under Alternative 5, the season structure would be similar to the No Action alternative except for an increase in the season length for the Mendocino Management Area (

Figure C-38). All divers and shore-based anglers are exempt from the seasonal closures for rockfish, cabezon, greenlings, lingcod, and California scorpionfish.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed				May 15 – Oct 31 <20fm						Closed	
Mendocino	Closed				May 15 – Sept 2 <20fm				Closed			
San Francisco	Closed					Jun 1 – Dec 31 <30fm						
Central	Closed				May 1 – Dec 31 <40fm							
Southern	Closed		Mar 1 – Dec 31 <60fm									

Figure C-38. Alternative 5: California recreational groundfish season structure and depth constraints for 2013-2014.

Similar to No Action, the YRCAs would be available under this alternative and could be implemented inseason if catches are projected to exceed harvest guidelines.

The Commission has implemented or is currently in the process of implementing MPAs throughout the entire state. When MPA implementation is complete, more than of 124 MPAs covering approximately 848 square miles (16 percent) of state waters will be in effect (CDFG 2011). Since most of these MPAs occur in state waters, many in 20 fathom or less, the available fishing areas, particularly in the Northern and Mendocino Management Areas, will be reduced.

Groundfish Bag Limits and Size Limits

Under Alternative 5, there are no changes to the groundfish bag limits or size limits except for the following:

Bocaccio – Under Alternative 5, the No Action sub-bag limit for bocaccio is two fish, with a minimum size limit of 10 inches. CDFG is proposing to increase the sub-bag limit from two fish to three fish. The increase in the sub-bag limit is only expected to increase total bocaccio mortality by 11.5 percent (5.8 mt; Table C-158). CDFG is also proposing to remove the minimum size limit of ten inches. Removing the size limit is expected to increase total bocaccio mortality by 0.4 percent (0.2 mt; Table C-158). The proposed changes are not mutually exclusive and the impacts are additive. Currently bocaccio is the only rockfish species in the recreational sector that has a size limit and removing the size limit would reduce regulatory complexity. There are no expected increases to other overfished species mortality as a result of these management measures.

Greenlings – Under Alternative 5, the No Action sub-bag limit for greenlings is two fish. CDFG is proposing to increase the sub-bag limit to 10 fish to maintain consistency with state regulations, which were modified to reflect the increased contribution to the "other fish" complex analyzed in the 2011-12 FEIS. By increasing the sub-bag limit, the estimated take would be approximately 15 mt (Table C-159). The Department is not proposing any changes to the minimum size restriction. There are no expected increases to overfished species mortality as a result of this increase.

Additional Management Measures Analyzed

Shelf Rockfish Retention in Cowcod Conservation Area (CCA)

Under Alternative 5, CDFG is requesting a modification to existing regulations governing recreational groundfish fishing within the Cowcod Conservation Areas (CCA) to allow retention of shelf rockfish taken during the open season for groundfish within the existing depth constraint of 20 fm. Removing the prohibition on shelf rockfish retention in depths of 20 fm or less in the CCA when fishing for rockfish is open will reduce discard mortality that currently occurs while in pursuit of other species within the 10 fish RCG bag limit. Under the proposed action, recreational anglers will meet their RCG bag limit sooner and with less discarding; reducing the chances of encounters with overfished species. Also, this change will make regulations more consistent with those in other management areas and other fisheries.

Increased mortality of shelf rockfish is expected to be minimal and can easily be accommodated within the recreational harvest guideline with a minimal risk of exceeding the ACLs. No ACLs for target or overfished species are expected to be exceeded as a result of this action.

Projected Impacts and Inseason Management Response

Under Alternative 5 the projected mortality of yelloweye rockfish increases by 0.2 mt compared to the No Action alternative, due to the increased season length in the Mendocino Management Area (Table C-158). No increases to other overfished species are expected. The number of angler trips is expected to increase under this alternative for both private/rental boats (PR) and the commercial passenger fishing vessels (CPFV). CDFG estimates that an increase of approximately 1,600 angler trips on PR boats and 300 angler trips on CPFVs could occur in the Mendocino Management Area.

Projected mortality of non-overfished species are provided in Table C-159**.**

Table C-158. Alternative 5: California recreational projected mortality of overfished species for 2013-2014, including impacts from proposed changes to management measures.

Species	Projected Mortality (mt)	
Bocaccio	Two fish sub-bag limit (No Action)	50.7
	Three fish sub-bag limit	5.8
	Removing 10' minimum size length	0.2
	Total	56.7
Canary Rockfish	11.3	
Cowcod	0.3	
Yelloweye Rockfish	3.4	

Table C-159. Alternative 5: California recreational projected mortality of non-overfished species for 2013-2014. Results in parenthesis reflect changes to management measures other than season and depth.

Species	Projected Impacts (mt)
Black Rockfish	164.1
Blue Rockfish	57.1
Cabezon	24.2
California scorpionfish	77.0
Greenlings	14.4 (15.5)
Lingcod	119.3
Minor Nearshore Rockfish North	7.8
Minor Nearshore Rockfish South	248.0
Widow Rockfish	2.2

Similar to the No Action alternative, inseason management response would include closing one or more recreational groundfish management areas for boat based anglers, restricting recreational fishery seasons, and/or modifying depth restrictions.

Community Impacts

Under the preliminary preferred yelloweye rockfish ACL, the California recreational harvest guideline is 3.4 metric tons. This will allow the Mendocino Management Area season length to extend through the Labor Day holiday weekend (September 2). Under this scenario, the season length in the Mendocino

Management Area would be increased by 18 days relative to No Action, which is a 19.5 percent increase in angler days. Extending the season through Labor Day is critical for this area as it has one of the highest effort and profit potential because it is the prime camping and fishing season. Extending the season to September 2nd is expected to result in increased profits to business, benefiting local communities. Other California recreational groundfish management areas would not see an extension to the season length or reduction of the depth constraints under this alternative.

Under Alternative 5, California communities, particularly in the northern management areas, will continue to be negatively impacted by reduced season lengths and shallower depth restrictions. Under this alternative, the Northern Management Area would have a five and a half month season length and a depth restriction of 20 fathoms where as the South region in Oregon, which is adjacent to this area, has an unrestricted depth constraint and a year-round season. One would theoretically expect management in both areas to be the same since they are located adjacent to one another – but that is not the case.

The California recreational groundfish fishery has historically operated in deeper depths with longer seasons (PFMC. 2003); however, with more restrictive recreational harvest guidelines for the overfished groundfish species, communities in all the management areas coast wide have seen drastic reductions in season length and considerable increases in depth restrictions. Management areas north of Point Arena have been subject to the most restrictive season and depth constraints. Due to these restrictions to the groundfish fishery and other marine fisheries in the region (e.g., salmon), many communities along the north coast have seen a decrease in angler effort. The port of Crescent City often competes with the Oregon ports of Brookings and Gold Beach, where fewer restrictions and lower fuel prices have attracted many anglers who used to fish out of Crescent City (Pomeroy et al. 2010).

In addition to reduced season lengths and shallower depth restrictions, California coastal communities were impacted by a tsunami in March 2011, which temporarily closed some ports, damaged infrastructure, and destroyed vessels. Crescent City and Santa Cruz were both highly impacted by the disaster. As a result, boat launch ramps and gas stations were closed for evaluation, and private boat slips were repaired or completely rebuilt in both these communities.

C.6.7 California Recreational: Alternative 6

The 2013-2014 California recreational groundfish season projected mortality and season structure under Alternative 6 are be based on CDFG's updated RecFISH model. Model projections were calculated for the five recreational groundfish management areas using updated 2008, 2009, and 2010 RecFIN estimates; overfished species mortality are reported statewide. Table C-160 depicts Alternative 6 harvest guidelines for the 2013-2014 California recreational groundfish seasons. The proposed groundfish season structure and depth constraints listed out by recreational management area can be seen in

Figure C-39.

Under Alternative 6, allocations to the California recreational fishery are higher than the No Action alternative. Although there will be some increased opportunity compared to No Action, management measures will still have to be more restrictive than previous years (PFMC. 2003). Communities such as Shelter Cove will continue to be adversely impacted by the low yelloweye rockfish harvest guideline based on the Council's preferred catch sharing. The recreational fishery will not be able to fully utilize the available canary allocation under this alternative due to the low amount of yelloweye rockfish.

Table C-160. Alternative 6: California recreational allocations/harvest guidelines for 2013-2014.

Species	Harvest Guideline (mt)
Bocaccio	167.9/174.2
Canary Rockfish	19.2/19.9
Cowcod*	1.0
Yelloweye Rockfish	3.4

*Non-trawl allocation

Groundfish Seasons and Area Restrictions
Under Alternative 6, the season structure would be similar to the No Action alternative except for an increase in the season length for the Mendocino Management Area (

Figure C-39). All divers and shore-based anglers are exempt from the seasonal closures for rockfish, cabezon, greenlings, lingcod, and California scorpionfish.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed				May 15 – Oct 31 <20fm						Closed	
Mendocino	Closed				May 15 – Sept 2 <20fm				Closed			
San Francisco	Closed					Jun 1 – Dec 31 <30fm						
Central	Closed				May 1 – Dec 31 <40fm							
Southern	Closed		Mar 1 – Dec 31 <60fm									

Figure C-39. Alternative 6: California recreational groundfish season structure and depth constraints for 2013-2014.

Similar to No Action, the YRCAs would be available under this alternative and could be implemented inseason if catches are projected to exceed harvest guidelines.

The Commission has implemented or is currently in the process of implementing MPAs throughout the entire state. When MPA implementation is complete, more than of 124 MPAs covering approximately 848 square miles (16 percent) of state waters will be in effect (CDFG 2011). Since most of these MPAs occur in state waters, many in 20 fathom or less, the available fishing areas, particularly in the Northern and Mendocino Management Areas, will be reduced.

Groundfish Bag Limits and Size Limits
Under the Alternative 6, there are no changes to the groundfish bag limits or size limits except for the following:

Bocaccio – Under Alternative 6, the No Action sub-bag limit for bocaccio is two fish, with a minimum size limit of 10 inches. CDFG is proposing to increase the sub-bag limit from two fish to three fish. The increase in the sub-bag limit is only expected to increase total bocaccio mortality by 11.5 percent (5.8 mt; Table C-161). CDFG is also proposing to remove the minimum size limit of ten inches. Removing the size limit is expected to increase total bocaccio mortality by 0.4 percent (0.2 mt; Table C-161). The proposed changes are not mutually exclusive and the impacts are additive. Currently bocaccio is the only rockfish species in the recreational sector that has a size limit and removing the size limit would reduce regulatory complexity. There are no expected increases to other overfished species mortality as a result of these management measures.

Greenlings – Under Alternative 6, the No Action sub-bag limit for greenlings is two fish. CDFG is proposing to increase the sub-bag limit to 10 fish to maintain consistency with state regulations, which were modified to reflect the increased contribution to the “other fish” complex analyzed in the 2011-12 FEIS. By increasing the sub-bag limit, the estimated take would be approximately 15 mt (Table C-162). The Department is not proposing any changes to the minimum size restriction. There are no expected increases to overfished species mortality as a result of this increase.

Additional Management Measures Analyzed
Shelf Rockfish Retention in Cowcod Conservation Area (CCA)
Under Alternative 6, CDFG is requesting a modification to existing regulations governing recreational groundfish fishing within the Cowcod Conservation Areas (CCA) to allow retention of shelf rockfish taken during the open season for groundfish within the existing depth constraint of 20 fm. Removing the prohibition on shelf rockfish retention in depths of 20 fm or less in the CCA when fishing for rockfish is open will reduce discard mortality that currently occurs while in pursuit of other species within the 10 fish RCG bag limit. Under the proposed action, recreational anglers will meet their RCG bag limit sooner and with less discarding; reducing the chances of encounters with overfished species. Also, this change will make regulations more consistent with those in other management area, and other fisheries.

Increased mortality of shelf rockfish is expected to be minimal and can easily be accommodated within the recreational harvest guideline with a minimal risk of exceeding the ACLs. No ACLs for target or overfished species are expected to be exceeded as a result of this action.

Projected Impacts and Inseason Management Response
Under Alternative 6 the projected mortality of yelloweye rockfish increases by 0.2 mt compared to the No Action alternative, due to the increased season length in the Mendocino Management Area (Table C-161). No increases to other overfished species are expected. The number of angler trips is expected to increase under this alternative for both private/rental boats (PR) and the commercial passenger fishing vessels (CPFV). CDFG estimates that an increase of approximately 1,600 angler trips on PR boats and 300 angler trips on CPFVs could occur in the Mendocino Management Area.

Projected mortality of non-overfished species are provided in Table C-162.

Table C-161. Alternative 6: California recreational projected mortality of overfished species for 2013-2014, including impacts from proposed changes to management measures.

Species	Projected Mortality (mt)	
Bocaccio	Two fish sub-bag limit (No Action)	50.7
	Three fish sub-bag limit	5.8
	Removing 10' minimum size length	0.2
	Total	56.7
Canary Rockfish	11.3	
Cowcod	0.3	
Yelloweye Rockfish	3.2	

Table C-162. Alternative 6: California recreational projected mortality of non-overfished species for 2013-2014. Results in parenthesis reflect changes to management measures other than season and depth.

Species	Projected Mortality (mt)
Black Rockfish	164.1
Blue Rockfish	57.1
Cabezon	24.2
California scorpionfish	77.0
Greenlings	14.4 (15.5)
Lingcod	119.3
Minor Nearshore Rockfish North	7.8
Minor Nearshore Rockfish South	248.0
Widow Rockfish	2.2

Similar to the No Action alternative, inseason management response would include closing one or more recreational groundfish management areas for boat based anglers, restricting recreational fishery seasons, and/or modifying depth restrictions.

Community Impacts

Under the preliminary preferred yelloweye rockfish ACL, the California recreational harvest guideline is 3.4 metric tons. This will allow the Mendocino Management Area season length to extend through the Labor Day holiday weekend (September 2). Under this scenario, the season length in the Mendocino Management Area would be increased by 18 days relative to No Action, which is a 19.5 percent increase in angler days. Extending the season through Labor Day is critical for this area as it has one of the highest effort and profit potential because it is the prime camping and fishing season. Extending the season to September 2nd is expected to result in increased profits to business, benefiting local communities. Other California recreational groundfish management areas would not see an extension to the season length or reduction of the depth constraints under this alternative.

Under Alternative 6, California communities, particularly in the northern management areas, will continue to be negatively impacted by reduced season lengths and shallower depth restrictions. Under this alternative, the Northern Management Area would have a five and a half month season length and a depth restriction of 20 fathoms where as the South region in Oregon, which is adjacent to this area, has an unrestricted depth constraint and a year-round season. One would theoretically expect management in both areas to be the same since they are located adjacent to one another – but that is not the case.

The California recreational groundfish fishery has historically operated in deeper depths with longer seasons (PFMC. 2003); however, with more restrictive recreational harvest guidelines for overfished groundfish species, communities in all the management areas coast wide have seen drastic reductions in season length and considerable increases in depth restrictions. Management areas north of Point Arena have been subject to the most restrictive season and depth constraints. Due to these restrictions to the groundfish fishery and other marine fisheries in the region (e.g., salmon), many communities along the north coast have seen a decrease in angler effort. The port of Crescent City often competes with the Oregon ports of Brookings and Gold Beach, where fewer restrictions and lower fuel prices have attracted many anglers who used to fish out of Crescent City (Pomeroy et al. 2010).

In addition to reduced season lengths and shallower depth restrictions, California coastal communities were impacted by a tsunami in March 2011, which temporarily closed some ports, damaged infrastructure, and destroyed vessels. Crescent City and Santa Cruz were both highly impacted by the disaster. As a result, boat launch ramps and gas stations were closed for evaluation, and private boat slips were repaired or completely rebuilt in both these communities.

C.6.8 California Recreational: Alternative 7

The 2013-2014 California recreational groundfish season projected mortality and season structure under Alternative 7 are based on CDFG's updated RecFISH model. Model projections were calculated for the five recreational groundfish management areas using updated 2008, 2009, and 2010 RecFIN estimates; overfished species mortality are reported statewide. Table C-163 depicts Alternative 7 harvest guidelines for the 2013-2014 California recreational groundfish seasons. The proposed groundfish season structure and depth constraints listed out by recreational management area can be seen in

Figure C-40.

Under Alternative 7, allocations to the California recreational fishery are higher than the No Action alternative. Although there will be some increased opportunity compared to No Action, management measures will still have to be more restrictive than previous years (PFMC. 2003). Communities such as Shelter Cove will continue to be adversely impacted by the low yelloweye rockfish harvest guideline based on the Council's preferred catch sharing. The recreational fishery will not be able to fully utilize the available canary allocation under this alternative due to the low amount of yelloweye rockfish.

Table C-163. Alternative 7: California recreational allocations/harvest guidelines for 2013-2014.

Species	Harvest Guideline (mt)
Bocaccio	167.9/174.2
Canary Rockfish	29.6/30.5
Cowcod*	1.0
Yelloweye Rockfish	3.4

*Non-trawl allocation

Groundfish Seasons and Area Restrictions
Under Alternative 7, the season structure would be similar to the No Action alternative except for an increase in the season length for the Mendocino Management Area (
Figure C-40). All divers and shore-based anglers are exempt from the seasonal closures for rockfish, cabezon, greenlings, lingcod, and California scorpionfish.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed				May 15 – Oct 31 <20fm						Closed	
Mendocino	Closed				May 15 – Sept 2 <20fm				Closed			
San Francisco	Closed					Jun 1 – Dec 31 <30fm						
Central	Closed				May 1 – Dec 31 <40fm							
Southern	Closed		Mar 1 – Dec 31 <60fm									

Figure C-40. Alternative 7: California recreational groundfish season structure and depth constraints for 2013-2014.

Similar to No Action, yelloweye rockfish conservation areas (YRCA) would be available under this alternative and could be implemented inseason if catches are projected to exceed harvest guidelines.

The Commission has implemented or is currently in the process of implementing MPAs throughout the entire state. When MPA implementation is complete, more than of 124 MPAs covering approximately 848 square miles (16 percent) of state waters will be in effect (CDFG 2011). Since most of these MPAs occur in state waters, many in 20 fathom or less, the available fishing areas, particularly in the Northern and Mendocino Management Areas, will be reduced.

Groundfish Bag Limits and Size Limits
Under Alternative 7, there are no changes to the groundfish bag limits or size limits except for the following:

Bocaccio – Under Alternative 7, the No Action sub-bag limit for bocaccio is two fish, with a minimum size limit of 10 inches. CDFG is proposing to increase the sub-bag limit from two fish to three fish. The increase in the sub-bag limit is only expected to increase total bocaccio mortality by 11.5 percent (5.8 mt; Table C-164). CDFG is also proposing to remove the minimum size limit of ten inches. Removing the size limit is expected to increase total bocaccio mortality by 0.4 percent (0.2 mt; Table C-164). The proposed changes are not mutually exclusive and the impacts are additive. Currently bocaccio is the only rockfish species in the recreational sector that has a size limit and removing the size limit would reduce regulatory complexity. There are no expected increases to other overfished species mortality as a result of these management measures.

Greenlings – Under Alternative 7, the No Action sub-bag limit for greenlings is two fish. CDFG is proposing to increase the sub-bag limit to 10 fish to maintain consistency with state regulations, which were modified to reflect the increased contribution to the “other fish” complex analyzed in the 2011-12 FEIS. By increasing the sub-bag limit, the estimated take would be approximately 15.5 mt (Table C-165). The Department is not proposing any changes to the minimum size restriction. There are no expected increases of overfished species mortality as a result of this increase.

Additional Management Measures Analyzed
Shelf Rockfish Retention in Cowcod Conservation Area (CCA)
Under Alternative 7, CDFG is requesting a modification to existing regulations governing recreational groundfish fishing within the Cowcod Conservation Areas (CCA) to allow retention of shelf rockfish taken during the open season for groundfish within the existing depth constraint of 20 fm. Removing the prohibition on shelf rockfish retention in depths of 20 fm or less in the CCA when fishing for rockfish is open will reduce discard mortality that currently occurs while in pursuit of other species within the 10 fish RCG bag limit. Under the proposed action, recreational anglers will meet their RCG bag limit sooner and with less discarding; reducing the chances of encounters with overfished species. Also, this change will make regulations more consistent with those in other management areas and other fisheries.

Increased mortality of shelf rockfish is expected to be minimal and can easily be accommodated within the recreational harvest guideline with a minimal risk of exceeding the ACLs. No ACLs for target or overfished species are expected to be exceeded as a result of this action.

Projected Impacts and Inseason Management Response
Under Alternative 7 the projected mortality of yelloweye rockfish increases by 0.2 mt compared to the No Action alternative, due to the increased season length in the Mendocino Management Area (Table C-164). No increases to other overfished species are expected. The number of angler trips is expected to increase under this alternative for both private/rental boats (PR) and the commercial passenger fishing vessels (CPFV). CDFG estimates that an increase of approximately 1,600 angler trips on PR boats and 300 angler trips on CPFVs could occur in the Mendocino Management Area.

Projected mortality of non-overfished species are provided in Table C-165.

Table C-164. Alternative 7: California recreational projected impacts to overfished species for 2013-2014, including impacts from proposed changes to management measures.

Species	Projected Mortality (mt)	
Bocaccio	Two fish sub-bag limit (No Action)	50.7
	Three fish sub-bag limit	5.8
	Removing 10' minimum size length	0.2
	Total	56.7
Canary Rockfish	11.3	
Cowcod	0.3	
Yelloweye Rockfish	3.2	

Table C-165. Alternative 7: California recreational projected mortality of non-overfished species for 2013-2014. Results in parenthesis reflect changes to management measures other than season and depth.

Species	Projected Mortality (mt)
Black Rockfish	164.1
Blue Rockfish	57.1
Cabezon	24.2
California scorpionfish	77.0
Greenlings	14.4 (15.5)
Lingcod	119.3
Minor Nearshore Rockfish North	7.8
Minor Nearshore Rockfish South	248.0
Widow Rockfish	2.2

Similar to the No Action alternative, inseason management response would include closing one or more recreational groundfish management areas for boat based anglers, restricting recreational fishery seasons, and/or modifying depth restrictions.

Community Impacts

Under the preliminary preferred yelloweye rockfish ACL, the California recreational harvest guideline is 3.4 metric tons. This will allow the Mendocino Management Area season length to extend through the Labor Day holiday weekend (September 2). Under this scenario, the season length in the Mendocino Management Area would be increased by 18 days relative to No Action, which is a 19.5 percent increase in angler days. Extending the season through Labor Day is critical for this area as it has one of the highest effort and profit potential because it is the prime camping and fishing season. Extending the season to September 2nd is expected to result in increased profits to business, benefiting local communities. Other California recreational groundfish management areas would not see an extension to the season length or reduction of the depth constraints under this alternative.

Under Alternative 7, California communities, particularly in the northern management areas, will continue to be negatively impacted by reduced season lengths and increased depth restrictions. Under this alternative, the Northern Management Area would have a five and a half month season length and a depth restriction of 20 fathoms where as the South region in Oregon, which is adjacent to this area, has an unrestricted depth constraint and a year-round season. One would theoretically expect management in both areas to be the same since they are located adjacent to one another – but that is not the case.

The California recreational groundfish fishery has historically operated in deeper depths with longer seasons (PFMC. 2003); however, with more restrictive recreational harvest guidelines for the overfished groundfish species, communities in all the management areas coast wide have seen drastic reductions in season length and shallower depth restrictions. Management areas north of Point Arena have been subject to the most restrictive season and depth constraints. Due to these restrictions to the groundfish fishery and other marine fisheries in the region (e.g., salmon), many communities along the north coast have seen a decrease in angler effort. The port of Crescent City often competes with the Oregon ports of Brookings and Gold Beach, where fewer restrictions and lower fuel prices have attracted many anglers who used to fish out of Crescent City (Pomeroy et al. 2010).

In addition to reduced season lengths and shallower depth restrictions, California coastal communities were impacted by a tsunami in March 2011, which temporarily closed some ports, damaged infrastructure, and destroyed vessels. Crescent City and Santa Cruz were both highly impacted by the disaster. As a result, boat launch ramps and gas stations were closed for evaluation, and private boat slips were repaired or completely rebuilt in both these communities.

PROJECTED MORTALITY AND ALLOCATIONS UNDER THE PREFERRED ALTERNATIVE AND A SUMMARY OF LONGNOSE SKATE AND DOGFISH SHARK MANAGEMENT MEASURES

Analysis of the Integrated Alternatives

The analysis of the integrated alternatives focused on the tradeoffs to fishery sectors from the variation in canary and POP ACL alternatives assuming all other stocks and stock complexes are managed to stay within the preferred ACLs and the preferred sector allocations. The effects of varying the canary and POP ACLs are estimated by the relative difference in the estimated mortality by fishing sector of each overfished stock under the integrated alternatives. Table 1 provides the projected mortalities, preferred allocations, and predicted percent attainment of allocations by fishing sector of overfished species in 2013 and 2014.

The uncertainty in estimating total fishing mortality of overfished species is a consideration for the size of the buffer between projected total fishing mortality and the ACL in a rebuilding plan. It is important to note the estimates of total mortality of stocks and complexes in each fishing sector in the analysis of the integrated alternatives are imprecise (see Attachment 5, Appendix C of the DEIS for more details on the integrated alternatives). The predicted total mortalities and percent attainment of the ACLs under the integrated alternatives should therefore be considered imprecise and that imprecision is a consideration in the size of the buffer. (Note: the GMT is working on methods to quantify the uncertainty in the projected total mortalities of species for each sector impact projection model. The SSC will review these methods before they are used to inform management decisions for the 2015-2016 management cycle). The percent difference from the highest projected total mortality of each overfished stock from the maximum estimated mortality under the integrated alternatives provides an index of the relative difference in the projected mortality between alternatives.

The analysis of the integrated alternatives provides limited insight into trawl IFQ needs since the impact projection model is only informed by one partial year (2011) of data (see Attachment 5, Appendix C). Future quota needs for overfished species like canary will be uncertain until there are more years of observation of the performance of the IFQ fishery. The reliability of the trawl impact projection model should improve, which will better define the needs (for overfished species quota) of west coast fishing communities dependent on the trawl fishery.

The scale of fishing mortality impact projections of overfished species can vary from the percent of the projected attainment of overfished species ACLs estimated in the analysis of the integrated alternatives from unpredictable recruitment events as well. Projected total mortalities in rebuilding analyses used to inform alternative overfished species ACLs assume average future recruitment or predict recruitment from a stock-recruitment relationship provided in a stock assessment. Projected recruitments are highly uncertain; actual recruitments into the fishery will affect the scale of overfished species mortalities predicted under the integrated alternatives.

A few results are evident in the analysis of the integrated alternatives: 1) the analysis primarily informs the ACL choice for canary rockfish and POP (since alternative ACLs for the other overfished species do not vary between the alternatives); 2) the integrated alternatives are not designed to inform the non-overfished species ACL decision (see Attachment 5, section 4.1.1.4 of the DEIS for more of an explanation on this point); 3) the allowable total mortality of canary rockfish affects all sectors of the groundfish fishery, while that for POP affects only the northern trawl fishery (both the at-sea whiting sectors and the shorebased IFQ sector); there are within-trawl (both sector and fleet) effects of alternatively varying the canary and POP ACLs (see Attachment 5, explained in the canary and POP discussions in section 4.1.1.3 of the DEIS); and 4) differences in non-trawl sector impacts (both projected total mortality and socioeconomic impacts) are due solely to variation of the canary ACL across the integrated alternatives.

Table 1. Summary of 2013 and 2014 mortality projections, preferred allocations, and predicted percent attainment of the allocation of overfished species by fishing sector under the integrated alternatives.

Sector	No Action Alt.			Alt. 1a Pref.					
	2012			2013			2014		
	Projected Mortality (mt)	Allocation (mt)	% Attainment of Allocation	Projected Mortality (mt)	Preferred Allocation (mt)	% Attainment of Allocation	Projected Mortality (mt)	Preferred Allocation (mt)	% Attainment of Allocation
Bocaccio S of 40º10' N. latitude									
Bocaccio ACL (mt)	274			320			337		
Set-Aside Totals	13.4			5.0			5.0		
IFQ	3.3	60.0	5.5%	3.0	75.7	4.0%	3.0	79.8	3.8%
CP	NA	NA	NA	NA	NA	NA	NA	NA	NA
MS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nearshore	0.5	0.7	71.4%	0.5	0.9	55.6%	0.5	0.9	55.6%
Non-Nearshore	0.0	57.9	0.0%	0.0	73.1	0.0%	0.0	77.0	0.0%
WA Rec	NA	NA	NA	NA	NA	NA	NA	NA	NA
OR Rec	NA	NA	NA	NA	NA	NA	NA	NA	NA
CA Rec	50.7	131.0	38.7%	50.7	165.3	30.7%	50.7	174.2	29.1%
Grand Total	67.9			59.2			59.2		
% of ACL	24.8%			18.5%			17.6%		
Canary									
Canary ACL (mt)	107			116			119		
Set-Aside Totals	20.0			16.8			16.8		
IFQ a/	3.5	26.2	13.2%	3.1	40.3	7.7%	3.1	41.5	7.5%
CP a/	4.8	4.8	100.0%	7.5	7.5	100.0%	7.7	7.7	100.0%
MS a/	3.4	3.4	100.0%	5.3	5.3	100.0%	5.5	5.5	100.0%
Nearshore	3.2	4.0	80.0%	3.8	6.2	61.3%	3.8	6.4	59.4%
Non-Nearshore	2.0	2.3	87.0%	1.5	3.6	41.7%	1.5	3.7	40.5%
WA Rec	0.9	2.0	45.0%	0.9	3.1	29.0%	0.9	3.2	28.1%
OR Rec	4.7	7.0	67.1%	4.7	10.9	43.1%	4.7	11.2	42.0%
CA Rec	11.1	14.5	76.6%	11.1	22.6	49.1%	11.1	23.3	47.6%
Grand Total	53.6			54.7			54.7		
% of ACL	50.1%			47.2%			46.0%		

Sector	No Action Alt.			Alt. 1a Pref.					
	2012			2013			2014		
	Projected Mortality (mt)	Allocation (mt)	% Attainment of Allocation	Projected Mortality (mt)	Preferred Allocation (mt)	% Attainment of Allocation	Projected Mortality (mt)	Preferred Allocation (mt)	% Attainment of Allocation
Cowcod S of 40º10' N. latitude									
Cowcod ACL (mt)	3			3			3		
Set-Aside Totals	0.3			0.1			0.1		
IFQ	0.0	1.8	1.0%	0.0	1.9	0.9%	0.0	1.9	0.9%
CP	NA	NA	NA	NA	NA	NA	NA	NA	NA
MS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nearshore	0.0		0.0%	0.0		0.0%	0.0		0.0%
Non-Nearshore	0.0		0.0%	0.0		0.0%	0.0		0.0%
WA Rec	NA	0.9	NA	NA	1.0	NA	0.0	1.0	0.0%
OR Rec	NA		NA	NA		NA	0.0		0.0%
CA Rec	0.3		33.3%	0.3		30.0%	0.3		30.0%
Grand Total	0.6			0.4			0.4		
% of ACL	20.6%			14.6%			14.6%		
Darkblotched									
Darkblotched ACL (mt)	296			317			330		
Set-Aside Totals	18.7			19.7			19.7		
IFQ a/	55.2	248.9	22.2%	49.1	268.0	18.3%	49.1	279.0	17.6%
CP a/	8.5	8.5	100.0%	8.6	8.6	100.0%	8.6	9.0	95.6%
MS a/	6.0	6.0	100.0%	6.1	6.1	100.0%	6.1	6.4	95.3%
Nearshore	0.2		1.4%	0.3		2.0%	0.3		2.0%
Non-Nearshore	3.9		27.9%	2.9		19.3%	2.9		19.3%
WA Rec	0.0	14.0	0.0%	0.0	15.0	0.0%	0.0	15.0	0.0%
OR Rec	0.0		0.0%	0.0		0.0%	0.0		0.0%
CA Rec	0.0		0.0%	0.0		0.0%	0.0		0.0%
Grand Total	92.5			86.7			86.7		
% of ACL	31.3%			27.3%			26.3%		

Sector	No Action Alt.			Alt. 1a Pref.					
	2012			2013			2014		
	Projected Mortality (mt)	Allocation (mt)	% Attainment of Allocation	Projected Mortality (mt)	Preferred Allocation (mt)	% Attainment of Allocation	Projected Mortality (mt)	Preferred Allocation (mt)	% Attainment of Allocation
Pacific Ocean Perch N of 40º10' N. latitude									
POP ACL (mt)	183			150			153		
Set-Aside Totals	12.9			12.9			12.9		
IFQ a/	31.7	119.5	26.5%	27.1	113.0	24.0%	27.1	116.0	23.4%
CP a/	10.2	10.2	100.0%	10.2	10.2	100.0%	10.2	10.2	100.0%
MS a/	7.2	7.2	100.0%	7.2	7.2	100.0%	7.2	7.2	100.0%
Nearshore	0.0		0.0%	0.0		0.0%	0.0		0.0%
Non-Nearshore	0.3		2.1%	0.2		1.3%	0.2		1.3%
WA Rec	0.0	7.0	0.0%	0.0	7.0	0.0%	0.0	7.0	0.0%
OR Rec	0.0		0.0%	0.0		0.0%	0.0		0.0%
CA Rec	0.0		0.0%	0.0		0.0%	0.0		0.0%
Grand Total	62.3			57.6			57.6		
% of ACL	34.1%			38.4%			37.7%		
Petrale Sole									
Petrale ACL (mt)	1,160			2,592			2,652		
Set-Aside Totals	65.4			74.8			74.8		
IFQ	605.5	1,054.6	57.4%	538.9	2,477.0	21.8%	538.9	2,562.0	21.0%
CP	0.0	5.0	0.0%	0.0	5.0	0.0%	0.0	5.0	0.0%
MS	0.0		0.0%	0.0		0.0%	0.0		0.0%
Nearshore	0.0		0.0%	0.0		0.0%	0.0		0.0%
Non-Nearshore	0.0		0.0%	0.0		0.0%	0.0		0.0%
WA Rec	0.0	35.0	0.0%	0.0	35.0	0.0%	0.0	35.0	0.0%
OR Rec	0.0		0.0%	0.0		0.0%	0.0		0.0%
CA Rec	0.0		0.0%	0.0		0.0%	0.0		0.0%
Grand Total	670.9			613.7			613.7		
% of ACL	57.8%			23.7%			23.1%		

Sector	No Action Alt.			Alt. 1a Pref.					
	2012			2013			2014		
	Projected Mortality (mt)	Allocation (mt)	% Attainment of Allocation	Projected Mortality (mt)	Preferred Allocation (mt)	% Attainment of Allocation	Projected Mortality (mt)	Preferred Allocation (mt)	% Attainment of Allocation
Yelloweye									
Yelloweye ACL (mt)	17			18			18		
Set-Aside Totals	5.9			5.8			5.8		
IFQ	0.0	0.6	7.7%	0.0	1.0	4.0%	0.0	1.0	4.0%
CP	NA	NA	NA	NA	NA	NA	NA	NA	NA
MS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nearshore	1.0	1.1	90.9%	1.2	1.2	100.0%	1.2	1.2	100.0%
Non-Nearshore	0.8	1.3	61.5%	0.6	1.1	54.5%	0.6	1.1	54.5%
WA Rec	2.4	2.6	92.3%	2.4	2.9	82.8%	2.4	2.9	82.8%
OR Rec	2.5	2.4	104.2%	2.5	2.6	96.2%	2.5	2.6	96.2%
CA Rec	3.2	3.1	103.2%	3.4	3.4	100.0%	3.4	3.4	100.0%
Grand Total	15.8			15.9			15.9		
% of ACL	93.2%			88.6%			88.6%		

a/ The allocated amounts of canary, darkblotched, and POP are provided for the whiting sectors (i.e., the catcher-processors (CP), motherships (MS) and the whiting portion of the Shorebased IFQ (IFQ) sector) under the integrated alternatives.

Management Measures Summaries

Summaries of all management measures, except longnose skate and spiny dogfish shark, were provided in Agenda Item I.3.a, Attachment 4. The summaries for these two additional management measures follow. The full analysis of longnose skate and spiny dogfish shark management measures can be found in Agenda Item I.3.a, Supplemental Attachment 7 (Available on the Council's Briefing Book website only).

Longnose Skate (Raja rhina) Management Measures (Supplemental Attachment 7)

Longnose skate on the U.S. west coast was last assessed in 2007 and was removed from the Other Fish complex in 2009. Longnose skate are managed with species-specific harvest specifications including an overfishing limit (OFL), annual biological catch (ABC), and annual catch limit (ACL).

The 2009 and 2010 mortality of longnose skate (1,455.1 and 1,386.5 mt, respectively) was estimated to exceed the optimum yield (OY) of 1,349 mt for both years, assuming 100 percent discard mortality. In March 2012, the Science and Statistical Subcommittee recommended that the same discard mortality assumptions used in the assessment be applied in management (Agenda Item F.2.b, Revised Supplemental SSC Report). Therefore, beginning in 2012 the assumed discard mortality for longnose skate will be 50 percent for both trawl and non-trawl sectors. Under this new discard mortality assumption, the 2009 and 2010 OYs would not have been exceeded. Further, the projected mortality of longnose skate (1,120 – 1,182 mt) for 2013-2014 is within the ACLs analyzed for the 2013-2014 cycle (2,000 mt preliminary preferred ACL and 1,346 mt No Action ACL). Regardless, longnose skate mortality has increased in recent years due to increased prices and increased landings, so inseason tracking should be enhanced and management measures should be available to keep mortality levels within adopted harvest specifications, if necessary.

Most longnose skate mortality is seen in the non-whiting trawl sector (~ 90 percent) and the fixed gear sector (~ 10 percent). Under the preliminary preferred ACL for longnose skate (2,000 mt), the projected mortality is lower than their respective allocations (90 percent to trawl, 10 percent to non-trawl). Under the No Action ACL and allocations (95 percent to trawl, 5 percent to non-trawl), however, the non-trawl allocation could be exceeded during 2013 and 2014.

The non-whiting trawl and the fixed-gear sectors have exhibited contrary discard rates during recent years. Approximately 32 percent of the non-whiting trawl-caught longnose skate was discarded during 2009 and 2010, whereas approximately 87 percent of the fixed-gear caught longnose skate were discarded. Most encounters (~ 80 percent) occur north of $40^{o}10$ N. latitude. Landings are highest in the Columbia INPFC (trawl) and Columbia and Eureka INPFC areas (non-trawl). Columbia River Oregon, Newport, and Coos Bay area port groups receive most longnose skate landings. Eureka area ports also receive substantial landings. Coastwide longnose skate landings and revenue average 1,883,574 lbs (854 mt) and $602,744 for trawl and 49,101 lbs (22 mt) and $13,748 for fixed gear.

No Action management of longnose skate includes a sorting requirement and unlimited trip limits for the non-whiting trawl and fixed gear sectors. Existing rockfish conservation area (RCA) boundaries have provided effective management of longnose skate as well.

Options 1 through 3 consider trip limits lower than No Action for the trawl and fixed gear sectors. Trip limits analyzed were:

- Option 1 = 12,000 lbs / 2 months (trawl) and 1,000 lbs / 2 months (non-trawl)
- Option 2 = 7,000 lbs / 2 months (trawl) and 500 lbs / 2 months (non-trawl)
- Option 3 = 4,000 lbs / 2 months (trawl) and 200 lbs / 2 months (non-trawl)

Trip limit options would reduce fishing mortality for the non-whiting trawl fishery, if necessary, relative to No Action. This fishery retained approximately 68 percent of the longnose skate encountered during 2009 and 2010 (i.e., discarded 32 percent), so trip limits may cause increased discard (of which 50 percent may survive) or change behavior (fishermen may choose to avoid areas with high concentrations of longnose skate). Trip limits for the fixed gear fishery (Options 1 – 3), on the other hand, may not significantly reduce longnose skate mortality relative to No Action. Most longnose skate encountered by this fishery are already discarded, so trip limits will likely not change fishermen behavior relative to No Action. Reductions in trip limits for the trawl fisheries may result in significant impacts to communities due to loss of longnose skate revenues compared to No Action; Option 3 would have the most significant impact.

Options 4 and 5 consider changes to existing RCA boundaries. Options proposed include:

- Option 4 = Extend the trawl RCA from 150 or 200 fm to 300 fm coastwide
- Option 5 = Extend shoreward trawl RCAs to from 75 or 100 fm to 50 fm between 45^{o}46’ and 48^{o}10’ N. latitude

Moving the seaward trawl RCA deeper (Option 4) or the shoreward trawl RCA shallower (Option 5) may result in decreased mortality relative to No Action, however, additional data is required to estimate the extent of that reduction. Regardless, expanding the RCAs to reduce mortality will have the most significant impacts on communities due to loss of longnose skate and target species revenue, loss of productive fishing grounds (more time required to attain Quota Pounds or Tier Limits of target species if forced off of the most productive ground), and increased safety concerns (e.g., fishing in shallower depths, increased gear conflicts, and), compared to No Action and relative to Options 1 – 3 (trip limits). RCA changes south of 40^{o}10 N. latitude would result in fewer reductions to longnose skate mortality because most longnose skate are caught north of that area.

Other management tools mentioned but not analyzed in detail include gear modifications that may reduce encounter rates. If such management tools are considered, tradeoffs between the effectiveness of specific gear modifications, their cost, and who bears this cost must be weighed. Finally, voluntary avoidance of areas with highest longnose skate catch rates may be considered to keep longnose skate mortality below its ACL.

Spiny dogfish (Squalus Acanthias) Management Measures (Supplemental Attachment 7)

Spiny dogfish on the U.S. west coast was assessed for the first time in 2011, resulting in an estimate of the OFL. At the November Council meeting, the Council adopted an ABC for spiny dogfish but recommended that spiny dogfish continue to be managed as part of the Other Fish Complex.

In four of the ten years during 2001-2010, estimated mortality of spiny dogfish exceeded the 2013-2014 preferred spiny dogfish ABC, assuming that 100 percent of the discards die. In March 2012, the Science and Statistical Subcommittee recommended that the same discard mortality assumptions used in the assessment be applied in management (Agenda Item F.2.b, Revised Supplemental SSC Report). Therefore, beginning in 2012 the assumed discard mortality for dogfish will be 100 percent for trawl and 50 percent for non-trawl. Even under this new discard mortality assumption, the adjusted 2008 mortality would exceed the 2013-2014 spiny dogfish ABCs that contributes to the total Other Fish ABC. This suggests that improved inseason monitoring and management measures may be necessary.

Most dogfish shark mortality is seen in the non-whiting trawl, at-sea whiting, non-nearshore fixed gear, shoreside whiting, and Washington tribal fisheries. Under No Action, the 2013-2014 shoreside trawl allocation may be exceeded under the worst-case scenario (i.e., if the highest mortality observed during the past five years occurs). The 2013 allocation for this sector is 770 mt, and the range of expected mortalities is 645 – 1,082 mt. If conditions remain the same as observed in the recent past, 2013 and 2014 mortalities should remain below the remaining sector allocations.

During recent years, more than 90 percent of the dogfish shark caught by non-whiting trawl and non-trawl is discarded. Most encounters occur north of 40^{o} 10’ N latitude. Landings are highest in the Vancouver and Columbia INPFC areas; Northern Puget Sound (trawl and fixed gear) and Columbia River Oregon (trawl) port groups receive most dogfish landings. Coastwide dogfish landings and revenue are relatively low because of low prices and high discard (average = 148,151 lbs (67 mt) and $42,964 for trawl and 237,773 lbs (108 mt) and $49,932 for fixed gear).

No Action management for spiny dogfish includes a sorting requirement and high monthly or bimonthly trip limits for the trawl and fixed gear sectors (up to 200,000 lbs / 2 months). Existing RCA boundaries have provided effective management of spiny dogfish as well.

Options 1 through 3 consider trip limits lower than the No Action for the trawl and fixed gear sectors. Trip limits analyzed were:

- Option 1 = 20,000 lbs / 2 months (trawl) and 18,000 lbs / 2 months (non-trawl)
- Option 2 = 5,000 lbs / 2 months (trawl) and 2,500 lbs / 2 months (non-trawl)
- Option 3 = 600 lbs / 2 months (trawl) and 300 lbs / 2 months (non-trawl)

Trip limits that are more restrictive than No Action may be most effective at reducing spiny dogfish mortality if trip limits alter fishermen behavior (i.e., prevents active targeting or cause fishermen to avoid areas with higher concentrations). Otherwise, more restrictive trip limits may result in additional trip-limit induced discard mortality (in place of landed mortality). This is especially true for trawl discards, of which 100 percent of the discards are assumed to die. Trip limits would be more effective for reducing discard mortality for non-trawl fisheries, of which 50 percent of the discards are assumed to die. The changes in mortality as a result of trip limit changes are of little significance relative to No Action, especially for trawl, because most dogfish are already discarded under No Action. The socio-economic impact of trip limits for dogfish are of little to no significance relative to No Action; the maximum average ex-vessel value for non-whiting trawl and non-trawl sectors is less than $50,000 per year.

Options 4 through 6 consider changes to existing RCA boundaries. Options proposed include:

- Option 4 = Extend shoreward non-whiting trawl RCAs to 50 fm (from 75 fm) between $45^o46'$- $48^o10'$ N latitude.
- Option 5 = Extend seaward non-whiting trawl RCA from 150 fathoms to 200 fathoms north of $48^o10'$ and from 150/200 fathoms to 250 fathoms south of $48^o10'$ N latitude.
- Option 6 = Extend seaward fixed gear RCA from 100 to 150 fm north of $45^o46'$ N latitude.

Expanding RCAs may decrease dogfish mortality relative to No Action; however, additional data is required to estimate the extent of that decrease. Note that although not analyzed, bycatch reduction areas may also reduce dogfish shark mortality by the whiting sectors, if needed. It is important to point out that expanding the trawl RCAs to reduce mortality will have most significant impacts on communities relative to No Action and relative to Options 1 – 3 (trip limits).

Option 7 considers spiny dogfish set-asides (compared to No Action where there is an Other Fish set-aside that includes spiny dogfish) or allocations for the at-sea whiting sectors. The biological and socio-economic impacts may be significant relative to No Action; area closures may be implemented under this option if at-sea whiting fisheries approach the maximum set-aside or allocation.

Other management tools mentioned but not analyzed in detail in this document include gear modifications that may reduce encounter rates. If such management tools are considered, tradeoffs between the effectiveness of specific gear modifications, their cost, and who bears this cost must be weighed. Finally, voluntary avoidance of areas with highest dogfish shark catch rates may be considered to reduce dogfish shark mortality.

Appendix D DETAILED MANAGEMENT MEASURES ANALYSIS

2013-2014 GROUNDFISH HARVEST SPECIFICATIONS
PRELIMINARY DRAFT ENVIRONMENTAL IMPACT STATEMENT

Table of Contents

This appendix provides detailed information surrounding the new management measures (i.e., management measures that have not previously been analyzed or implemented) and analysis to existing management measures.

D.1 Modifications to the Boundaries Defining the Rockfish Conservation Areas

The following proposed modifications to current RCA boundary waypoints were adopted for analysis:

- Adjustments of waypoints on the 200 fm RCA boundary requested by ODFW.
- Adjustments to waypoints on the 150 fm RCA boundary where it crosses the modified 200 fm RCA boundary (Agenda Item E.9.b, Supp GAP Report November 2011) and 200 fm RCA boundary (Agenda Item G.9.b, Supplemental GMT Report, September 2011)
- Adjustments to the 150 fm RCA boundary waypoints at Usal and Noyo Canyons (Agenda Item E.9.b, Supp GAP Report November 2011);

Overview of Accountability Measures

RCAs are one type of measure used to keep catches within ACLs. RCAs affect the collective behavior of harvesters by preventing fishing in areas where bycatch of overfished species is particularly high. Their extent varies by season and gear type to target fishing activities associated with higher bycatch. The boundaries of RCAs are defined by depth contours since a correlation between depth and the distribution (or catch) of overfished species has been demonstrated through an analysis of trawl logbook and survey data. The boundary depth contours defined by waypoints in Federal regulations (at 50 CFR 660.391-660.394) only approximate actual isobaths for two reasons. First, the waypoints defining the lines were defined using available bathymetry, which may have limited accuracy. Second, for enforcement purposes the lines defined by the waypoints are a more generalized, or simplified, representation of isobaths.

Other measures more directly constrain catch on an individual vessel level. These are:

- IFQ management for the shoreside trawl fleet (with cumulative landing limits for some nontarget, nonoverfished management units)
- Co-op allocations to the at-sea whiting fleets (catcher vessels delivering to at-sea processors and catcher-processors)
- Permit based sablefish allocations to vessels in the limited entry fixed gear fleet during the primary season
- Daily and cumulative landing limits for the open access fixed gear sectors and limited entry fixed gear outside the primary season

Only catch share management directly controls total catch of most management unit species (including all overfished species) in the trawl sectors with all catch monitored by observers. Daily trip limits and 2-month limits in other sectors only control landings; overfished species total catch (mostly bycatch) must be imputed based on partial observer coverage. RCAs add another layer of precaution by affecting collective behavior and there use is more important in managing those sectors not under catch shares since overfished species bycatch cannot be directly controlled.

“Inseason” management allows measures to be periodically adjusted during the biennial period based on new information and catch projections. These management measures are described in more detail in section 3.3 of the EIS.

Modifications of the 200 fm Depth Contour Described by Waypoints Listed at 50 CFR 660.394

Description of the 200 fm Depth Contour

During the 2011-12 biennial cycle the 200 fm depth contour was used as the seaward boundary of the trawl RCA (which applies to the shoreside sector) January to April and September to December north of 40° N latitude. The depth contours defining the boundaries of RCAs are listed in trip limit tables published in Federal regulations and in periodic Public Notices announcing changes to groundfish management measures (http://www.nwr.noaa.gov/Groundfish-Halibut/Groundfish-Fishery-Management/Public-Notices/Index.cfm). This boundary is intended to reduce bycatch of darkblotched rockfish, POP, and petrale sole, although a modified line is applied during the winter months to allow access to areas of higher abundance of petrale sole, an important target species that is currently managed under a rebuilding plan.

Management Issue

The current 200 fm depth contour specified in regulation at 50 CFR 660.74 approximates the 200 fm isobath. To allow greater access to trawl fishing areas for Dover sole, thornyheads, and sablefish (DTS species) while maintaining the intent of the 200 fm line, better alignment of the 200 fm line with the 200 fm isobath is necessary for waters off Oregon.

Management Options

Under **No Action** (described in section 2.2 of the EIS) the 200 fm depth contour created by the waypoints currently listed at 50 CFR 660.74 would be retained in 2013-14.

Under the **Action Alternatives** (Alternatives 1-7 described in section 2.2 of the EIS) the 200 fm depth contour would more closely align with actual bathymetry. This change is based on a proposal submitted by ODFW to modify the 200 fm RCA boundary by adding two waypoints between current waypoints #86 and #88. Current waypoint #87 would be deleted and replaced with the proposed waypoint #2. This change would open an estimated 7.6 square miles to fishing by moving the boundary line shoreward and closer to the 200 fm isobath. Table D-1 lists the waypoint coordinates and Figure D-1 shows the proposed change relative to the existing depth contour under Option 1 (No Action).

As seen in Figure D-1, the depth contour is highly generalized with areas and depths both greater and less than 200 fm on the shoreward side of the line in this region. Visual inspection suggests that this change would open more area in depths greater than 200 fm than shallower areas.

Table D-1. Coordinate list for proposed modification to 200 fm boundary.

		Coordinates	
ID	Name	Degrees, decimal minutes	Decimal degrees
86	Current waypoint	44°38.52′ N, 124°49.11 W	44.642, -124.819
1	OR proposed modification	44°21.73′ N, 124°49.82′ W	44.362, -124.830
2	OR proposed modification	44°17.57′ N, 124°55.04′W	44.293, -124.917
87	Current waypoint (deleted)	44°23.30′ N., 124°50.17′ W.	
88	Current waypoint	44°13.19′ N., 124°58.66′ W.	

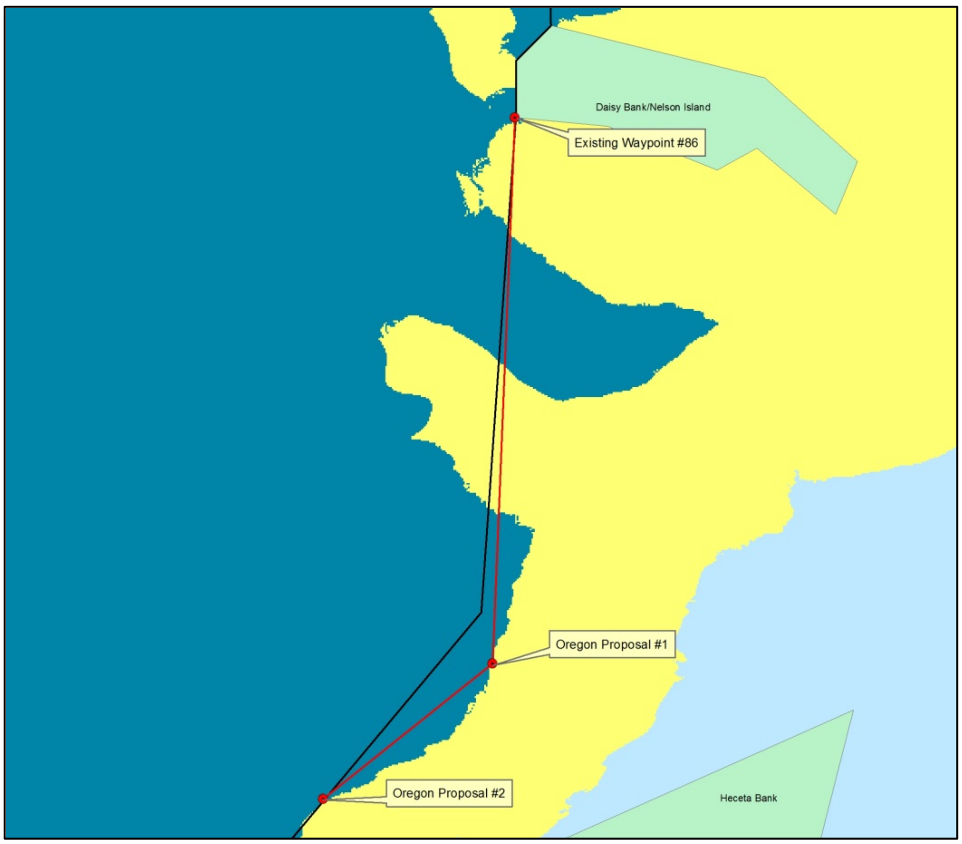


Figure D-1. Modification to the 200 fm depth contour proposed by Oregon. Dark blue: depths greater than 150 fm; yellow: depths between 150 and 75 fm; light blue: depths less than 75 fm. Bathymetry based on *NOAA National Geophysical Data Center, U.S. Coastal Relief Model, Retrieved 11/30/11.* *http://www.ngdc.noaa.gov/mgg/coastal/crm.html*

Comparison of the Management Options

Biological Impacts: To the degree that there is a precise correlation between depth and catch rates, under action alternatives there could be a marginal increase in the catch of overfished species, other fish species, and the take of protected species occurring in the opened area. However, this option is intended to meet the objective of RCA management by more closely aligning the depth contour with the actual bathymetry in the area so it is expected that catch rates would not differ from currently open areas greater than 200 fathoms in depth. In that sense impacts are with the scope described in previous evaluations of harvest specifications that included the application of this RCA boundary. The accountability measures described above in section 0 provide additional layers of precaution with respect to the catch of groundfish. The risk of exceeding an ACL in the trawl fishery should be no greater than under the current line (No Action) if bycatch rates are not different in the open area than in other areas deeper than 200 fathoms.

Socio-economic Impacts: The change proposed under the action alternative may have a marginal socioeconomic benefit for the shoreside trawl fishery managed under an RCA with a 200 fathom contour as its seaward boundary, because harvesters could access more area deeper than 200 fathoms where target species occur. Since the 200 fathom contour has not been used, and is not being proposed for use in 2013-14, for managing other commercial and recreational fisheries no socioeconomic effects are expected for these groups. The change in management cost, primarily those associated with enforcement or the RCAs boundaries, would be minimal under the proposal. The compliance with the depth contours are monitored with vessel monitoring systems (VMS) that are currently required on all groundfish vessels.

Modifications of the 150 fm Depth Contour Described by Waypoints Listed at 50 CFR 660.393

Description of 150 fm Depth Contour
The 150 depth contour was used in the 2011-12 biennial cycle to define the seaward boundary of the trawl RCA north of 45°46' N latitude from May to August and between 45°46' N latitude and 48°10' N latitude in March-April and September to December. It also defined the seaward boundary of the trawl and non-trawl RCA in all bimonthly periods south of 40°10' N latitude and around offshore islands in Southern California.

During the 2013-14 biennial period the current configuration of the non-trawl RCA is proposed to remain in place. However, the Council is considering potential changes to the configuration of the trawl RCA which could involve more widespread use of the 150 fathom line as the seaward boundary.

The 150 depth contour is used to reduce the catch of overfished species that are found on the continental shelf including canary rockfish, yelloweye rockfish, and bocaccio.

Management Issue
Changes to the 150 fathom depth contour are proposed to better align it with actual bathymetry in three areas: adjacent to Westport, Washington; at Noyo Canyon, and at Usal Canyon (location). As discussed below, the change adjacent to Westport was prompted because the 150 line crosses the 200 fathom depth contour in this area. Depths greater than 150 fathoms at the heads of the two canyons are currently shoreward of the 150 fathom line.

Management Options
Under **No Action** (described in section 2.2 of the EIS) the 150 fathom depth contour defined by waypoints currently listed at 50 CFR 660.73 would remain in effect.

Under the **Action Alternatives** (Alternatives 1-7 in section 2.2 of the EIS) four sets of changes to the 150 fathom depth contour are proposed to better align it with actual bathymetry:

- Modify the 150 fathom depth contour between waypoint #57 and #60 where it currently crosses the 200 fathom depth contour (in waters adjacent to Westport, WA) as requested by the WDFW
- Modify waypoints at 50 CFR 660.73 between #xxx and #xxx and to better align the 150 fm depth contour with actual bathymetry at Noyo Cayon as proposed by the Groundfish Advisory Subpanel (GAP)
- Modify waypoints at 50 CFR 660.73between #xxx and #xxx and to better align the 150 fm depth contour with actual bathymetry Usal Canyon as proposed by the GAP

Table D-2 shows the revised coordinates for the proposed change between waypoints #5 and #60; as shown in Figure D-2Figure D-2 point #58 and #59 would be removed and the computed line intersections with the 200 fm RCA boundary substituted along with an existing point on the 200 fm RCA boundary between the line intersection points. As shown in Figure D-3 there is a discrepancy between the gridded the 3 arc-second Coastal Relief Model (CRM) data developed by the NOAA National Geophysical Data Center and Electronic Navigational Chart (ENC) data for the area in question. The ENC data show a 200 fm depth contour extending into the area encompassed by the 150 fm RCA boundary waypoints 57-60. However, the 200 fm and 150 fm lines were devised independently of one another and having the shallower line crossing the deeper line is inconsistent.

At the November 2011 Council meeting the GAP recommended two adjustments to the 150 fm RCA boundary to enable access to waters greater than this depth in Usal and Noyo Submarine Canyons. Based on the 3 arc-second coastal relief model developed by the NOAA National Geophysical Data Center a modification of the gap proposal has been developed that better approximates the 150 fm isobaths in these two submarine canyons. The coordinates for 8 new waypoints for each of these alternative modifications are shown in Table D-3 and Figure D-4 shows the boundaries graphically in relation to the 150 fm isobaths. This proposal would increase the area open to fishing by 1.54 sq. mi. In examining the GAP proposed change against more detailed bathymetry Council staff developed an alternative set of changes intended to better meet the objective of matching lines to actual bathymetry. These waypoint changes are listed in Table D-4. This alternative configuration would increase the open area by 1.95 sq. mi.

Table D-2. Waypoints for proposed change to 150 fm RCA boundary near Westport, WA.

ID	Name	Degrees, Decimal minutes	Decimal Degrees
57	150-fm (274-m) Contour - Coastwide	46°58.471' N, 124°59.082' W	124.98470, 46.97452
	Computed line intersection	46°58.36' N, 124°59.816' W	124.99693, 46.97266
55	200-fm (366-m) Contour - Coastwide	46°56.8' N, 125°0' W	125.00000, 46.94667
	Computed line intersection	46°56.615' N, 125°0' W	125.00000, 46.94358
60	150-fm (274-m) Contour - Coastwide	46°57.092' N, 124°58.86' W	124.98100, 46.95153

Table D-3. Coordinates for proposed modifications to the 150 fm RCA boundary at Usal and Noyo Submarine Canyons proposed by the GAP.

Name	ID	Coordinates	
		Degrees, decimal minutes	Decimal degrees
Usal Canyon	1	39°49.099 N, 124°6.028 W	39.818, -124.1
Usal Canyon	2	39°48.913 N, 124°4.599 W	39.815, -124.077
Usal Canyon	3	39°48.599 N, 124°4.512 W	39.81, -124.075
Usal Canyon	4	39°48.171 N, 124°5.355 W	39.803, -124.089
Noyo Canyon	1	39°32.98 N, 123°56.43 W	39.55, -123.941
Noyo Canyon	2	39°31.918 N, 123°56.489 W	39.532, -123.941
Noyo Canyon	3	39°31.816 N, 123°56.762 W	39.53, -123.946
Noyo Canyon	4	39°32.275 N, 123°57.354 W	39.538, -123.956

Table D-4. A variation on the GAP proposed changes at Usal and Noyo Canyons developed by Council staff.

Name	ID	Coordinates	
		Degrees, decimal minutes	Decimal degrees
Usal Canyon	1	39°49.098 N, 124°6 W	39.818, -124.1
Usal Canyon	2	39°48.936 N, 124°4.74 W	39.816, -124.079
Usal Canyon	3	39°48.6 N, 124°4.5 W	39.81, -124.075
Usal Canyon	4	39°47.952 N, 124°5.22 W	39.799, -124.087
Noyo Canyon	1	39°32.982 N, 123°56.4 W	39.55, -123.94
Noyo Canyon	2	39°31.644 N, 123°56.16 W	39.527, -123.936
Noyo Canyon	3	39°31.398 N, 123°56.7 W	39.523, -123.945
Noyo Canyon	4	39°32.346 N, 123°57.42 W	39.539, -123.957

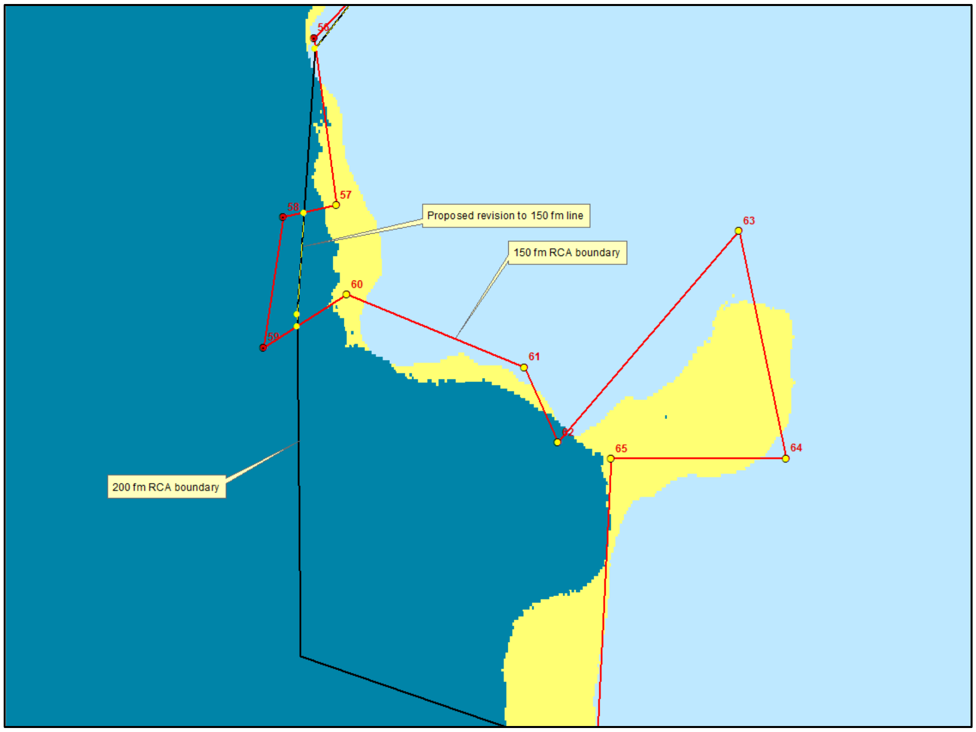


Figure D-2. Change to 150 fm RCA boundary proposed by WDFW. Dark blue fill: depths greater than 200 fm; yellow fill: depths between 200 and 150 fm; light blue fill: depths less than 150 fm. Bathymetry based on *NOAA National Geophysical Data Center, U.S. Coastal Relief Model, Retrieved 11/30/11, http://www.ngdc.noaa.gov/mgg/coastal/crm.html.*

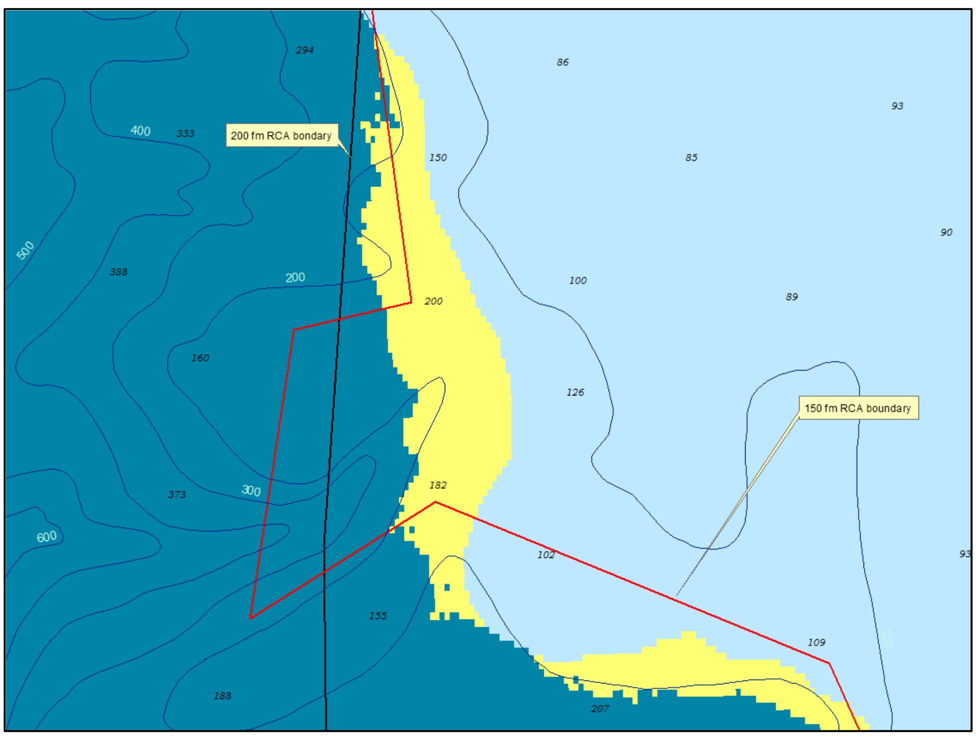


Figure D-3. ENC depths and depth contours shown on CRM gridded depths for area of WDFW proposed revision. ENC data from NOAA ENC®Direct to GIS Coastal data series, obtained 1/25/08, http://www.nauticalcharts.noaa.gov/csdl/ctp/encdirect_new.htm.

a. Usal Canyon

b. Noyo Canyon

Figure D-4. Proposed modifications to the 150 fm RCA boundary at (a.) Usal and (b.) Noyo Submarine Canyons. Dark blue: depths greater than 150 fm; yellow: depths between 150 and 100 fm; light blue: depths less than 100 fm. Bathymetry based on: ***NOAA National Geophysical Data Center, U.S. Coastal Relief Model, Retrieved 11/30/11, http://www.ngdc.noaa.gov/mgg/coastal/crm.html***

Comparison of the Management Options

Biological Impacts: As with the proposed modification to the 200 fathom depth contour described above, under the action alternatives the changes to the 150 fathom depth contour adjacent to Westport, Washington, Noyo Canyon, and Usal Canyon are intended to better match it to actual bathymetry. Likewise, such a change is expected to have marginal biological impacts if bycatch rates in the opened areas are like those in already open areas greater than 150 fathoms in depth and given the other accountability measures used to constrain catch within ACLs and mitigate protected species take.

Socio-economic Impacts: The change proposed under the action alternatives may have a marginal socioeconomic benefit for the shoreside trawl fishery and nontrawl fisheries managed using the 150 fathom line as a seaward RCA boundary by allowing access to a small amount of additional fishing area. This management line is not used to manage recreational fisheries. The change in management cost, primarily those associated with enforcement or the RCAs boundaries, would be minimal under the proposal. The compliance with the depth contours are monitored with vessel monitoring systems (VMS) that are currently required on all groundfish vessels.

Create a New, Modified 150 fm Depth Contour to Use for the Trawl RCA North of 40°10' N. Latitude

The background and use of the 150 fathom depth contour is explained above in Section 0.

Management Issue

With implementation of IFQ management for the shoreside trawl fishery the Council is considering a trawl RCA that would have a 150 fathom seaward boundary year round, because accountability for catch at the vessel level decreases the risk that ACLs will be exceeded. In past biennial cycles a modified 200 fathom depth contour has been applied in the winter months (November-February) north of 40°10' N. latitude to allow access to specific areas where petrale sole, an important target species during the winter fishery, are more abundant. There are instances where these cutouts encompass depths less than 150 fathoms; if a 150 fathom depth contour is applied year round then some of these more productive cutout areas would be closed to fishing in the winter months. This proposal would create a modified 150 fathom depth contour that could be applied during the winter fishery to keep the cutout areas defined by the modified 200 fathom depth contour open. For the purpose of publication in Federal regulations this new depth contour would include the waypoints for the existing 150 fathom line except for any of the proposed changes described in this section and section 2.3 and incorporated in the preferred alternative.

Management Options

Under **No Action** (described in section 2.2 of the EIS) the 150 fathom depth contour defined by waypoints currently listed at 50 CFR 660.393 would continue to be used seasonally (September to April) as the seaward boundary of the trawl RCA.

Under the **Action Alternatives** (Alternatives 1-7 in section 2.2 of the EIS) a new, modified 150 fathom depth contour would be created north of 40°10' N. latitude for use during the periods when the modified 200 fathom depth contour is currently used as the seaward boundary of the RCA.

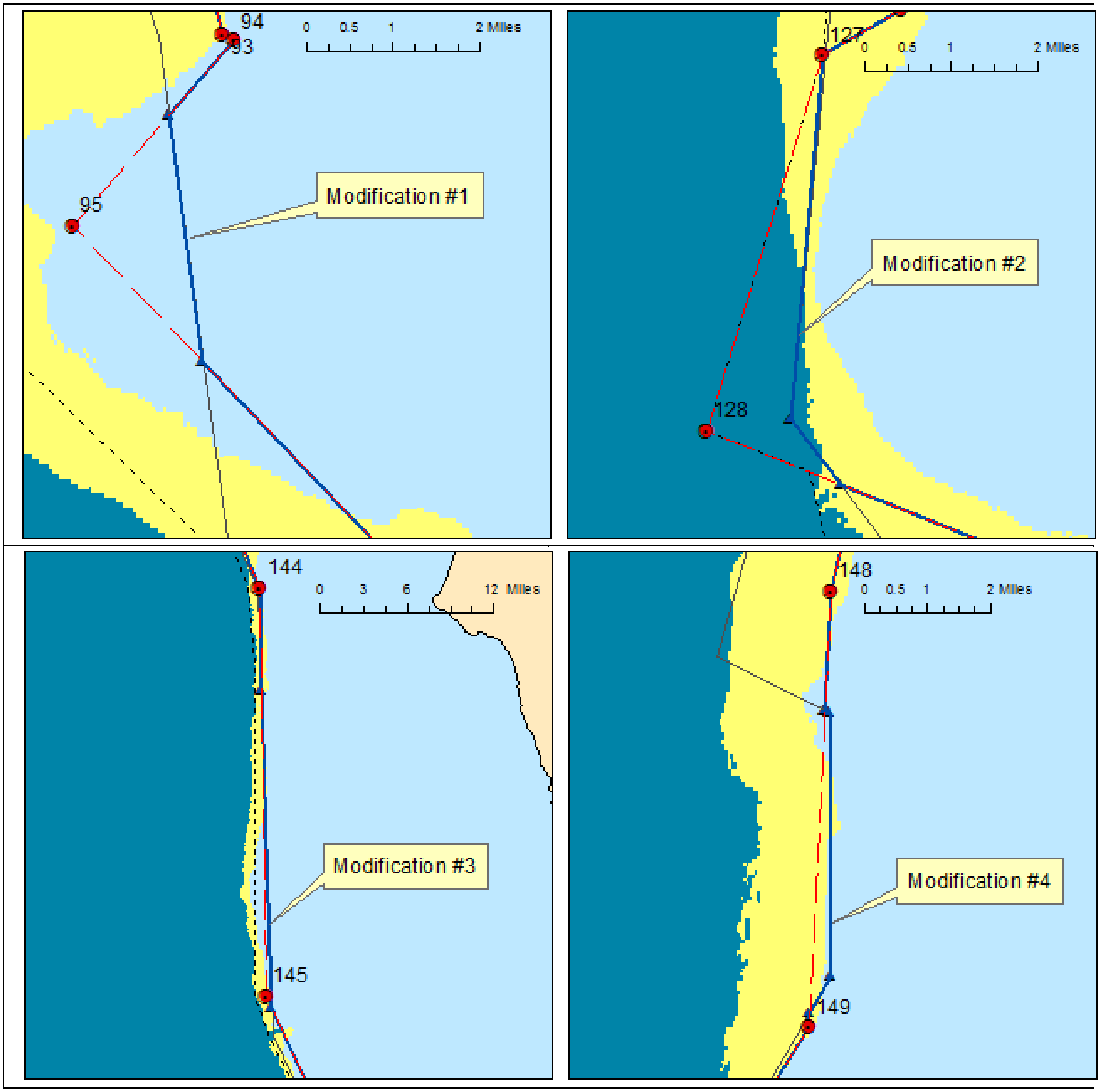
The 150 fm boundary was compared analytically with the modified 200 fm boundary to identify instances where the two lines intersect north of 40°10' N latitude. A total of 23 instances were identified. Of these, six changes would be made under this option based on two criteria. First, these changes apply only in areas where the modified 200 fm RCA boundary differs in location from the 200 fm RCA boundary (i.e., in the "cutout" areas). Second, a breakpoint in the distribution of the size of the resulting cutout areas was used to eliminate changes smaller than 0.537 sq. mi. (1,389,933 sq. m) in area. [1] Table D-5 shows the coordinates for potential modifications and the area within the RCA that would be eliminated by such a change. (Where the starting and ending waypoints on the existing 150 fathom line are not consecutive the intermediate existing waypoints are deleted and replaced by the proposed changes.) Figure D-5 illustrates these modifications in relation to the 200 and 150 fm isobaths.

If the proposed modified 150 fathom line is implemented an additional 12.8 square miles would be accessible to fishing in the shorebased IFQ fishery compared to a seaward boundary using the unmodified 150 fm RCA depth contour.

[1] ArcMap's feature classification dialog computes breakpoints in distributions for display purposes. The default Jenk's natural breaks algorithm was used to determine the breakpoints and the 0.537 sq. mi. breakpoint was chosen, because of the small areas involved.

Table D-5. Summary of proposed changes to the 150 fm RCA boundary where it intersects the modified 200 fm RCA boundary.

Map Ref.	Waypoint ID	Source	latitude	longitude	Area Affected (sq. miles)
1	94	150-fm (274-m) Contour	45.7658	-124.679	1.855
	57	Computed line intersection	45.75345	-124.695	
	56	Computed line intersection	45.71201	-124.687	
	96	150-fm (274-m) Contour	45.575	-124.505	
2	127	150-fm (274-m) Contour	42.9593	-124.902	3.491
	96	200-fm (366-m) Contour - Petrale	42.89881	-124.91	
	50	Computed line intersection	42.88773	-124.899	
	129	150-fm (274-m) Contour	42.8718	-124.846	
3	144	150-fm (274-m) Contour	41.79667	-124.49	3.900
	49	Computed line intersection	41.69442	-124.491	
	48	Computed line intersection	41.38004	-124.485	
	146	150-fm (274-m) Contour	41.2215	-124.389	
4	148	150-fm (274-m) Contour	40.92667	-124.434	0.885
	45	Computed line intersection	40.89948	-124.436	
	119	200-fm (366-m) Contour - Petrale	40.899	-124.435	
	120	200-fm (366-m) Contour - Petrale	40.8385	-124.436	
	44	Computed line intersection	40.83026	-124.443	
	149	150-fm (274-m) Contour	40.827	-124.443	0.112
5	151	150-fm (274-m) Contour	40.676	-124.535	0.537
	123	200-fm (366-m) Contour - Petrale	40.64783	-124.503	
	40	Computed line intersection	40.63966	-124.503	
	152	150-fm (274-m) Contour	40.62217	-124.488	
6	170	150-fm (274-m) Contour	40.266	-124.434	1.980
	35	Computed line intersection	40.28172	-124.57	
	132	200-fm (366-m) Contour - Petrale	40.2715	-124.575	
	34	Computed line intersection	40.24857	-124.56	
	173	150-fm (274-m) Contour	40.16667	-124.383	


94
93
95
0 0.5 1 2 Miles
Modification #1
127
0 0.5 1 2 Miles
Modification #2
128
144
0 3 6 12 Miles
Modification #3
145
148
0 0.5 1 2 Miles
Modification #4
149

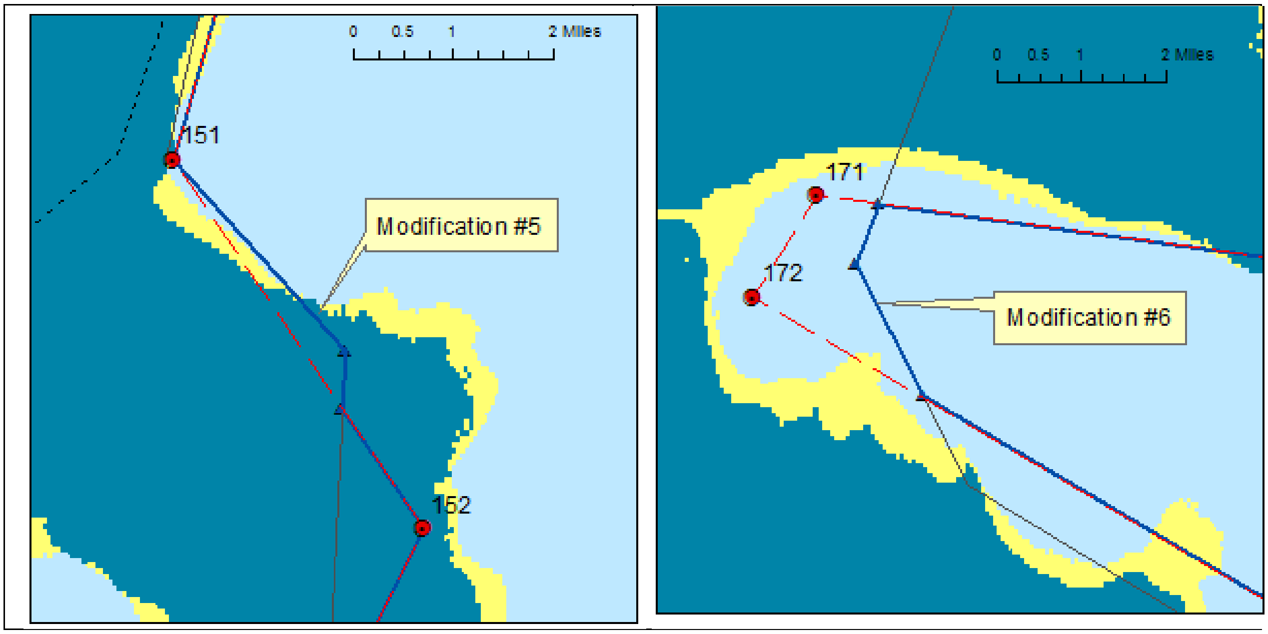


Figure D-5. Proposed modifications mapped with depth interval. Blue line: 150 fm depth contour modification; dashed red line: existing 150 fm depth contour; grey line: modified 200 fm depth contour; dotted grey line: 200 fm depth contour. Dark blue fill: depths greater than 200 fm; yellow fill: depths between 200 and 150 fm; light blue fill: depths less than 150 fm. Bathymetry based on *NOAA National Geophysical Data Center, U.S. Coastal Relief Model, Retrieved 11/30/11, http://www.ngdc.noaa.gov/mgg/coastal/crm.html*.

Comparison of the Management Options

The biological and socioeconomic impacts of using the 150 fathom depth contour coastwide for the trawl RCA are discussed in Chapter 4 of the EIS. The incremental effects of using the proposed modified 150 fathom line instead of the existing 150 fathom line would not be different from No Action, because the same cut out areas would be open during the same seasonal time periods. The change in management cost, primarily those associated with enforcement or the RCAs boundaries, would be minimal under the proposal. The compliance with the depth contours are monitored with vessel monitoring systems (VMS) that are currently required on all groundfish vessels.

D.2 Sorting Requirements for Aurora, Shortraker, and Rougheye North of 40°10 N. latitude

Management Issue and Background

In November, the Council added a sorting requirement for aurora rockfish, rougheye rockfish, and shortraker rockfish to the list of potential management measure additions for implementation in 2013. The intended purpose of a sorting requirement for these stocks is to improve the accuracy and timeliness in the reporting of landings. Improved monitoring of landings would, in turn, improve the ability of the GMT to evaluate the need for, and if necessary, to recommend options for inseason management action to the Council.

The rules on the sorting of groundfish landings are found in the Federal groundfish regulations in provisions specific to each groundfish sector. For example, section 660.130(d) of the regulations is applicable to the trawl sectors and requires vessels to sort landings of:

groundfish species or species groups for which there is a trip limit, size limit, scientific sorting designation, quota, harvest guideline, ACL or ACT or OY, if the vessel fished or landed in an area during a time when such trip limit, size limit, scientific sorting designation, quota, harvest guideline, ACL or ACT or OY applied.

This same language appears in the regulatory provisions on sorting in the limited entry fixed gear and open access fishery sectors and is followed by a list of species and species groups that require sorting (fixed gear - 660.230, open access - 660.330 (c)). All sector specific provisions require sorting to occur "prior to the first weighing after offloading." The scientific sorting designation is an option available to the Council for species that do not have stock-specific ACLs, trip limits, harvest guidelines, or any other management measure that would trigger the sorting requirement.

The scientific sorting designation has been used in the past but is not currently in place for any stock in the FMP. Employing the designation for aurora, rougheye, and shortraker would require landings of these stocks to be sorted and reported at the species level while leaving their harvest specifications as part of the minor slope rockfish complexes. The Council's November 2011 motion only applied to the area north of 40° 10' N. latitude. Landings made into ports south of this management line of these three species would therefore still be reported as part of the slope rockfish market category. A sorting requirement would not affect the monitoring of at sea discards by the WCGOP. Discarded fish are already recorded at the individual species level when sampling is possible.

The reason for the proposed sorting designation relates to the potential need for inseason management action, if necessary. As described more below, aurora, rougheye, and shortraker were identified in November 2011 based on preliminary estimates showing that recent catch levels may have exceeded their respective ABCs in recent years. Aurora, rougheye, and shortraker are managed within the minor slope rockfish complexes. Because ACLs are set at the complex level, the regulations require landings of aurora, rougheye, and shortraker to be sorted into the slope rockfish species group, commonly referred to as a market category, on the official documents used to record the weight of groundfish landings ("fish tickets"). A fish ticket entry labeled as "slope rockfish" can contain any number and combination of the species managed in the minor slope rockfish complexes. Stock complex management has benefits for both management agencies and fishery participants. These benefits are discussed more below.

As described in detail in Section 2.1, ACLs are set for the minor slope rockfish complexes as a whole. These ACLs are based on OFLs that are estimated and then reviewed by the SSC for each stock individually. Each stock's ABC is based on an SSC-recommended sigma value, an SSC-specified stock categorization, and a Council-recommended P* value. The complex ACL and the management measures that accompany it are intended to control catch to the complex ACL. However, in terms of inseason catch accounting, a pound of one species counts against the ACL the same as any other despite the different proportional contributions of each species to the OFLs and ABCs. If catch occurs at rates that are disproportionate to the OFL and ABC contributions, then it is possible for the component ABCs or OFLs for some stocks to be exceeded even if overall total catch mortality for the complex remains below the ACL.

This situation may have occurred in recent years for aurora, rougheye, and shortraker in the minor slope rockfish north complex. Catch for the complex as a whole remained 42 to 48 percent below the ACL (formerly termed the OY) in the years 2007-2010 (Table D-6)**.** However, preliminary estimates received in November 2011 suggest that the proportion of the overall minor slope north complex catch of aurora, rougheye, and shortraker could be 5 to 10 times higher than their ABC contributions to the complex over this same period (Table D-9). At such ratios, catch would be expected to exceed the stock specific

ABCs and OFLs for aurora, rougheye, and shortraker even when catch remains below the complex ACLs (Table D-7 and Table D-8).

Catch has not been estimated for individual stocks managed within stock complexes as part of the official estimates of annual groundfish mortality reports. With some exceptions (e.g., dogfish), catch has instead been reported only at the complex level. The estimates considered by the GMT in November 2011 and discussed here were requested specially by the GMT as part of the overall evaluation of the stock complexes that began during the 2011-12 cycle and is scheduled for completion after implementation of the 2013-14 changes.

These specially produced estimates are based on the same methods as those used for the annual groundfish total mortality estimates described in Bellman et al. (2010). However, the added sampling layer necessary to account for slope rockfish landings at the species level, discussed below, introduces an extra step and extra assumptions and uncertainty into these estimates. For example, there is uncertainty in the assignment of catch to the major management areas north and south of 40° 10' N. latitude. These preliminary estimates were intended to allow the GMT to evaluate the general magnitude of catch for these stocks for which the official estimates are not produced and to identify which stocks might be in need of further evaluation. There is a need to reconcile the stock specific estimates with the official estimates of catch for the complexes as whole. The timing of the data release and the publication schedule for this DEIS has not allowed time for this to occur or for full review by the GMT.

Nonetheless, the preliminary estimates highlight the need for further attention to these estimates. The sorting designation was proposed, at least in part, in response to this need. Stock specific catch estimates for stocks managed within stock complexes will be incorporated into the regular annual reporting of groundfish mortality in future cycles. The SSC has recommended that estimates be produced for as many species as feasible as part of the standard annual reporting (PFMC September 2011 Briefing Book, Agenda Item G.5.b, Supplemental SSC Report).

Of note, the majority of the estimated catch of aurora, rougheye, and shortraker has come in the bottom trawl sector (Table D-10). This sector transitioned from a trip limit fishery to the individual fishing quota (IFQ) program beginning in 2011. Trawl effort dropped considerably in the first year of the IFQ program relative to the years analyzed here. Preliminary estimates of the 2011 IFQ catch indicate that catch of the minor slope rockfish north complex dropped below 20 percent of what the trawl sector allocation would allow. A corresponding drop of the catch of aurora, rougheye, and shortraker more than likely occurred as well. The GMT and other analysts will be examining the catch estimates from this fishery as soon as they become available. The transition to the IFQ fishery allows information on total mortality from the sector to be available much earlier in the year than before.

Table D-6. Total estimated mortality of the slope rockfish complexes relative to annual OYs, 2007-2010 (source: annual NWFSC groundfish mortality reports).

	Minor slope rockfish N.	Minor slope rockfish S.
2007-2010 annual OY	1,160 mt	626 mt
2007 total mortality	522 mt	149 mt
% of OY	*45%*	*24%*
2008 total mortality	484 mt	189 mt
% of OY	*42%*	*30%*
2009 total mortality	519 mt	231 mt
% of OY	*45%*	*37%*
2010 total mortality	562 mt	183 mt
% of OY	*48%*	*16%*

Table D-7. The 2013-14 preferred OFL and ABC contributions of aurora, rougheye, and shortraker to the minor slope north and south complexes. The final column shows the percentage of the coastwide ABC for each stock that is assigned to the minor slope rockfish north complex.

	2013-2014 OFL (north)	2013-2014 ABC (north)	2013-2014 OFL (south)	2013-2014 ABC (south)	N. ABC as a % of total ABC
Aurora	15.4	12.8	26.1	21.7	37.1%
Rougheye	71.1	59.3	0.4	0.3	99.5%
Shortraker	18.7	15.6	0.1	0.1	99.4%

Table D-8. Preliminary estimates of stock specific catch (mt) by year, 2004-2010, for aurora, rougheye, and shortraker rockfishes in the area north of 40° 10’ N. latitude.

	2004	2005	2006	2007	2008	2009	2010
Aurora	82	53	63	64	50	59	30
Rougheye	67	62	70	113	123	148	233
Shortraker	14	13	9	31	38	27	28

Table D-9. The individual ABCs for aurora, rougheye, and shortraker as a percentage of the minor slope rockfish north complex ABC for 2013 with the estimated annual catch of the three stocks as percentage of overall catch for the complex, 2007-2010.

Stock	ABC as % of N. complex 2013 ABC	Catch as a % of total N. complex catch			
		2007	2008	2009	2010
Aurora	0.9%	5.5%	7.8%	9.8%	4.5%
Rougheye	4.3%	21.6%	25.4%	28.5%	41.5%
Shortraker	1.1%	5.9%	7.9%	5.2%	5.0%

Table D-10. Preliminary estimates of coastwide annual stock specific catch (mt) for aurora, shortraker, and rougheye rockfishes in the minor slope rockfish complexes with the percentages of catch identified for the significant fishery sectors. The catch of rougheye is assumed to have occurred exclusively in the area north of 40° 10' N. latitude. For aurora and shortraker, information on the split between the areas north and south of 40° 10' N. latitude is currently available for the limited entry bottom trawl sector only.

	2004	2005	2006	2007	2008	2009	2010
Aurora	82 mt	53 mt	63 mt	64 mt	50 mt	59 mt	30 mt
LE Trawl - North	*35%*	*22%*	*23%*	*45%*	*76%*	*86%*	*84%*
LE Trawl - South	*64%*	*78%*	*77%*	*51%*	*24%*	*12%*	*14%*
LE & open access fixed gear	*2%*	*1%*	*1%*	*0%*	*1%*	*3%*	*3%*
Other	*1%*	*0%*	*0%*	*4%*	*1%*	*2%*	*1%*
Rougheye	67 mt	62 mt	70 mt	113 mt	123 mt	148 mt	233 mt
LE Trawl - North	*86%*	*74%*	*89%*	*82%*	*70%*	*83%*	*63%*
LE & open access fixed gear	*11%*	*25%*	*11%*	*18%*	*30%*	*17%*	*37%*
Other	*3%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
Shortraker	14 mt	13 mt	9 mt	31 mt	38 mt	27 mt	28 mt
LE Trawl - North	*97%*	*65%*	*94%*	*87%*	*52%*	*87%*	*61%*
LE Trawl - South	*0%*	*0%*	*0%*	*9%*	*1%*	*6%*	*2%*
LE & open access fixed gear	*3%*	*34%*	*6%*	*4%*	*47%*	*7%*	*37%*
Other	*0%*	*1%*	*0%*	*0%*	*0%*	*0%*	*0%*

Management Options

No Action: Landings of aurora rockfish, rougheye rockfish, and shortraker rockfish will continue to reported as part of the minor slope rockfish sub-complex. Improved inseason monitoring could be pursued using statistical estimates based on data collected by the state port sampling programs.

Option 1: For the area north of 40°10 N. latitude, aurora rockfish, rougheye rockfish, and shortraker rockfish would be required to be sorted and reported to species. Landings made into ports south of this management line of these three species would therefore still be reported as part of the slope rockfish market category.

Comparison of the Management Options

The scientific sorting designation for aurora rockfish, rougheye rockfish, and shortraker rockfish in the area north 40° 10' N. latitude is the only action option analyzed. This alternative is compared against the No Action option on how well it would be expected to achieve the intended purpose of improved inseason catch monitoring for these three species in furtherance of the conservation objectives National Standard 1 and the FMP. There are ways of potentially addressing this intended purpose without employing the regulatory sorting designation. These are discussed in the context of the No Action option because they would not require any changes to the regulations. However, as discussed below, non-regulatory changes would be required from the GMT and others to improve catch accounting for these stocks.

In comparing alternative options, National Standard 8 requires the Council to consider how the intended conservation objectives can be achieved while "to the extent practicable, minimize[ing] adverse economic impacts" to fishery participants and fishing communities. The administrative implications of implementation related to various programs run by NMFS, the states, PSMFC, and tribal management agencies are the other major factors that the Council is expected to weigh in consideration of the applying the scientific sorting designation to these three slope rockfish species.

Inseason Catch Monitoring

The National Standard guidelines identify multiple reasons why stock complex management could be beneficial for achieving the conservation objectives of National Standard 1 (50 C.FR. Section 600. 310(d)(8)). Two reasons that are in large part present with the minor slope rockfish complexes include:

- where stocks in a multispecies fishery cannot be targeted independent of one another; and,
- when it is not feasible for fishermen to distinguish individual stocks among their catch.

As to the first factor, the minor slope rockfish complexes were created based on the known co-occurrence of the slope rockfish species in the fishery. Although not analyzed here, discussions between the GMT and GAP in November 2011 indicated that fishermen have not preferentially targeted rougheye, shortraker, and aurora in the past; and also, that vessels have limited ability to avoid these three species apart from the other slope rockfish stocks.

The second factor—proper species identification—is directly relevant to the analysis of the sorting designation. Closely related rockfish can be difficult to differentiate from one another even for trained fish biologists. Feedback from biologists with the state port sampling programs and the West Coast Groundfish Observer Program (WCGOP) and a review of the published literature suggests that it could be challenging for fishermen and fish buyers to accurately identify and separate aurora, shortraker, and rougheye rockfish from one another and the other slope rockfish species. For instance, aurora rockfish is similar in appearance to splitnose, stripetail, rougheye, shortrkater, and chameleon rockfishes (Orr et al. 2000). Rougheye is likewise similar to shortraker, blackgill, Pacific ocean perch, sharpchin, and yelloweye rockfish. The recent finding that fish historically identified as rougheye consist of a second species as well— blackspotted rockfish (*Sebastes melanostictus*)—a situation that is not unprecedented in recent years and that underscores the identification challenge involved with closely related rockfish (Orr and Hawkins 2008).[2]

As for shortraker, fish of this species are similar in appearance not just to rougheye but to blackgill, Pacific ocean perch, sharpchin, and redbanded rockfishes as well. Differentiating between these similar appearing species can require the counting of head spines and/or gill rakers, inspection of the color of the membrane lining the abdomen (i.e., the peritoneum); or close examination of skin coloration, although coloration can fade substantially after capture and make identification more difficult. Lastly, fishermen and fish buyers have traditionally used multiple common names to refer to individual species of rockfish. In Oregon, shortraker rockfish can be commonly referred to as buoy kegs, cowcod, or rougheye. This phenomenon arises from the similar appearance and marketability of the rockfishes and adds to the risk that fishermen and fish buyers might misidentify and misreport species on fish tickets.

To the degree that species misidentification occurs under the Action Alternative, this objective could be undermined if the sorting designation lead to inadvertent misreporting and inaccurate landings data. The actual degree to which species misidentification would occur under a scientific sorting requirement (action options) for aurora, shortraker, and rougheye cannot be predicted. Some level of misidentification occurs under No Action species like Pacific ocean perch and yelloweye rockfish that were once managed as part of a stock complex yet are now required to be sorted individually. Under either alternative, state port samplers would continue to sample the slope rockfish at the fish buying facilities to detect and quantify the extent of the misreporting.

The risk posed by misidentification may be mitigated to some degree under the Action Option because the majority of the aurora, shortraker, and rougheye catch is taken in the bottom trawl sector (Table

[2] Blackspotted continue to be treated as rougheye for management purposes because, in part, harvest specifications were calculated using historical catch data that treated the two as a single species.

D-10). With the switch to the IFQ program, landings and discard are subject to 100 percent monitoring by at sea observers and dockside catch monitors who are trained in species identification. Although sorting would continue to be the responsibility of vessels and buyers, trained biologists could aid with proper identification and sorting of slope rockfish. Ensuring appropriate sorting and weighing of catch is one of the specific duties for IFQ catch monitors. Education and outreach to fishermen and fish buyers on proper species identification is a regular part of the state port sampling programs, and for the IFQ catch monitors as well, and would be expected to also mitigate the risk of misidentification to the sorting designation.

The No Action option would continue to rely on data collected from the three state port sampling programs to produce species specific estimates of landings for the minor slope rockfish north complex. These programs serve in part to sample a subset of landings and to record and measure the species composition and weights of fish reported within species groups on fish tickets. This sampling data is used to produce estimate of species specific weights for non-sampled landings. The states upload these estimates to the PacFIN database on a monthly or quarterly basis depending on the state and the data available during the time period sampled. Stock specific estimates of at sea discards are made by WCGOP yet are not reported inseason, or as mentioned above, have not been reported as part of the official groundfish mortality estimates produced each year.

With these monitoring programs in place, it would be possible to improve inseason catch accounting under No Action for aurora, shortraker, and rougheye even without implementing the scientific sorting designation. No regulatory change would be needed, yet changes would be required to the methods and reporting systems used by the GMT for inseason management. Such changes would be expected to affect workload for the PSMFC PacFIN staff and could reach to the state sampling programs. The main benefits of such an approach relative to the sorting designation would be that species identification would remain in the hands of expert port biologists and that there would be no additional sorting responsibilities for vessels and processors. The tradeoff relative to a sorting designation would be that catch estimates for aurora, rougheye, and shortraker would be subject to the statistical error and inaccuracy inherent in sampling data. Such error results from sampling bias (e.g., small sample sizes and low sampling coverage) and natural variation between samples.

Socio-economic Impacts

Impacts to Fishermen and Fish Buyers/Processors

Under a scientific sorting designation, the responsibility for proper sorting of aurora, rougheye, and shortraker would fall to vessels and buyers of fish from the bottom trawl and fixed gear sectors fishing seaward of the RCA in the area north of 40° 10’ N. latitude. The failure to sort or improper sorting is subject to enforcement under both state and federal regulations. As with all stocks requiring sorting, the sorting would have to occur “prior to the first weighing after offloading.” This requirement allows vessels and buyers some flexibility in whether fish are sorted onboard or during offloading.

Despite this flexibility, the sorting requirement would be expected to increase the existing workload and reporting requirements for fishery participants. Circumstances differ between vessels and buying and processing facilities and so would affect individuals and businesses to different degrees. Some vessels may have more ability to sort and store fish into more categories onboard than others. Many vessels will not sort the catch completely until the time of delivery.

Operations at most processing facilities involve sorting based on visual inspection of large volumes of fish on a fast moving sorting belt. As discussed above, accurate rockfish identification can require the handling and deliberate examination of individual fish. Adding three additional stocks to the sorting requirement would be expected to increase the number of fish needing examination and increase the overall time needed for sorting. Such increased handling may result in decreased product value and delays in processing operations could reduce the overall profitability of the offload. These potential impacts to fish buyers and processors cannot be quantified with available information.

Implications for Management Agencies

Federal and state sampling programs may need to invest time and money into outreach programs to increase the accuracy of species identification within the processing community, under the Action Option. Increased enforcement may also be necessary to ensure accurate sorting for management.

The WCGOP, which samples at sea discards, strives to identify all discarded catch to the species level. The Action Option would have no additional impact to the current sampling methods used onboard vessels. Species identification is not always possible due to the dynamic fishing environment. For example, rockfish may fall off a longline prior to observer sampling, in which case reporting would be aggregated to include several species (e.g., shortrakter/rougheye) or the entire complex (e.g., slope rockfish).

The PSMFC catch monitor program samples landed catch to ensure proper reporting of landings in the shorebased individual fishing quota (IFQ) fishery. The impact of a sorting requirement to this sampling program is anticipated to be minimal. Staff duties would include outreach to processors (i.e., first receivers) and enhanced species identification training for catch monitors. Further, modifications to the electronic fish ticket and state databases would need to be made to accommodate species-specific reporting for these species. Currently, Oregon is the only state that has species codes for aurora, shortraker, and rougheye north of 40°10' N. latitude. California would need to add codes for rougheye and shortraker and Washington would need to add all three. Codes for these species are used in each state already as part of the port sampling programs and the species composition data that is uploaded to the PacFIN database. The burden of adding new codes should be minimal.

Other Management Implications

The scientific sorting designation is only intended to address catch accounting needs. It would not in and of itself be expected to have an effect on the catch of aurora, rougheye, and shortraker. Additional management measure adjustments would be needed if inseason monitoring highlighted the need to slow catch of these stocks.

As shown in Table D-10, the bulk of the catch of aurora, rougheye, and shortraker has come in the bottom trawl sector. That sector is now managed under the IFQ program. The annual quota pounds (QP) used to control catch in this program are issued for the minor slope rockfish north complex as a whole. This means that QP can cover catch of any slope rockfish species managed within the complex. Trip limits cannot be targeted at individual stocks in the complex as might have been done prior to implementation of the IFQ program.

The most direct method for controlling catch would be to restructure the minor slope north rockfish complex either by removing aurora, shortraker, and rougheye from the complex or by removing the stocks for which their rate of catch is low relative to their OFL-ABC contributions to the complex (PFMC November 2011 Briefing Book, Agenda Item E.5.b, Supplemental GMT Report 3). The former option would directly apply the incentives created by the QP accountability to each species individual. The latter option would potentially make the complex ACL more effective by making it less likely that the rate of catch of aurora, rougheye, and shortraker within the complex would deviate substantially from the proportion set by their ABC contributions to the complex. In November 2011, the Council chose to not pursue such a restructuring of the minor slope rockfish complex because of the limited scope desired for the 2013-14 management cycle. Consideration of restructuring is anticipated to be part of the more complete evaluation of the stocks complexes and species in the FMP that is planned for the next management cycle.

Absent a restructuring of the complex, the seaward boundary of the RCA would be the Council’s main option for reducing encounters with aurora, rougheye, and shortraker. Table D-11-Table D-13 summarize the available information from WCGOP on depth of catch for these three species in the area north of 40° 10’ N. latitude. As the tables show, the highest observed rate of catch have occurred in depths between 150 and 200 fathoms for all three species. At the same time, a significant proportion of catch has occurred at depths deeper than 250 fathoms. Given so, the seaward RCA boundary might have to be expanded to 300 fathoms to achieve significant reductions in catch. The GMT would need to analyze this data in detail if the need for inseason action arose during the 2013 or 2014 fishing years for one or more of these three stocks. The need may not arise if bottom trawl effort and catch of the minor slope rockfish north complex remain similar to 2011 levels in 2013 and 2014.

As highlighted above, the catch of rougheye appears to be on an increasing trend in the fixed gear sectors fishing seaward of the RCA (Table D-10). Slope rockfish are currently managed with trip limits in these sectors. Adjustment to those trip limits or a sub-limit on rougheye could be options for lowering catch if inseason action were required in these sectors. If, however, slope rockfish catch is mostly incidental to the catch of sablefish, the primary target stock for the seaward fixed gear sectors north of 40° 10’ N. latitude, the trip limit adjustments would have limited effectiveness.

Table D-11. WCGOP observed trawl catch of aurora rockfish in the area north 40° 10’ N. latitude, by depth in fathoms (fm), 2002-2010, from hauls where the slope rockfish catch was sampled.

All areas	Depth (fm)	Catch (lb)	Avg Catch/haul (lb)	Catch/effort (hrs)	% of Catch
North of 40°10'	0-50	0	0.00	0.00	0.0%
	50-100	84	7.64	2.62	0.1%
	100-150	558	15.51	6.50	0.9%
	150-200	5209	85.40	28.98	8.1%
	200-250	19438	19.67	4.23	30.2%
	250-300	29404	15.77	3.27	45.7%
	300-350	7998	8.82	1.63	12.4%
	350-400	1218	8.77	1.51	1.9%
	400-450	284	9.79	1.37	0.4%
	450-500	33	5.54	0.83	0.1%
	500+	80	9.99	1.30	0.1%

Table D-12. WCGOP observed trawl catch of rougheye rockfish in the area north 40° 10’ N. latitude, by depth in fathoms (fm), 2002-2010, from hauls where the slope rockfish catch was sampled.

All areas	Depth (fm)	Catch (lb)	Catch/haul	Catch/effort (hrs)	% of Catch
North of 40°10'	0-50	0	0.00	0.00	0.0%
	50-100	251	7.37	7.37	0.2%
	100-150	972	11.17	11.17	0.9%
	150-200	8614	107.67	107.67	7.9%
	200-250	59954	102.84	102.84	54.6%
	250-300	30743	69.24	69.24	28.0%
	300-350	7931	51.83	51.83	7.2%
	350-400	808	23.76	23.76	0.7%
	400-450	374	74.78	74.78	0.3%
	450+	79	15.72	15.72	0.1%

Table D-13. WCGOP observed trawl catch of shortraker rockfish in the area north 40° 10' N. latitude, by depth in fathoms (fm), 2002-2010, from hauls where the slope rockfish catch was sampled.

All areas	Depth (fm)	Catch (lb)	Catch/haul	Catch/effort (hrs)	% of Catch
North of 40°10'	0-50	0	0.00	0.00	0.0%
	50-150	282	35.25	13.42	0.9%
	150-200	5237	158.69	45.70	16.8%
	200-250	12900	80.12	16.88	41.4%
	250-300	9443	48.18	10.95	30.3%
	300-350	2457	23.17	4.61	7.9%
	305-400	444	27.74	4.79	1.4%
	400+	416	103.95	12.38	1.3%

D.3 Catch Accounting between Limited Entry and Open Access

This action concerns a policy that was inadvertently deleted from the FMP when Amendment 21 was implemented, and clarifies the application of that policy with respect to catch accounting[3] for set-asides. The policy that was inadvertently deleted specified the decision rules for determining the allocation against which a vessel's catch would count, i.e. whether it would count against the limited entry allocation or the open access allocation. As it was specified, the policy also set up the situation in which catch might be deducted from both the ACL as an "off the top" set-aside before sector allocations are made and deducted from an open access or limited entry sector allocation. In this regard, this amendment adds a clarification to eliminate the possibility of a duplicate deduction.

The language at issue specified catch accounting for the division of allocation between the commercial limited entry and open access sectors and was originally contained Section 11.2.2, paragraph 4. Prior to Amendment 21 Section 11.2.2, Paragraph 4 read as follows.

> Any groundfish catch by vessels with an LE permit will be counted against the quota for the limited entry gears while the fishery for the limited entry gear for which its permit is endorsed is open. A vessel may not carry or deploy limited entry gear for which its permit is endorsed when the limited entry fishery for that gear is closed. Once the limited entry fishery for the gear for which the permit is endorsed has closed, any landings by the vessel with exempted gear, or limited entry gears for which no endorsement is held, will count toward the open access quota. The catch of vessels fishing without LE permits will count toward the open access quota regardless of what open access gear is used.

[3] The terms "catch accounting" and "catch," as used in this section, cover the application of a vessel's harvest against a sector allocation. Depending on how the allocations and management measures are specified, harvest may be measured as landings (catch minus discards), catch (including discards), or total mortality (catch minus discard survival). Regardless of the measure used in a particular situation, the management objective is to maintain total mortality within the ACLs.

Amendment 21 created a new division in the commercial allocation of groundfish by splitting it into trawl and non-trawl gears[4,5] and deducting open access incidental catch from the "off the top set aside". FMP language to implement Amendment 21 addressed catch accounting between the trawl and non-trawl sectors. This new division together with Amendment 20 gear switching provisions created complications for vessels with permits endorsed for limited entry trawl gears. The resolution was to specify that the allocation against which a vessel would be fishing will be determined by the fishery declaration made by the vessel.[6] Amendment 21 revised the language of section 11.2.2, paragraph 4 read as follows:

> Amendment 21 Version of Section 11.2.2, Paragraph 4: Groundfish catch will be counted against the allocation to the fishery or sector into which the vessel has declared or is otherwise participating.

While this language substantially simplified paragraph 4, it inadvertently deleted the only place in the FMP where it was clearly specified that if a vessel with limited entry permit landed groundfish that groundfish would count against the limited entry allocation regardless of the gear used, and similarly that any landing by a vessel without a limited entry permit would count against the open access allocation.

The other issue to be addressed is the potential for double counting. Under the current management system prior to the allocation of the groundfish ACLs among the various groundfish sectors, the ACLs are reduced to account for groundfish catch mortality in non-groundfish fisheries (i.e., incidental open access fisheries), EFPs, research catch, and the tribal fisheries. However, the old Section 11.2.2, paragraph 4 language specified that <u>any</u> catch by limited entry vessels would be deducted against a limited entry allocation (with certain exceptions when a fisheries closed) in that <u>any</u> catch by open access vessels would count against the open access allocation. This FMP language was in place prior to the implementation of ACLs which include "off the top" deductions for non-groundfish activity including incidental open access fisheries. When the old catch accounting language in Section 11.2.2, paragraph 4 was combined with the new ACL structure a vessel fishing in the incidental open access fishery would have catch deducted from the ACL as part of the set-aside for the incidental open access fishery and as well as deducted from allocation covering the open access fishery given the vessels specific catch.

Finally, the declaration program referenced in the Amendment 21 language and the associated data system is not necessarily the best available data to determine which fishery vessels are operating in for inseason catch accounting. The key piece of information for which the declaration system was to serve as the source, whether or not a particular landing is being made as part of the trawl IFQ program, is available through other elements of the fishery monitoring program (e.g. landing receipts). Therefore it

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[4] The division between the limited entry and open access allocations remains a key component of the license limitation program. For groundfish for which there is not a division between the limited entry and open access allocations and regulations the longline and pot limited entry endorsements become relatively meaningless, since longline and pot gear can be used both in the limited entry and open access fisheries. Limited entry/open access allocations are determined for most species during the biennial specifications process.

[5] Assuming that a limited entry/open access allocational split is maintained, the trawl/nontrawl split creates the need for separate accounting for limited entry trawl catch and limited entry fixed gear catch (previously aggregated accounted for as limited entry landings for all groundfish other than sablefish), as well as directed open access catch.

[6] Under the Pacific Coast groundfish program, prior to leaving port of vessel must have filed with the NMFS a declaration report stating the gear type they will be using. The gear declarations are specified such that they categorize trips by sector.

is being suggested that the references to declarations be eliminated from this paragraph so the best available information can to be used.

<u>Management Issue</u>
There is a catch accounting need to reinstate FMP language that specifies how catch will be accounted for between the trawl and non-trawl sectors and the open access and limited entry sectors. The language needs to be updated to address the change in allocation structure since the implementation of Amendments 20 and 21.

<u>Management Options</u>

No Action: Maintain the following language in section 11.2.2, paragraph 4 of the FMP:

> "Groundfish catch will be counted against the allocation to the fishery or sector into which the vessel has declared or is otherwise participating."

The Action Alternative: The following language is proposed for section 11.2.2, paragraph 4, to reinstate the language specifying the accounting rules between limited entry and open access vessels; provide the rules for catch accounting between trawl and non-trawl sectors; and provide clarification to ensure that catch is not deducted twice from an ACL.

> Any groundfish catch by a vessel registered to an LE permit will be counted against the allocation for the limited entry gear(s) that the permit is endorsed for when the fishery for the limited entry gear is allowed, except when the vessel is fishing in a fishery for which the catch has already been accounted for in the preseason set-asides deducted from the ACLs. A vessel may not carry or deploy limited entry gear for which its permit is endorsed when the limited entry fishery for that gear is closed or otherwise prohibited. Once the limited entry fishery for the gear for which the permit is endorsed has closed, any groundfish landings by the vessel with open access gear will count toward the allocation covering the open access fishery. The catch of vessels fishing without LE permits will count toward the allocation covering the open access fishery regardless of what open access gear is used, except when the vessel is participating in a fishery for which the catch has already been accounted for in the preseason set-asides deducted from the ACLs.

Biological Impacts
The Action Alternative addresses catch accounting issues and affects the tracking of catch relative to sector allocations. The risk of exceeding an ACL, ABC or OFL would not result in a considerable difference relative to No Action. No other biological impacts were identified relative to the Action Alternative.

Socio-economic Impacts
The Action Alternative benefits trawl and non-trawl fishermen by allowing for more accurate catch accounting while maintaining flexibility to move between gears and sectors. The Action Alternative further benefits non-trawl fishermen by eliminating duplicate catch accounting. When the old catch accounting language in Section 11.2.2, paragraph 4 was combined with the new ACL structure a vessel fishing in the incidental open access fishery would have catch deducted from the ACL as part of the set-aside for the incidental open access fishery and as well as deducted from the allocation covering the open access fishery given the vessels specific catch.

D.4 Related Regulatory and FMP Language Clarifications

Complete Offloading (Regulatory Language Clarification)

Overview
As part of the trawl rationalization program regulations were adjusted for the trawl sector to clarify that once the transfer of fish begins all fish on board a vessel count toward a landing and that the offload must be completed prior to the start of a subsequent trip. A similar clarification is needed for other segments of the fishery for accurate catch accounting between sector allocations. It is proposed that as part of implementing this FMP amendment on catch accounting, regulatory language be adjusted to parallel the requirements for complete offloading which apply for the trawl sector.

Management Issue
For the purpose of catch accounting it is important that all fish harvested on a trip are clearly associated with the landings receipts and permit status. Action is needed to require that all fish from a particular trip be offloaded prior to the commencement of a subsequent trip.

Management Options

No Action Option: Require that all fish from an IFQ trip be offloaded prior to the commencement of a subsequent trip.

Action Alternative: Require that all fish from any trip be offloaded prior to the commencement of a subsequent trip.

Comparison of the Management Options

Biological Impacts
The Action Alternative affects tracking of catch and catch limits. Requiring that all catch be offloaded is expected to improve catch accounting between sectors. The risk of exceeding an ACL, ABC or OFL would not result in considerable difference relative to No Action. No other biological impacts were identified relative to the Action Alternative.

Socio-economic Impacts
For the purpose of catch accounting it is important that all fish harvested on a trip are clearly associated with the landings receipts and permit status. Because all catch from a trip is generally offloaded prior to leaving port on a new trip under the No Action Option, the Action Alternative is expected to result in no considerable change in impacts to the affected fishermen.

Clarification on the Open Access Sector Regulations Applying (FMP Language Clarification)
Overview
Section 11.2.1 of the current FMP specifies that all open access regulations will not apply to vessel using open access gear. The primary regulations for which the exception is made is the trip limit regulations.

Management Issue
clarifications of the FMP language is needed to specify that language in section 11.2.1 relative to the open access regulations only the trip limit regulations for which the vessels using open access gear in the IFQ program would receive an exception. Gear and other regulations having to do with the open access fishery may continue to apply, however, this adjustment will not prevent NMFS and the Council from providing exceptions to other open access regulations as necessary and appropriate.

Management Options
No Action Option: Maintain language at 11.2.1 of the FMP that reads…..”longline and fishpot gears used by IFQ vessels endorsements are termed OA”

Action Alternative: Revise Gear Endorsement language at 11.2.1 of the FMP to read as follows:

6. Gear endorsements are required for LE-permitted vessels to use LE gear types (see Section XXX, paragraph 1) to catch groundfish under the regulations governing the LE fishery.
   b. Exception for Longline and Fishpot Gear Usage for Vessels With a LE Permit not Endorsed for the Gear Being Used:
      . . .
      iii. As specified in the trawl rationalization program (Section XXX and Appendix E) vessels registered to a trawl-endorsed LE permit and using longline or fishpot gear without a LE endorsement for those gears must cover their landings with trawl IFQ and comply with the provisions of the trawl IFQ program. Open access sector ~~regulations~~trip limits will not apply to vessels participating under the IFQ program.

Comparison of the Management Options

Biological Impacts
The Action Alternative is an FMP housekeeping measure that is not expected to result in any biological impacts.

Socio-economic Impacts
The Action Alternative is an FMP housekeeping measure that is not expected to result in any socio-economic impacts.

D.5 Widow Rockfish Within Trawl Allocations

Widow rockfish is formally allocated in the groundfish Fishery Management Plan (FMP) with 91 percent of the fishery harvest guideline (HG) [7] allocated to the trawl sector. Within the trawl sector, the allocation is further divided between the Pacific whiting sectors (shoreside, catcher-processors, and motherships) and the non-whiting trawl sector. The current sector allocation in the FMP specifies that 52 percent of the trawl allocation of widow rockfish is allocated to the trawl whiting sectors. Of that amount, widow yield is allocated to the whiting sectors according to the pro-rata allocation of whiting (42 percent to shoreside whiting, 34 percent to catcher-processors, and 24 percent to motherships). The shoreside whiting and non-whiting trawl widow allocations are then combined to form the shorebased trawl allocation.

For the 2013-2014 cycle, the Council requested an analysis of three widow rockfish annual catch limits (ACLs) – 600 mt (No Action), 1,500 mt (preferred), and 2,500 mt (Table D-14). Additionally, the Council is contemplating a change to the within trawl sector widow rockfish allocation to provide more widow to the shorebased sector to allow greater opportunity to target widow and yellowtail rockfish. In

[7] Deductions from most groundfish ACLs are made to account for groundfish mortality in the Pacific Coast treaty Indian tribal fisheries, scientific research, non-groundfish target fisheries (hereinafter incidental open access fisheries), and, as necessary, EFPs. The resulting value that is allocated to groundfish fishing sectors is called the fishery HG.

addition to the No Action overfished allocation specified in the FMP, five alternative allocation options are considered under the widow rockfish range of ACLs (Table D-14). Under the options, the allocation provided to the at-sea sectors is further divided using the same apportionment used to allocate Pacific whiting (i.e., 41.4 percent to motherships and 58.6 percent to catcher-processors). The remainder of the widow trawl allocation is provided to the shorebased sector (non-whiting and whiting shoreside sectors combined).

Under the Option 1 allocation scheme, the at-sea widow allocation is 290.0 mt under the range of widow rockfish ACLs, while the shorebased sector allocation ranges from 180.6 to 1,909.6 mt (Table D-14). Under option 2 the at-sea allocation is 147.9 mt (the 2012 allocation specified in regulation) under all widow rockfish ACL alternatives, while the shorebased sector ranges from 322.7 to 2,051.7 mt. Widow allocation options 3-5 would allocate 200, 250, and 300 mt of widow to the at-sea sectors. The shorebased allocation ranges from 170.6 mt (600 mt, option 4) to 1,999.6 mt (2,500 mt, option 3).

The needs of the shorebased trawl sector would best be met by allocating as much of the trawl allocation of widow rockfish as possible since a healthy widow rockfish stock is a valuable target for that sector. The needs of the at-sea sectors would best be met by allocating enough widow rockfish to prevent impeding the ability of these sectors to target Pacific whiting. Widow rockfish is bycatch in the at-sea whiting fisheries, but the amount of widow rockfish allocated to the at-sea sectors has the potential to limit their ability to attain whiting allocations. Exceeding the widow allocation would result in fishery closure, even if the sector had not attained their whiting allocation. The analysis of sector needs for widow therefore compares the recent historical catches and catch rates of widow with respect to whiting by the at-sea sectors to understand whether the widow allocation options meet the needs of the at-sea sectors (Table D-15).

Given the widow rockfish ACL alternatives analyzed for 2013-2014 and the finding that the widow rockfish stock is successfully rebuilt, the FMP allocation to whiting sectors is 500 mt, of which 290 mt is allocated to the at-sea sectors, which is close to the maximum allocation of 300 mt analyzed (Table D-15). The range of at-sea whiting sector allocation options of 147.9 mt to 300 mt results in a range of widow allocations to catcher-processors of 86.7-175.9 mt and to motherships of 61.2-124.1 mt (Table D-14). Recent bycatch of widow rockfish has ranged from 1-73 mt in the catcher-processor sector and from 13-73 mt in the mothership sector (Table D-15). Table D-16 depicts the projected sector whiting catch for the at-sea sectors under each of the widow allocation options assuming the recent year average and maximum widow bycatch rates observed in the fishery. The two options with lowest widow allocations to the at-sea sectors (options 2 and 3) have the potential of limiting access to whiting in the mothership sector assuming the average. In the last three years, both sectors have been able to attain their respective whiting allocations by avoiding widow rockfish. The at-sea sectors, especially the catcher-processor sector, have concentrated their fishing efforts later in the year when bycatch rates are reduced. If this pattern continues, the sectors may be able to access significantly larger allocations of whiting with lower widow allocations.

Table D-14. Trawl sector allocations, including No Action and five options, for widow rockfish under a range of widow ACLs (mt).

ACL Alt.	Fishery HG a/	Trawl Alloc.	Widow Alloc. Option	SS Trawl Alloc. b/	At-sea Trawl Alloc.	MS Alloc.	CP Alloc.
600	513.4	467.2	No Action c/	326.3	140.9	58.3	82.6
			Option 1 d/	177.2	290.0	120.0	170.0
			Option 2	319.3	147.9	61.2	86.7
			Option 3	267.2	200.0	82.8	117.2
			Option 4	217.2	250.0	103.4	146.6
			Option 5	167.2	300.0	124.1	175.9
1,500	1,413.4	1,286.2	No Action c/	898.3	387.9	160.5	227.4
			Option 1 d/	996.2	290.0	120.0	170.0
			Option 2	1,138.3	147.9	61.2	86.7
			Option 3	1,086.2	200.0	82.8	117.2
			Option 4	1,036.2	250.0	103.4	146.6
			Option 5	986.2	300.0	124.1	175.9
2,500	2,413.4	2,196.2	No Action c/	1,533.8	662.4	274.1	388.3
			Option 1 d/	1,906.2	290.0	120.0	170.0
			Option 2	2,048.3	147.9	61.2	86.7
			Option 3	1,996.2	200.0	82.8	117.2
			Option 4	1,946.2	250.0	103.4	146.6
			Option 5	1,896.2	300.0	124.1	175.9

a/ The ACL is reduced by 86.6 mt to accommodate groundfish mortality in the tribal fisheries (60 mt), non-groundfish fisheries (3.3 mt), research (5.3 mt), and EFPs (18 mt). The resulting value is the fishery HG.

b/ The shorebased individual fishing quota (IFQ) sector includes vessels that target whiting and non-whiting.

c/ The No Action option is the initial FMP allocation formula that assumes the stock is overfished, which is the sector allocation currently in Federal regulations.

d/ Option 1 applies the FMP allocation assuming the stock is rebuilt.

Table D-15. Bycatch of widow rockfish by non-tribal whiting trawl sectors, 2005-2011.

Year	Sector								
	Shoreside a/			Catcher-processors			Motherships		
	Widow Catch (mt)	Whiting Catch (mt)	Widow Catch Rate (Widow/Whiting)	Widow Catch (mt)	Whiting Catch (mt)	Widow Catch Rate (Widow/Whiting)	Widow Catch (mt)	Whiting Catch (mt)	Widow Catch Rate (Widow/Whiting)
2011	123.84	90,988	0.001361010	24.41	71,679	0.000340584	12.85	50,051	0.000256646
2010	54.97	62,319	0.000882075	5.01	54,285	9.22907E-05	34.02	35,714	0.000952568
2009	108.64	40,801	0.002662680	0.96	34,620	2.77296E-05	24.90	24,091	0.001033581
2008	99.09	50,423	0.001965175	52.37	108,121	0.000484365	60.75	57,432	0.001057773
2007	88.97	73,280	0.001214110	72.77	73,263	0.000993271	72.99	47,809	0.001526700
2006	49.38	97,297	0.000507518	67.00	78,864	0.000849564	71.80	55,355	0.001297082
2005	77.15	97,381	0.000792249	43.14	78,890	0.000546837	35.50	48,571	0.000730889
05-11 avg	86.01	73,213	0.001340688	37.95	71,389	0.000476377	44.69	45,575	0.000979320
05-11 max	123.84	97,381	0.002662680	72.77	108,121	0.000993271	72.99	57,432	0.001526700
05-11 min (year)	49.38	40,801	0.000507518 (2006)	0.96	34,620	0.000027730 (2009)	12.85	24,091	0.000256646 (2011)

a/ Beginning in 2011 the shoreside whiting and non-whiting sectors were combined into a single sector and managed with IFQs. For this table, the 2011 data were analyzed at the trip level to determine trips that targeted whiting vs. those that targeted other groundfish species. The 2011 catch data presented in the table are the sum of catches from all whiting target trips to make these data comparable with previous years.

Table D-16. Projected potential whiting catch at the average and maximum widow bycatch rates for whiting sectors during 2005-2011. Highlighted cells show projected potential whiting catch levels that are below the "Highest plus 50%" whiting HG, indicating a potential widow rockfish bycatch constraint under that scenario.

Widow ACL Alt.	Widow Alloc. Option	Projected potential whiting catch (mt) at the average widow bycatch rate			Projected potential whiting catch (mt) at the highest widow bycatch rate		
		Shorebased a/	MS	CP	Shorebased a/	MS	CP
600	Option 1	184,374	122,534	356,860	118,269	78,601	171,152
	Option 2	329,475	62,492	181,999	211,345	40,086	87,287
	Option 3	276,274	84,506	246,110	177,219	54,208	118,036
	Option 4	225,219	105,633	307,638	144,469	67,759	147,545
	Option 5	174,163	126,759	369,166	111,719	81,311	177,053
1,500	Option 1	1,020,669	122,534	356,860	654,720	78,601	171,152
	Option 2	1,165,769	62,492	181,999	747,797	40,086	87,287
	Option 3	1,112,569	84,506	246,110	713,671	54,208	118,036
	Option 4	1,061,513	105,633	307,638	680,920	67,759	147,545
	Option 5	1,010,458	126,759	369,166	648,170	81,311	177,053
2,500	Option 1	1,949,885	122,534	356,860	1,250,777	78,601	171,152
	Option 2	2,094,986	62,492	181,999	1,343,853	40,086	87,287
	Option 3	2,041,786	84,506	246,110	1,309,728	54,208	118,036
	Option 4	1,990,730	105,633	307,638	1,276,977	67,759	147,545
	Option 5	1,939,674	126,759	369,166	1,244,227	81,311	177,053

a/ The shorebased IFQ sector includes vessels that target whiting and non-whiting; however the rates in this table refer only to the those vessels targeting whiting.

D.6 Shorebased IFQ Accumulation Limits

The term accumulation limits applies to the maximum number of quota shares (QS) an entity can control and the maximum number of quota pounds (QP) assigned to a vessel account in the shorebased IFQ fishery (defined in regulation at 50 CFR 660.111). These limits vary according to the management unit for each stock or stock complex. Objectives for the accumulation limits include preventing the consolidation of large blocks of quota holdings by a small number of controlling entities and encouraging the distribution of quota among communities. The QS limits restrict the amount an individual or entity may control through ownership or other means. The annual QP limits refer to the maximum amount that may be assigned to any one vessel during a given year to cover catch by that vessel. The annual vessel QP limits are larger than the control limits in order to allow several QS holders to work together on a single vessel. Additionally, there are daily vessel limits that regulate the amount of unused QP for Pacific halibut and overfished species residing in a vessel account. Performance of the accumulation limits was evaluated based on the conduct of the fishery in 2011 and the ACLs and trawl allocations that are proposed for 2013-2014.

Management Issue

Based on information gathered in June 2009, the 167 limited entry trawl permits that received initial QS allocations in December 2010 under the trawl rationalization program are thought to be owned or controlled by a total of 114 identified business entities. Accumulation limits include an aggregate limit for the non-whiting species. Each species is weighed based on the percent it contributed to the total non-whiting aggregate trawl allocation in 2010 to determine an individual's aggregate non-whiting QS (or vessel's QP). A constant weighting is used (rather than changing each year) so that individuals who are at the QS limit are not pushed over that limit when there is a change in the relative contribution on a particular species makes to the non-whiting QP. Applying the species-quota weighting factors in the FMP, two of the 114 entities may have received initial quota share allocations that exceeded the aggregate non-whiting species accumulation limit of 2.7 percent (initial allocations in excess of 2.7 percent were grandfathered in for the duration of the divesture period). If, rather than holding the weighting constant, adjustments were made to the species weighting factors based on the 2013 and 2014 preliminary preferred ACLs (and shoreside trawl allocations) for quota share species, these same two entities plus one additional entity (i.e., a total of 3) would be in control of quota share amounts that exceed the aggregate non-whiting species accumulation limit of 2.7 percent.

Quota shares for lingcod were originally allocated to participants as a single, coastwide stock. Splitting the formerly coastwide quota for lingcod into portions restricted to use north and south of 40°10' N. latitude, may introduce unintended constraints on some participants. In 2011, the vessel use limit of 3.8 percent of coastwide lingcod quota translated into 70.8 mt of lingcod based on the 2011 trawl sector allocation of 1,864 mt. Applying the proposed 2013 lingcod ACLs, which are stratified north and south of 40°10 N. latitude, results in trawl sector allocations of 1,226 mt north and 494 mt south of 40°10 N. latitude. Applying the 3.8 percent vessel use limit to both stocks means that participating vessels would be limited to 46.6 mt of lingcod north and 18.8 mt south.

In 2011, one vessel recorded lingcod landings of more than 46.6 mt north of 40°10' N. latitude (max was 59 mt, 2nd most was 42 mt, 3rd was 36 mt), and no vessels landed more than 18.8 mt of lingcod south of 40°10' N. latitude (max was 3.4 mt). No vessels landed lingcod both north and south north and south of 40°10' N. latitude.

Combining the proposed 2013 lingcod trawl sector allocations north and south of 40°10' N. latitude and applying the 3.8% vessel use limit would translate into an aggregated vessel catch limit of 65.4 mt of lingcod coastwide in 2013. If the Council wishes to provide vessels an opportunity to allow the same amount of lingcod in the north that it would have been able to land if there had not been a split in the quota (65.4 mt of lingcod north of 40°10' N. latitude) a vessel use limit no less than 5.33 percent would be required. Similarly a vessel use limit of at least 13.23 percent would be required to allow a single vessel to catch 65.4 mt of lingcod south of 40°10' N. latitude. In order to provide sufficient lingcod quota for a single vessel to catch the same maximum amount that it was allowed to catch under the 2011 trawl allocation (70.8 mt) a vessel use limit no less than 5.78 percent would be required in the north of 40°10' N. latitude. Similarly, a vessel use limit of at least 14.34 percent is required to allow a single vessel to catch 70.8 mt of lingcod south of 40°10' N. latitude.

Management Options

No Action: For the 2013-2014 management cycles, the maximum amount of non-whiting QS an entity can control and QP a vessel can use in the shorebased IFQ fishery would be limited by accumulation limits defined in regulation at 50 CFR 660.111. Specifically, the aggregate non-whiting QS accumulation limit would be 2.7 percent and the coastwide lingcod vessel QP limit would be 3.8 percent. The weightings from the 2010 fishery, currently fixed in regulation, would continue to be used to evaluate an entity's of vessel's aggregate non-whiting quota.

Action: XXX To be completed after the April Council meeting. XXX

Biological Impacts

Any adjustments to accumulation limits, either QS or QP, would be intended to improve economic efficiency thereby enhancing the ability of the fishery to harvest the ACL. If the ACL is attained, the biological impacts described in Section 2.1 would be realized.

Socio-Economic Impacts

The three business entities that would control QS in excess of the aggregate non-whiting groundfish QS accumulation limit of 2.7 percent will be required to divest excess QS by the end of 2014. Knowledge that the sale of QS is forced by regulation rather than driven purely by market incentives may affect the price offered for divested QS.

Since most vessels tend to concentrate in a particular geographic area rather than fishing coastwide, applying the No Action lingcod vessel use limit (3.8 percent coastwide) to the two new lingcod management units (north of 40°10 N. latitude, and south of 40°10 N. latitude) may limit some participants' harvest or force them to acquire additional lingcod QP for one area or the other. Analysis shows that only one vessel would not be able to achieve its 2011 harvest levels if status quo accumulation limits for lingcod are maintained. Vessels needing to acquire additional lingcod QP to cover their catch may find it more difficult to procure available lingcod quota due to the relatively smaller and area-specific quota supplies.

D.7 Shorebased IFQ Carry-Over

The shorebased individual fishing quota (IFQ) carry-over provision, implemented in regulation at (660.140(e)(5), subpart D), allows up to a 10 percent quota pounds (QP) surplus in a vessel account to be carried over from one year to the next and allows up to a 10 percent deficit in a vessel account for one year to be covered with QP from a subsequent year. QP surpluses may not be carried over for more than one year. If there is a decline in the annual catch limit (ACL) from one year to the next, the amount of

QP carried over as a surplus will be reduced in proportion to the reduction in the ACL. The carry-over provision is anticipated to increase individual flexibility for harvesters, improve economic efficiency, and achieve optimum yield (OY) while preserving the conservation of stocks. Absent a QP surplus carry-over provision, the fleet will likely attempt to maximize harvest of QPs and revenue annually (i.e., fish every last pound for maximum economic benefit) since the QP would not be available in the following year. Attempting to harvest all QPs may increase the risk of fishing into deficit since it is a multispecies fishery and there is limited precision in the harvesting activities.

Management Issue

At the September 2011 Council meeting, the National Marine Fisheries Service (NMFS) issued a report questioning whether the surplus carry-over provision was consistent with the Magnuson-Stevens Fishery Conservation Act (MSA) and National Standard 1 Guidelines (Agenda Item G.1.a, Supplemental Attachment 7). The report requested additional analyses and referenced Section 109-479 (15) of the MSA:

> "establish a mechanism for specifying annual catch limits in the plan (including a multiyear plan), implementing regulations, or annual specifications, at a level such that overfishing does not occur in the fishery, including measures to ensure accountability."

The Council voted unanimously that NMFS issue the surplus carry-over for 2012 but on a delayed basis. In addition to considering the carry-over provision for 2012, NMFS also requested further exploration of the carryover provision for 2013-2014. The following management option and analysis is intended to ensure that issuance of surplus carry-over in 2013-2014 is consistent with MSA and National Standard 1 Guidelines.

Management Options

No Action: Surplus carry-over would be implemented as specified in the current regulations, including:

a) 100 percent of the QP for most species are issued at the start of the year (except Pacific halibut, Pacific whiting, or when the harvest specifications are delayed)
b) Surplus carry-over QP from the previous year issued in the spring of the following year (e.g., 2012 surplus QP issued in spring 2013), to the extent allowed by the conservation requirements of the MSA
c) Accountability measures (AM) to ensure ACLs are not exceeded include
    (1) Automatic adjustments to the carry-over percentages based on changes in the ACL (660.140 (e)(5)(i))
    (2) Surplus QP must be harvested in the year issued, i.e., it cannot be carried-over for more than one year
    (3) Changes to the carry-over percentages can be implemented by NMFS under MSA authority (305d) or by the Council during the biennial process (660.140 (e)(5))
    (4) Inseason data tracking against allocations and ACLs: Near-real time for IFQ fisheries, 2 month lag for non-IFQ commercial (limited entry fixed gear and open access) and recreational
    (5) Routine management measures (660.h) to keep mortality within the ACL include inseason trawl and non-trawl RCA adjustments (including area closures), inseason changes to the list of IFQ species documented on the observer forms, trawl trip limit

reductions for non-IFQ species, adjustments to non-trawl management measures (trip limits, bag limits, season dates, etc.)

(6) Automatic actions (660.d): includes automatic closure of the Pacific whiting sectors when that sector's whiting or non-whiting allocations are reached or projected to be reached and the ability to implement Pacific whiting bycatch reduction areas (660.131(c)(4) subpart D)

(7) Other: emergency action, two meeting regulatory process (e.g., trailing actions), biennial action

Greater detail on management measures as they relate to surplus carry-over can be found in Attachment 1.

Option 1: The proposed action seeks to clarify regulations with regard to the current AMs outlined above, in the event it is necessary to address MSA conservation requirements. Clarifying regulations is largely a housekeeping measure that has no practical impact on the surplus carry-over provision. The proposed action also seeks to implement changes to the eligible surplus carry-over percentages through routine inseason actions based on recommendations generated at a Council meeting. Under this option, the Council would review the eligible surplus carry-over amounts from the previous year, projected impacts for the current year, and available AMs to determine whether the issuing the eligible surplus carry-over QPs results in a conservation concern. If a conservation concern is identified, the Council would make recommendations to NMFS to reduce or eliminate the provision for the species in question for that year. The ability to modify the surplus carry-over percentages through routine inseason action is different from the No Action option where adjustments are made by NMFS under MSA authority or by the Council through biennially cycle. Lastly, the proposed option would revise the current list of automatic actions that may be implemented by NMFS to include closing the non-whiting shorebased IFQ fisheries, in addition to the IFQ shorebased whiting fishery (see regulations at 660.60 (d)).

Projected Impacts Analysis for 2013-2014

In the absence of any inseason action there is a theoretical calculation (mathematical possibility) whereby every sector achieves their allocation and the trawl sector achieves its maximum shorebased allocation, which could result in OFL, ABC, and ACL overages. In order to explore the likelihood of this scenario, the best available and most recent information on fisheries was considered to generate updated projected impacts for 2013-2014 fisheries. The projected mortalities scenario provides a more realistic expectation of mortality compared to the theoretical scenario; however the projected impact scenario may still overestimate mortality since it assumes maximum shorebased carry-over and historical maximum impacts in other sectors (see discussion below, section XXX). The following analyses explore the projected harvest mortalities for 2013 and 2014 to evaluate whether implementing the surplus carry-over is consistent with the MSA conservation requirements.

Pacific halibut and Pacific whiting were not included in the analysis, since they are not subject to the ACL requirements. The IPHC reviewed the carryover policy and determined that it does not create a biological problem for Pacific halibut.

Projected Harvest Mortalities for 2013-2014

a. Projected Mortalities based on the 2011 Experience

Given the 2011 implementation of the trawl rationalization program, the best estimate of IFQ sector attainment for 2013-2014 will be the 2011 attainment (except possibly where the ACLs change significantly).[8] Given this, the best estimate of 2013 and 2014 trawl impacts is, if in aggregate the sector is 10 percent under its allocation in 2011 (i.e., a surplus is carried over to 2012), the trawl sector will likely be 10 percent under its allocation next year (i.e., a surplus will be carried over in 2013). Hence, carry-over of a surplus should not create a biological concern. Further, for species where there is a 10 percent carry-over, it is unlikely that the deficit provision would be invoked in 2012. That is, fishery conditions would need to change substantially to move from less than 90 percent attainment in 2011 to 110 percent attainment in 2012.

Table D-17 details the percent attainment of IFQ species in 2011. Attainment for only three IFQ species (sablefish north, petrale sole, and sablefish south) was greater than 80 percent. The eligible surplus carry-over percentage for petrale, sablefish north, and sablefish south is low (3.2, 3.4, and 3.8, respectively). However, since historical OY/ACL attainment for those species is high there is some risk of exceeding the ACL as a result of the carry-over (Table D-20).

For 2013-2014, IFQ fishery data could be evaluated on December 15th, the date at which QP transfers cease, to better evaluate the number of species where the carry-over provision is likely. On December 15, one could calculate the total used and unused QP for the year, eligible for the carry-over provision. The QP remaining in the vessel accounts on this date would represent the maximum carry-over for 2013 or 2014. That is, fishing could still occur between December 15 and 31, reducing the potential carry-over.

[8] A shorebased IFQ model was developed for estimating landings and the associated socio-economic impacts of the harvest specifications decisions for 2013-2014. However, given model short-comings (see XXX Chapter 4 and Appendix A), 2011 attainment was used in the carry-over projected impacts analysis as the best estimate. If the shorebased IFQ model outputs were used, projected impacts would be lower.

Table D-17. 2011 IFQ Allocation Attainment.

Species	Allocation (mt)	Catch (mt)	Attainment
Sablefish North of 36° N.	2,546	2,397	94%
Petrale sole	871	811	93%
Sablefish South of 36° N.	531	458	86%
Shortspine thornyheads North of 34°27' N.	1,432	713	50%
Longspine thornyheads North of 34°27' N.	1,966	960	49%
Widow rockfish	343	138	40%
Pacific ocean perch North of 40°10' N.	119	46	38%
Darkblotched rockfish	251	91	36%
Dover sole	22,235	7,826	35%
Pacific halibut (IBQ) North of 40°10' N.	117	30	25%
Non-whiting total	77,282	18,631	24%
Yellowtail rockfish North of 40°10' N.	3,094	739	24%
Pacific cod	1,135	253	22%
Chilipepper rockfish South of 40°10' N.	1,475	311	21%
Arrowtooth flounder	12,431	2,484	20%
Minor slope rockfish North of 40°10' N.	830	144	17%
Shortspine thornyheads South of 34°27' N.	50	8	17%
Other flatfish	4,197	685	16%
Lingcod	1,863	285	15%
Canary rockfish	26	4	14%
Minor slope rockfish South of 40°10' N.	377	51	14%
Yelloweye rockfish	1	0	10%
Bocaccio rockfish South of 40°10' N.	60	5	9%
Minor shelf rockfish North of 40°10' N.	522	15	3%
Minor shelf rockfish South of 40°10' N.	86	2	2%
Splitnose rockfish South of 40°10' N.	1,381	28	2%
Starry flounder	668	12	2%
Cowcod South of 40°10' N.	2	0	1%
English sole	18,673	135	1%

b. Updated Projections

The best available and most recent information on fisheries' impacts was considered to generate updated projected mortality for 2013-2014 fisheries to evaluate the risk of exceeding OFLs, ABCs, and ACLs. The recommended set-aside values for 2013-2014 were set higher than projected mortalities, typically at the maximum historical level, to increase the likelihood that mortality will remain within the ACL. However, for some sectors, the maximum historical mortality does not represent the current best estimate of mortality. Yields set aside to accommodate tribal fisheries and bycatch in the at-sea whiting fisheries were updated with the maximum mortality from 2007-2010. Further, projected mortality for the non-trawl sectors represent the maximum mortality from 2007-2010, except in instances where the maximum value was higher than the 2013 or 2014 non-trawl allocation. That is, the management measures for the non-trawl sector are designed to keep catch within the 2013 and 2014 non-trawl allocations; therefore, it is unlikely that catches would reach the historical maximum.

The purpose of this scenario was to examine the projected impact for most sectors alongside the maximum surplus QP carryover scenario. Therefore, the shorebased trawl allocation was not updated with projected impacts; the values represent the maximum 10 percent carry-over for all species (see Section 2b). The results of this analysis are used to evaluate the likelihood of total mortality reaching the maximum 2012 shorebased allocation. However, it is noted that given the experience in 2011, this is an unlikely scenario since carry-over did not reach 10 percent for any species.

Updated Projections - Results

Table D-18 and Table D-19 represent the projected impacts and maximum shorebased allocation for 2013 and 2014. In 2013, no OFLs are projected to be exceeded under this scenario. ABCs for English sole, petrale sole, and splitnose could be exceeded. If there is no inseason action, the 2014 OFL for petrale sole could be exceeded along with the ABCs for English, petrale sole and splitnose. It is unlikely that the situations for English sole and splitnose rockfish would be realized based on historical data (XXX cite Chapter 4 table). Further, English sole co-occurs with canary and yelloweye. It would be challenging to access such large amounts of English sole without first being constrained by QP availability for these species. Additionally, market demand is low for English sole and splitnose rockfish. Petrale is a highly marketable target species where the OY has been greater than 80 percent in recent years. Therefore, there may be some risk of exceeding the OFL and ABC.

In 2013 and 2014, the sums for eight species could exceed the ACL: darkblotched, English sole, longspine thornyheads north, petrale sole, sablefish and south, shortspine thornyheads north, and splitnose.

Table D-20 compares the historical maximum mortality for all sectors from 2007-2010 relative to the OY, the maximum historical trawl mortality and the maximum shorebased 2013-2014 allocation, for species where the ACL could be exceeded under this scenario. First, historical attainment of the OY was reviewed to determine the likelihood that the sum total sector morality would be greater than the 2013 and 2014 ACLs. Historical OY attainment for English sole (3 to 11 percent), longspine north of 34°27’ N. latitude (34 percent to 79 percent), and splitnose south of 40°10 N. latitude (30 to 44 percent) has been less than 80 percent. Co-occurring overfished species restrict access to English sole (co-occurs with yelloweye and canary) and minor slope rockfish north (co-occurs with darkblotched, POP, and petrale). There is low market demand for longspine thornyhead and splitnose rockfish; however, the species co-occur with valuable target species (e.g., slope rockfish, Dover sole, sablefish, and petrale). Therefore, it seems highly unlikely that such large increases in mortality would be realized for all sectors.

Historical OY attainment for the following species has been greater than 80 percent: darkblotched (77 to 106 percent), petrale (78 to 94 percent), sablefish north of 36° N. latitude (94 to 95 percent), sablefish south (57 to 83 percent) and shortpine thornyheads north of 34°27’ N. latitude (80 to 97 percent). Data from 2011 fisheries indicate that the maximum shorebased carry-over scenario for sablefish (north and south) and petrale is unlikely, since percent attainment in 2011 was 94 percent in the north and 86 percent in the south (Table D-17). There may be a risk of exceeding the ACL, assuming no inseason adjustment to management measures, for darkblotched and shortspine thornyhead north.

Biological Impacts

Impacts to a stock as a result of exceeding a harvest specification as a result of the carry-over provision depend on the biological characteristics of the species as well as the magnitude and frequency of the overage. The magnitude and frequency of the overages can be mitigated by the AMs mentioned above and in Attachment 1. If mortality averages to what was expected then the stock assessment forecasts will likely be unaffected. The biological impacts associated with exceeding an OFL, ABC, or an ACL are further discussed in Chapter 4.1.

Socio-Economic Impacts

The surplus carry-over provision is anticipated to increase individual flexibility for harvesters, improve economic efficiency, and achieve OY while preserving the conservation of stocks. Absent a QP surplus carry-over provision, the fleet will likely attempt to maximize harvest of QPs and revenue annually (i.e., fish every last pound for maximum economic benefit) since the QP would not be available in the following year. Attempting to harvest all QPs may increase the risk of fishing into deficit, which results in a negative socio-economic impact, since it is a multispecies fishery and there is limited precision in the harvesting activities.

Table D-18. 2013 Projected Impacts for Set-Asides and Non-Trawl Allocations Along with the Maximum 10 percent Shorebased Allocation.

Species category	Management area	2013 OFL (mt)	2013 ABC (mt)	2013 ACL (mt)	Sum of Set asides, Max 10% Carryover, and Non-trawl Allocation (mt)	% of ACL	% of ABC	% of OFL
Arrowtooth flounder	Coastwide	7,391	6,157	6,157.0	4,536.97	74%	74%	61%
BOCACCIO ROCKFISH	South of 40°10' N.	884	845	320.0	147.30	46%	17%	17%
CANARY ROCKFISH	Coastwide	752	719	116.0	96.86	84%	13%	13%
Chilipepper rockfish	South of 40°10' N.	1,768	1,690	1,690.0	1,458.46	86%	86%	82%
COWCOD	South of 40°10' N.	11	9	3.0	2.62	87%	30%	23%
DARKBLOTCHED ROCKFISH	Coastwide	541	517	317.0	343.83	108%	66%	64%
Dover sole	Coastwide	92,955	88,865	25,000.0	24,747.46	99%	28%	27%
English sole	Coastwide	7,129	6,815	6,815.0	7,088.01	104%	104%	99%
Lingcod	North of 42° N.	3,334	3,036	3,036.0	1,672.24	55%	55%	50%
Lingcod	South of 42° N.	1,334	1,111	1,111.0	723.35	65%	65%	54%
Longspine thornyheads	Coastwide	3,391	2,825				80%	66%
Longspine thornyheads	North of 34°27' N.			2,009.0	2,072.79	103%		
Longspine thornyheads	South of 34°27' N.			356.0	172.0	2%		
Minor shelf rockfish	North of 40°10' N.	2,183	1,920	968.0	652.22	67%	34%	30%
Minor shelf rockfish	South of 40°10' N.	1,910	1,617	714.0	380.18	53%	24%	20%
Minor slope rockfish	North of 40°10' N.	1,518	1,381	1,160.0	1,047.12	90%	76%	69%
Minor slope rockfish	South of 40°10' N.	681	618	618.0	529.39	86%	86%	78%
Other flatfish	Coastwide	10,060	6,982	4,884.0	4,843.53	99%	69%	48%
Pacific cod	Coastwide	3,200	2,221	1,600.0	1,494.08	93%	67%	47%
PACIFIC OCEAN PERCH	Coastwide	844	807	150.0	150.53	100%	19%	18%
PETRALE SOLE	Coastwide	2,711	2,592	2,592.0	2,660.71	103%	103%	98%
Sablefish	Coastwide	6,621	6,045				93%	91%
Sablefish	North of 36° N.			4,012.0	4,145.00	103%		
Sablefish	South of 36° N.			1,439.0	1,495.99	104%		

Species category	Management area	2013 OFL (mt)	2013 ABC (mt)	2013 ACL (mt)	Sum of Set asides, Max 10% Carryover, and Non-trawl Allocation (mt)	% of ACL	% of ABC	% of OFL
Shortspine thornyheads	Coastwide	2,333	2,230				86%	82%
Shortspine thornyheads	North of 34°27' N.			1,540.0	1,653.76	107%		
Shortspine thornyheads	South of 34°27' N.			397.0	268.89	68%		
Splitnose rockfish	South of 40°10' N.	1,684	1,610	1,610.0	1,675.69	104%	104%	100%
Starry flounder	Coastwide	1,825	1,520	1,520.0	828.94	55%	55%	45%
WIDOW ROCKFISH	Coastwide	4,841	4,598	1,500.0	1,403.02	94%	31%	29%
YELLOWEYE ROCKFISH	Coastwide	51	43	18.0	16.22	90%	38%	32%
Yellowtail rockfish	North of 40°10' N.	4,579	4,378	4,378.0	4,020.23	92%	92%	88%

Table D-19. 2014 Projected Impacts for Set-Asides and Non-Trawl Allocations Along with the Maximum 10 percent Shorebased Allocation.

Species category	Management area	2014 OFL (mt)	2014 ABC (mt)	2014 ACL (mt)	Sum of Set asides, Max 10% Carryover, and Non-trawl Allocation (mt)	% of ACL	% of ABC	% of OFL
Arrowtooth flounder	Coastwide	6,912	5,758	5,758	4,047.79	70%	70%	59%
BOCACCIO ROCKFISH	South of 40°10' N.	881	842	337	152.29	45%	18%	17%
CANARY ROCKFISH	Coastwide	741	709	119	86.74	73%	12%	12%
Chilipepper rockfish	South of 40°10' N.	1,722	1,647	1,647	1,408.56	86%	86%	82%
COWCOD	South of 40°10' N.	12	9	3	2.63	88%	29%	23%
DARKBLOTCHED ROCKFISH	Coastwide	553	529	330	358.13	109%	68%	65%
Dover sole	Coastwide	77,774	74,352	25,000	24,750.12	99%	33%	32%
English sole	Coastwide	5,906	5,646	5,646	5,859.49	104%	104%	99%
Lingcod	North of 42° N.	3,162	2,878	2,878	1,601.88	56%	56%	51%
Lingcod	South of 42° N.	1,276	1,063	1,063	651.29	61%	61%	51%
Longspine thornyheads	Coastwide	3,304	2,752				80%	61%

Species category	Management area	2014 OFL (mt)	2014 ABC (mt)	2014 ACL (mt)	Sum of Set asides, Max 10% Carryover, and Non-trawl Allocation (mt)	% of ACL	% of ABC	% of OFL
Longspine thornyheads	North of 34°27' N.			1,958	2,019.32	103%		
Longspine thornyheads	South of 34°27' N.			347	179.00	52%		
Minor shelf rockfish	North of 40°10' N.	2,195	1,932	968	656.23	68%	34%	30%
Minor shelf rockfish	South of 40°10' N.	1,913	1,620	714	379.75	53%	23%	20%
Minor slope rockfish	North of 40°10' N.	1,553	1,414	1,160	1,106.51	95%	78%	71%
Minor slope rockfish	South of 40°10' N.	685	622	622	532.18	86%	86%	78%
Other flatfish	Coastwide	10,060	6,982	4,884	4,849.47	99%	69%	48%
Pacific cod	Coastwide	3,200	2,221	1,600	1,493.21	93%	67%	47%
PACIFIC OCEAN PERCH	North of 40°10' N.	838	801	153	153.26	100%	19%	18%
PETRALE SOLE	Coastwide	2,774	2,652	2,652	2,843.92	107%	107%	103%
Sablefish	Coastwide	7,158	6,535				93%	85%
Sablefish	North of 36° N.			4,349	4,447.00	102%		
Sablefish	South of 36° N.			1,560	1,625.27	104%		
Shortspine thornyheads	Coastwide	2,310	2,210				86%	83%
Shortspine thornyheads	North of 34°27' N.			1,525	1,640.24	108%		
Shortspine thornyheads	South of 34°27' N.			393	268.89	68%		
Splitnose rockfish	South of 40°10' N.	1,747	1,670	1,670	1,744.47	104%	104%	100%
Starry flounder	Coastwide	1,834	1,528	1,528	841.87	55%	55%	46%
WIDOW ROCKFISH	Coastwide	4435	4,212	1,500	1,469.21	98%	35%	33%
YELLOWEYE ROCKFISH	Coastwide	51	43	18	16.26	90%	38%	32%
Yellowtail rockfish	North of 40°10' N.	4,584	4,382	4,382	3,876.24	88%	88%	85%

Table D-20. Historical Attainment of the OY, Compared to the Historical Maximum Trawl Mortality from 2007-2010 and the 2012 Shorebased Allocation with the Theoretical Maximum 10 percent Surplus Carry Over.

Species	Year	Total Mortality for All Sectors (mt)	OY (mt)	% Attainment	Historical Max Trawl Mortality 07-10 (mt)	2013/2014 ACL (mt)	Theoretical 2013/2014 SB Allocation plus 10% (mt)
Darkblotched	2007	285	290	98%	294	317/330	344/358
	2008	253	330	77%			
	2009	301	285	106%			
	2010	332	330 a/	101%			
English Sole	2007	914	6,237	11%	839	6,815/5,646	7,088/5,859
	2008	436	6,237	7%			
	2009	501	14,326	3%			
	2010	311	9,745	3%			
Longspine N. of 34°27' N. lat.	2007	928	2,696	34%	2,106	2,009/1,958	2,073/2,019
	2008	1,445	2,220	65%			
	2009	1,582	2,231	71%			
	2010	1,719	2,175	79%			
Petrale	2007	2,340	2,499	94%	2,286	2,592/2,652	2,661/2,844
	2008	2,260	2,499	90%			
	2009	1,978	2,433	81%			
	2010	936	1,200	78%			
Sablefish- N. of 36° N. lat. b/	2009	6,625	7,052	94%	3,171	4,012/4,349	4,145/4,447
	2010	6,167	6,471	95%			
Sablefish- S. of 36° N. lat. b/	2009	776	1,371	57%	19.6	1,439/1,560	1,496/1,625
	2010	1,039	1,258	83%			
Shortspine N. of 34°27' N. lat.	2007	1,557	1,608	97%	1,557	1,540/1,525	1,654/1,640
	2008	1,313	1,634	80%			
	2009	1,557	1,608	97%			
	2010	1,308	1,591	82%			
Splitnose South	2007	143	461	31%	1,593	1,610/1,670	1,676/1,744
	2008	177	461	38%			
	2009	203	461	44%			
	2010	140	461	30%			

a/ There was an HG of 288 mt in response to the court order.

b/ Sablefish data were only reported coastwide in the 2007 and 2008 Total Mortality Reports; therefore, the evaluation was limited to using 2009 and 2010 data

Attachment 1: Harvest Specifications and Management Measures

Section 2.1 details the harvest specifications framework that establishes the OFL, ABC, and ACLs. Management measures are outlined in Section 2.1 to 2.3; further information on management measures as they relate to the carry-over provision is presented here. The MSA and National Standard 1 guidelines require accountability measures (AMs) to ensure that overfishing does not occur. Further, the National Standard 1 guidelines state "AMs are management controls to prevent ACLs, including sector-ACLs, from being exceeded, and to correct or mitigate overages of the ACL if they occur." The first set of AMs used in the groundfish Fishery Management Plan (FMP) to prevent ACLs from being exceeded are deductions from the ACLs or annual catch targets (ACTs) to account for fishing-related groundfish mortality resulting from Pacific Coast treaty Indian tribal harvest, scientific research, non-groundfish fisheries (i.e., incidental open access), and, as necessary, exempted fishing permits (EFPs). For the 2013-2014 cycle, the Council recommended set-aside values in regulation based on various methodologies (see Attachment 1 for more detail). Most often, set-asides values were set higher than the projected impacts to increase the likelihood that total catches of all sectors would stay within the ACL and ultimately the OFL.

Allocations provide a harvest target or limit (overfished species), which increase the likelihood that catch does not exceed the ACL and OFL. Allocations between the trawl and non-trawl sectors are specified in the groundfish FMP and regulations. The trawl sector is composed of shorebased trawl and at-sea fisheries for Pacific whiting. The non-trawl sector is composed of recreational and commercial fixed gear fisheries, both limited entry and open access. Allocations can be long-term and formal, as in the case of Amendment 21 species (most IFQ species). Some allocations are set only for the biennial management period (e.g., bocaccio, canary, cowcod, and yelloweye).

National Standard 1 Guidelines state "…whenever possible, inseason AMs should include inseason monitoring and management measures to prevent catch from exceeding ACLs". Current regulations and proposed regulations for 2013-14 contain a series of management measures designed to keep catch within the ACL. Examples include set-asides, allocations, rockfish conservation areas (RCAs), trip limits for non-IFQ species and fisheries, bag limits, season dates, etc. Further, the west coast groundfish fishery relies on active inseason monitoring and adjustments to commercial and recreational management measures. In concert, these AMs work within a sector and among sectors, to prevent overfishing and keep catch within the ACL.

In the recreational fisheries, it is the combination of inseason monitoring, season dates, depth restrictions, and bag limits that ensure mortality stays within the recreational share of the non-trawl allocation, and ultimately the ACL and OFL. Preseason, groundfish bag limits are set at a level to spread socio-economic benefits among more harvesters, generate greater charter vessel revenues and community benefits, and achieve OY while meeting conservation objectives. If the number of anglers participating in the fishery or the number of anglers achieving the bag limit increases beyond the preseason estimates, adjustments can be made through routine inseason action.

Trip limits and RCAs are the primary AMs in the commercial fixed gear fisheries. Preseason, trip limits are set to maximize economic efficiency, attain allocations, and achieve OY while meeting conservation objectives. That is, based on historical fleet performance, trip limits are set with the understanding that not every vessel will achieve the trip limit. If the number of vessels participating in the fishery or the number of vessels achieving the trip limit increases beyond the preseason estimates, adjustments to the trip limits can be accomplished through routine inseason action.

In the rationalized trawl fishery, the allocations and QP issuance, near real time inseason tracking, 100 percent monitoring (both at-sea and shoreside), and RCAs are the primary AMs that the Council expects to use to ensure catches will remain within the trawl allocation and ultimately the ACL and OFL (as is discussed in the Amendment 20 EIS). Other accountability measures are available, such as inseason adjustments to RCAs, between season adjustments, biennial adjustments, and closures. The purpose of the carry-over provision, when invoked, is based on a similar philosophy as the trip limit scenario. That is, based on historical performance of the fishery (i.e., overfished species interactions, market limits, etc.) not every vessel will attain 100 percent of their QP allocation, therefore the surplus can be carried over to the following year to allow full harvest of the sector allocation and OY to the benefit of consumers, fishermen, the community and nation. However, if all vessels carry over QP for a certain species and harvest those species in the following year, in addition to that following year's allocations, and if the following year catches in other sectors are above projections by the maximum amount, routine inseason management may need to occur to prevent a conservation concern.

In summary, not one of the AMs in isolation is sufficient to regulate the fishery impacts; however, all of the set-asides, recreational AMs, and commercial AMs in combination with inseason tracking and adjustments to management measures, result in an effective management system which is expected to keep catch within ACLs and OFLs. Further, no sector is held completely without management response to overages in other sectors, and ACLs and OFLS are biased low by the stock assessment assumptions that fishing will occur at the OFL level.

Inseason adjustments to existing management measures are informed by the robust tracking systems in place for both commercial and recreational fisheries. Adjustments can occur five times a year after Council meetings or by automatic action initiated by NMFS (e.g., closure of the whiting sectors and the bycatch reduction areas[9]). The trawl allocation is monitored by NMFS staff and the Council's Groundfish Management Team (GMT) in near real time with electronic fish ticket reporting (i.e., landings) on close to a 24-hour lag and reconciliation with observer data (i.e., discard) within a two week timeframe (except for Pacific halibut). The GMT utilizes data and reports from the Pacific Fisheries Information Network (PacFIN) to track limited entry and open access fixed gear commercial landings of stocks and stock complexes managed under ACLs or harvest guidelines. PacFIN reports are updated with most recent landings information every two weeks. Further, the GMT utilizes bycatch rates obtained by the West Coast Groundfish Observer Program, which are produced on an annual basis for the previous year. The GMT tracks total mortality inseason by combining the PacFIN landings reports with the bycatch rates to project the discard fraction of the total catch. In addition to the state reporting systems, the GMT utilizes data from the Recreational Fisheries Information Network (RecFIN) to track recreational impacts, which are on a two month lag.

If total catch is projected to exceed an ACL, routine inseason management measures can be implemented for the trawl and/or non-trawl sectors. For example, adjustments to the trawl RCA can be made to slow or stop catches in the trawl sector. Trip limit adjustments, non-trawl RCA adjustments, changes to recreational seasons, and modification of depth restrictions for recreational fisheries can be made to slow or stop catches in the non-trawl sectors. Further, if inseason tracking indicates a conservation concern, NMFS has the authority to take action in any and/or all sectors to protect the stock or complex, if needed (75FR78344, see Comment 38). In addition to routine inseason measures to reduce catch in the trawl and non-trawl sectors, NMFS retains the authority to close any or all sectors to respond to a conservation concern.

Inseason actions are not the full extent of the AMs available to manage the fishery. The FMP, as amended under Amendment 23, requires "if ACLs are exceeded more often than one in four years, then AMs may need to be implemented. AMs, such as catch monitoring and inseason adjustments to fisheries, need to improve or additional AMs may need to be implemented." Should an ACL be exceeded, there are many avenues - including emergency action, trailing actions, or actions taken every two years through the biennial process – to implement AMs to ensure the ACL is not exceeded in future years. Additionally, the

[9] See 660.131(c)(4) Subpart D

percentage of QPs eligible for the carry-over and deficit provisions can be modified (increased or decreased) during the biennial management process.

Table D-21 demonstrates the record of using AMs to keep mortality within the OY for the west coast groundfish species subject to the carry-over provision. There have only been four overages over the four year period. The canary (2007) and darkblotched (2009, 2010) overages occurred due to poor impact model performance. Specifically, projections from the limited entry non-whiting trawl model, which was used historically to generate trip limits and estimate overfished species catches, failed to estimate catches with relative precision. The trawl model is no longer used to inform management measures and predict catches in the trawl fishery; instead the rationalized fishery AMs are anticipated to keep catch within the trawl allocation and ACLs. The Pacific ocean perch overage in 2007 occurred as a result of an unusually large catch event in the shorebased Pacific whiting fishery. For the 2011-2012 cycle, the Council recommended an ACT, a value set below the ACL, in order to improve the likelihood that catch will remain with the ACL. The sablefish overage in 2008 occurred as a result of a data processing error in PacFIN that has since been corrected (Agenda Item G.4.b, Supplemental GMT Report, November 2009).

Table D-21. West Coast Groundfish Accountability: Check marks indicate years in which total mortality remained within the OY, circles indicate years with overages.

Species	2007	2008	2009	2010
Arrowtooth flounder	✓	✓	✓	✓
BOCACCIO ROCKFISH	✓	✓	✓	✓
CANARY ROCKFISH	O	✓	✓	✓
Chilipepper rockfish	✓	✓	✓	✓
COWCOD	✓	✓	✓	✓
DARKBLOTCHED ROCKFISH	✓	✓	O	O
Dover sole	✓	✓	✓	✓
English sole	✓	✓	✓	✓
Lingcod N.	✓	✓	✓	✓
Lingcod S.	✓	✓	✓	✓
Longspine thornyheads N.	✓	✓	✓	✓
Minor shelf rockfish N.	✓	✓	✓	✓
Minor shelf rockfish S.	✓	✓	✓	✓
Minor slope rockfish N.	✓	✓	✓	✓
Minor slope rockfish S.	✓	✓	✓	✓
Other flatfish	✓	✓	✓	✓
Pacific cod	✓	✓	✓	✓
PACIFIC OCEAN PERCH N.	O	✓	✓	✓
PETRALE SOLE	✓	✓	✓	✓
Sablefish Coastwide	✓	O	✓	✓
Shortspine thornyheads N.	✓	✓	✓	✓
Shortspine thornyheads S.	✓	✓	✓	✓
Splitnose rockfish	✓	✓	✓	✓
Starry flounder	✓	✓	✓	✓
WIDOW ROCKFISH	✓	✓	✓	✓
YELLOWEYE ROCKFISH	✓	✓	✓	✓
Yellowtail rockfish	✓	✓	✓	✓

Attachment 2 Details of the Analysis

Background

Data from the 2007 to 2010 Total Mortality Reports, published by the West Coast Groundfish Observer Program, were used to generate projected impacts for set-asides and the non-trawl sector. While Total Mortality Reports go back to 2004, we elected to use reports from 2007-2010 because the data were more consistently reported and reliable. Two scenarios were analyzed to determine the best projection based on historical impacts by sector: 1) the maximum of either the average mortality from 2007-2010 or the 2010 mortality and 2) the maximum mortality from 2007-2010. The second approach was thought to represent the maximum impacts that might be possible. There were very few differences in the results (discussed below) and therefore to be conservative we chose to present the maximum values as our best projected impacts.

Projections

Deductions from the ACLs or ACTs are necessary to account for fishing-related groundfish mortality from Pacific Coast treaty Indian tribal harvest, scientific research catches, bycatch in non-groundfish fisheries, bycatch in at-sea whiting fisheries (off trawl allocation), and, recommended EFP activities. For Amendment 21 species and species with biennial allocations (e.g., bocaccio, canary, cowcod, and yelloweye), these values are referred to as set-asides and are used to calculate the fishery harvest guideline, which is the amount available for trawl and non-trawl allocations. Set-asides for sablefish north of 36° N. latitude, include yield deductions for research activities, recreational fisheries, and EFP activities. The tribal fishery is accommodated by an allocation. The incidental open access fishery impacts are deducted from the open access share. During the development of the biennial specifications, the set-asides for all species were recommended based on various methodologies, but were typically set higher than the projected impacts to increase the likelihood that fishing-related mortalities would stay within specified ACLs and OFLs.

The yield set-asides necessary to accommodate upcoming tribal fisheries in 2013-2014 are, in most cases, greater than the maximum catches in 2007-2010. There is no new available information demonstrating increased tribal fishery participation and higher harvests compared to historical maximums. Therefore, the set-asides were replaced with the projected impacts in the analysis, using the maximum tribal catches reported in 2007-2010 Total Mortality Reports[10]. There is a formal tribal allocation of sablefish north of 36° N. latitude and the fishery is managed to stay within the allocation (as opposed to a set-aside or harvest guideline). The allocation was not updated to projected impacts because it is assumed, given the increasing value of sablefish, the tribal allocation will be attained.

During the 2013-2014 cycle, the Council adopted the maximum mortality in recent years to estimate groundfish bycatch in the non-groundfish fisheries (also called incidental open access fisheries) and research. It is believed that the thorough evaluation and estimation in 2013-2014, though conservative, represents reasonable projected impacts for 2013-2014 and therefore no values were updated. EFP values represent the values established in the 2013-14 process based on expected applications. Therefore the EFP values were not updated.

A similarly conservative method of adopting set-asides for the at-sea whiting sectors was used for 2013-2014. Total Mortality Reports from 2007-2010 were used to generate a projected impact for the sector, based on the maximum.

The 2013-2014 EIS analysis reports projected impacts for the non-trawl sector, typically landings, for modeled species only. That is, not all IFQ species subject to the carry-over provision are modeled and projected for the non-trawl fishery and thus projected impacts may be higher than those reported. Therefore, this complimentary analysis was conducted to provide our best estimate of projected impacts for 2013-2014 non-trawl fisheries. The maximum mortality from 2007-2010 in the non-trawl sectors (sum of nearshore, non-nearshore, and recreational) was used to project impacts for 2013-2014, with a few exceptions (darkblotched rockfish, sablefish south of 36° N. latitude, and yelloweye rockfish). In these instances, the historical non-trawl catch was higher than the 2013-2014 allocation. Since the non-trawl sector will be actively managed to stay at or within the allocation, the 2013-2014 non-trawl allocation was used.

[10] Note the Total Mortality Report references "Tribal Landings". Tribal fisheries require maximized retention therefore landings represent total catch.

D.8 Remove or Modify the Minimum Lingcod Length Limit in the IFQ Fisheries

Overview
Lingcod length limits have been in place since the late 1990's and were implemented to minimize harvest of immature fish while maintaining the reproductive potential of the stock. Current commercial length limits vary north and south of 42° N. latitude, and are 22 inches and 24 inches, respectively.

Management Issue
The Council decided to explore removing or modifying the current lingcod size limit of 22 and 24 inches total length in the shorebased IFQ fishery; the lower minimum size limit considered is 20 inches total length (see Section 2.3.4). The change in the minimum size limit is being considered because all catch in the IFQ fishery count against quota and lingcod less than 24 inches length are marketable. Lingcod discarded in the trawl fishery are assumed to have a 50 percent survival rate.

Management Options

No Action: For the shorebased IFQ fishery, the minimum length limit for lingcod caught north and south of 42° N. latitude is 22 and 24 inches, respectively.

Option 1: There would be no minimum length limit for lingcod caught in the shorebased IFQ fishery.

Option 2: For the shorebased IFQ fishery, the minimum length limit for lingcod caught would be 20 inches.

Biological Impacts
The biological impacts of reducing the trawl minimum size limit are negligible. Lingcod are a productive stock and estimated abundance is high coastwide. Projected biomass and depletion in the 2009 assessment are high and above target levels at higher catches than realized recently on the west coast. The RCAs and other management strategies implemented to reduce mortality have effectively reduced lingcod mortality; the 2007-2010 catches averaged slightly over 10 percent of specified OYs (Table XXX). The 2011 trawl IFQ fishery attained only 15 percent of the sector quota, which includes all discarded lingcod of which 50 percent are assumed to survive. Relative survival rates of discarded lingcod may be even greater under the IFQ program since tow duration is shorter allowing quicker catch sorting and discarding.

Socio-Economic Impacts

There is likely no discernible difference in catches between the 20 inch size limit and removing the size limit altogether. While lingcod smaller than 24 inches are marketable, lingcod less than 20 inches are not. The processors will establish market limits of the size of lingcod they are willing to buy. While some processors may well impose a market limit greater than 20 inches, it is unlikely lingcod less than 20 inches in length will be accepted at buying stations if the minimum size limit was removed. Trawl fishermen will not retain unmarketable lingcod since hold space is reserved for fish that have value.

D.9 Recreational Shelf Rockfish Retention in the Cowcod Conservation Area

Overview

Some recreational fishing is currently permitted within the Cowcod Conservation Area (CCA). Shelf rockfish, including bocaccio, are encountered but are required to be discarded resulting in "bycatch" (total amount of fish that are caught and discarded, regardless of mortality). To reduce bycatch by recreational fisheries operating in the CCAs, a modification to the retention allowance for shelf rockfish in the CCA is being considered. The loss of angler trips directly resulting from the CCA implementation, combined with the inability to retain shelf rockfish while fishing inside the CCA, has resulted in lost economic opportunities to southern California anglers. The impacts to anglers combined with the low risk of impacts to overfished species represents new information on fisheries interactions on which to support changes to CCA regulations.

Background

In 2001, the CCAs were implemented as part of the cowcod rebuilding strategy. As specified in the Groundfish Fishery Management Plan, as new information becomes available on cowcod behavior and fisheries interactions with cowcod, the boundaries or related regulations concerning the current CCAs may change.

The recreational targeting of groundfish has been prohibited within the CCAs since 2001, with some exceptions. In waters less than 20 fm in depth, recreational anglers are permitted to take and retain nearshore rockfish, cabezon, California scorpionfish, lingcod, greenlings of the genus *Hexagrammos,* and several state-managed species when the season is open to recreational groundfish fishing within the CCA. An additional exception exists for vessels targeting "other flatfish", which may be taken year round in any depth inside the CCA. The commercial groundfish fishery is also allowed to retain the above mentioned species in addition to shelf and slope rockfish, some species of sharks, skates, and flatfish in depths of 20 fm or less. Various recreational state fisheries for sea bass, California halibut, barracuda, bonito, marlin, tunas, and sharks also occur within the CCAs, but are not subject to depth restrictions.

The retention of shelf rockfish, including bocaccio and cowcod, is currently prohibited anywhere within the CCAs in the recreational fishery. Prohibited retention of shelf rockfish was implemented as a rebuilding measure for bocaccio and cowcod. The California Fish and Game Commission believed that prohibiting shelf rockfish retention in the recreational fishery would discourage fishing for rockfish in deeper waters (outside legal depths) where adult bocaccio and cowcod are found.

Recreational anglers have reported that prohibited retention of shelf rockfish results in unnecessary bycatch while fishing for target species. Regulatory complexity has been identified as a concern because the CCAs are the only place where shelf rockfish retention is prohibited but nearshore rockfish and other certain groundfish species (described previously) may be retained.

Summary of Options

Option 1: No Action – maintain prohibition on shelf rockfish retention in all depths of the CCA.

Option 2: Allow shelf rockfish retention from 0-20 fm – Allow retention of shelf rockfish excluding bronzespotted, canary, cowcod and yelloweye rockfish, from 0-20 fm in the CCAs when the season is open to fishing for other groundfish species to reduce bycatch in the recreational fishery (CDFG preferred option).

Option 3: Align recreational regulations inside and outside the CCA - Align species retention and depth restriction regulations inside and outside the CCA when the season is open to fishing for groundfish species to reduce bycatch in the recreational fishery. Retention of bronzespotted, canary, cowcod, and yelloweye rockfish will be prohibited.

Option 4: Prohibition on all groundfish - Prohibit the retention of all federal groundfish anywhere within the CCAs to reduce bycatch in the recreational fishery.

Data

The California Recreational Fisheries Survey (CRFS) is used to estimate total marine recreational finfish catch and effort in California[11]. It is a coordinated sampling survey designed to gather catch and effort data from anglers in all modes of marine recreational finfish fishing. In CRFS, the state of California is divided into six geographic areas or districts where district boundaries coincide with county boundaries. For the purposes of this analysis, the Southern Management Area (SMA), which includes the CCA, is comprised of the South and Channel Districts. Raw sample data collected in these two districts are combined before data are expanded for the entire SMA. Raw sample data can be differentiated into smaller areas, but expanded data cannot. In other words, due to the design of this program it is not possible to determine the proportion of total catches originating from a particular area (e.g., CCA) once data are expanded.

The CRFS sample data[12] from 2005 through 2010 were used to analyze rockfish catch within the CCA. The CRFS sample data contains encounters of nearshore and shelf rockfish species which is stratified by depth. Depth and location information used in the analysis are assumed to be reasonably accurate since the majority are global positioning system (GPS) coordinates taken by trained CRFS samplers on Commercial Passenger Fishing Vessels (CPFVs). These data were then used to 1) evaluate current fishing activity in depths of 20 fm or less, 2) evaluate mortality of shelf rockfish, and 3) evaluate the mortality of overfished species as a result of allowing retention of shelf rockfish in the CCA.

Comparison of Options

Option 1: No Action

Under Option 1, retention of shelf rockfish in the recreational fishery will continue to be prohibited in all depths of the CCA. Retention of shelf rockfish will still be permissible within the depths and seasons open to recreational groundfish fishing in all open areas outside the CCA. Retention of shelf rockfish in the commercial fishery is currently permissible within the depths and seasons open to commercial groundfish fishing both inside and outside the CCA. Retention of bronzespotted, canary, cowcod, and yelloweye will be prohibited.

Fishing Activity in CCAs under Option 1

Fishing activity in the entire CCA includes recreational targeting of groundfish and non-groundfish species. Fishing activities in depths of 20 fm or less within the CCA include groundfish and non-groundfish target strategies, although the number of anglers directly targeting bottomfish is small (26 percent between 2005 and 2010) when compared to the proportion of anglers targeting other species. Although the “bottomfish” effort category includes rockfish, it also includes other desired species such as lingcod and California halibut.

Fishing activities in depths greater than 20 fm are mainly comprised of recreational targeting of non-groundfish species (e.g., tuna, yellowtail, and white seabass) that occur at various depths depending on the target. Many of these fisheries are open year round and occur in all depths. These non-groundfish fisheries incidentally encounter rockfish while in pursuit of their target species, but only retention of nearshore rockfish (and other groundfish species as described previously) is allowed in depths of 20 fm or less during the open season.

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[11] A full review of CRFS Methods is available at http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=36136&inline=true

[12] Sample data included both onboard observations and dockside sampling

Under existing regulation, discarding of rockfishes does occur in pursuit of non-groundfish fishing and would continue under Option 1. Table D-22 shows the recreational groundfish and non-groundfish fisheries permitted to occur in the CCAs in 2012 along with corresponding management measures.

Table D-22. Recreational Fisheries in the CCAs and Corresponding Management Measures in 2012.

Groundfish	
Rockfish*, cabezon, greenling complex (RCG Complex)	March 1 through December 31 from 0-20 fm
Lingcod	March 1 through December 31 from 0-20 fm
California scorpionfish	Year round 0-20 fm
"Other flatfish" **	Year round, any depth, 20-fish bag limit for all species of finfish, of which there may be no more than 10 fish of any one species. Pacific sanddab are not subject to a daily bag limit.
Non-Groundfish	
California sheephead	March 1 through December 31 from 0-20 fm
Ocean whitefish	March 1 through December 31 from 0-20 fm
Various bass	Year round, any depth
Grunion	June 1 through March 31, all depths
White seabass	Year round, all depths
California halibut	Year round, all depths
Barracuda	Year round, all depths
Bonito	Year round, all depths
Yellowtail	Year round, all depths
Marlin	Year round, all depths
Various sharks	Year round, all depths
Non-FMP flatfish	Year round, all depths

** includes minor nearshore rockfish*
*** "Other flatfish" are defined at 50 CFR §660.11, subpart C, and include butter sole, curlfin sole, flathead sole, Pacific sanddab, rex sole, rock sole, and sand sole.*

Recreational Groundfish Catch in CCAs under Option 1

From 2005 through 2010, a total of 884 nearshore and shelf rockfish encounters (kept/retained or released) was reported in all depths in the CCA for all recreational fishing activities (groundfish and non-groundfish trips) based on CRFS sample data. These data are based on interviews with 323 anglers, which included 35 observed CPFV fishing trips. Approximately 60 percent (526 fish) of those rockfish encounters occurred in depths less than 20 fm; the remaining 40 percent (358 fish) occurred in deeper depths. Of the encounters in depths less than 20 fm, 276 encounters (52 percent) were shelf rockfish, and 250 encounters (48 percent) were nearshore rockfish (Table D-23). Vermilion and bocaccio rockfish were the most frequently encountered shelf species. No cowcod (juvenile or adult) were reported to have been encountered by anglers during interviews or sampled by CRFS samplers.

Data in Table D-23 represent sampled encounters, not total encounters, from inside the CCA. As described previously, estimates of total mortality for all shelf rockfish are only available for the entire SMA due to CRFS program expansions. Data from inside the CCA are included in that expansion, but the proportion of total mortality from only inside the CCA cannot be differentiated. Under the current regulations estimates of total mortality for shelf rockfish in the SMA are expected to be similar to previous years.

Table D-23. Encounters of Nearshore and Shelf Rockfish (Numbers of Fish) in depths of 20 fm or less in the Cowcod Conservation Area from 2005 through 2010 (source: CRFS Sample Data).

Species	Total from Sample Data	
NEARSHORE ROCKFISH		
Copper rockfish	149	
Blue rockfish	20	
Gopher rockfish	20	
Olive rockfish	17	
Treefish	17	
Kelp rockfish	15	
Other nearshore rockfish	12	
SHELF ROCKFISH		
Vermilion rockfish	173	
Bocaccio	72	
Starry rockfish	13	
Rosy rockfish	11	
Other shelf rockfish (non-overfished)	**7**	
		% total
Nearshore rockfish total	250	48%
Shelf rockfish total	276	52%
Total	526	100%

Bocaccio are encountered inside the CCA, but cannot be retained under Option 1. They can be legally retained outside the CCA as long as anglers abide by current bag limits, season and depth restrictions. Bocaccio encounters are anticipated to increase throughout southern California in 2013 due to a strong 2010 year class. If this year class is as strong as projected, some increase in the encounter rate (and discard rate) would be expected within the CCA under Option 1.

Retention of cowcod is prohibited statewide in the recreational fishery. Zero cowcod have been encountered in depths of 20 fm or less inside the CCA and encounters are not expected to increase under Option 1 as cowcod slowly rebuilds.

Data Uncertainty under Option 1

Under Option 1, the accuracy of species identifications by anglers has been identified as a potential source of uncertainty. Although canary, vermilion and yelloweye rockfish can be challenging to distinguish in areas of northern California, misidentification by anglers is less prevalent in southern California because canary and yelloweye rockfish are not commonly found in that area. In southern California, misidentification of overfished species is not as prevalent because the two overfished species found in that area, bocaccio and cowcod, are both distinct and easily identifiable.

Allowing retention of some species (e.g., nearshore rockfish) under Option 1 likely decreases uncertainty associated with accurate identifications by anglers because identifications can be verified by a trained CRFS sampler. As stated previously, the overfished species in southern California (bocaccio and cowcod) are both distinct and easily identifiable, thus uncertainty associated with correct identification by anglers is likely reduced. Conversely, the uncertainty associated with shelf rockfish would be higher because they cannot be retained and species identifications cannot be verified by CFRS samplers.

Biological Impacts under Option 1

Projected Mortality

Minor Shelf Rockfish South of 40°10' N latitude

Under the Council's preliminary preferred alternative, the minor shelf rockfish ACL in 2013 would be 1,190 mt. The rockfish species with the largest contributions to the complex are as follows: yellowtail (55.7 percent), vermilion (14.1 percent), greenstriped (12.0 percent), and remaining rockfish (18.2 percent).

Total mortality from both the recreational and commercial fisheries has been far below the ACL from 2006 through 2010 (Table D-24). Between 2006 and 2010, total recreational shelf rockfish mortality south of 40°10' N latitude ranged from 171 mt to 308 mt. In the entire SMA (including the CCA), they ranged from 72 mt to 122 mt (Table D-25).

Table D-24. Estimated total fishing mortality (mt) shelf rockfish south of 40°10' N latitude from all sectors compared to the annual catch limit (ACL), from 2006 through 2010 (source: West Coast Groundfish Observer Program).

Year	Total Mortality (mt)	ACL (mt)	% ACL
2006	334	714	46.8%
2007	365	714	51.1%
2008	212	714	29.7%
2009	273	714	38.2%
2010	251	714	35.1%

Table D-25. Estimated total mortality (mt) of shelf rockfish in the recreational fishery by area, south of 40°10' N latitude from 2006 through 2010 (source: RecFIN data).

Year	40°10' - 34°27' N lat	south of 34°27' N lat	Total
2006	203	72	275
2007	186	122	308
2008	80	91	171
2009	159	87	246
2010	110	101	211

Bocaccio

Seventy-two bocaccio were encountered by CRFS samplers in depths of 20 fm or less in the CCA from 2005 to 2010 (Table D-23)[13]. For the entire area south of 40°10' N latitude, the projected recreational mortality of bocaccio in 2012 under Option 1 is 55.4 mt (PFMC and NMFS, 2011).

Projected recreational mortality of overfished species are estimated using CDFG's RecFISH model. The model incorporates historic fishery data throughout the SMA to inform future mortality and includes data prior to implementation of the CCA when the fishery was less regulated. The model currently assumes all rockfish are taken in depths of 60 fm or less throughout the entire SMA when projecting mortality; mortality inside the CCA is not modeled separately from those in other areas. In other words, the model already assumes the recreational fishery operates to depths of 60 fm inside the CCA, rather than only 20

[13] In the entire SMA, 18,737 bocaccio were encountered by CRFS samplers from 2005 to 2010 at depths of 60 fm or less. Bocaccio encounters in 20 fm or less in the CCA represent 0.4 percent of total encounters in the SMA.

fm; so projected mortality is overestimated by the model. Actual mortality of bocaccio under Option 1 would likely be lower than the projected mortality of 55.4 mt.

Bocaccio encounters are anticipated to increase throughout southern California in 2013 due to a strong 2010 year class. If this year class is as strong as projected, some increased encounters (and discards) would be expected within the CCA in depths of 20 fm or less, although the amount cannot be quantified. In its report under Agenda Item E.4.b (November 2011), the Groundfish Management Team concluded that any increase in bocaccio mortality in 2013, as a result of the 2010 year class, is not expected to exceed the 2011 California recreational HG (131 mt). If the 2010 year class is not as strong as projected, mortality under Option 1 would likely be similar to previous years.

Cowcod

Zero cowcod were encountered by CRFS samplers on any trips from 2005 to 2010 in depths of 20 fm or less in the CCA under current regulations. Under Option 1 impacts in depths of 20 fm or less are expected to be the same – zero.

One cowcod was observed on a non-groundfish trip deeper than 20 fm in the CCA between 2005 and 2010. This cowcod was encountered by an angler targeting yellowtail (*Seriola dorsalis*). The reported depth of capture was approximately 58 fm (350 ft); the cowcod was released alive. The presence of only one cowcod in six years (outside the allowable depths) suggests that the encounter rate in depths greater than 20 fm is very low under Option 1.

The preliminary preferred ACL for cowcod in 2013-14 is 3 mt, of which 1.0 mt is allocated to the non-trawl fishery which includes both the commercial and recreational sectors. Similar to bocaccio, the RecFISH model also incorporates a "buffer" in its projections for cowcod mortality due to the fact that the model assumes the depth restriction inside the CCA is the same as outside. Projected mortality of cowcod for the entire California recreational fishery under Option 1 are 0.2 mt.

Stock Status

Minor Shelf Rockfish South of 40°10' N latitude

The minor shelf rockfish complex includes many rockfish species with differing biological characteristics, life histories and habitat preferences. These species are included in this complex because they all inhabit areas on the continental shelf. The southern minor shelf rockfish complex is composed of the following species: bronzespotted rockfish (*Sebastes gilli*); chameleon rockfish (*S. phillipsi*); dusky rockfish (*S. ciliatus*); dwarf-red rockfish (*S. rufianus*); flag rockfish (*S. rubrivinctus*); freckled rockfish (*S. lentiginosus*); greenblotched rockfish (*S. rosenblatti*); greenspotted rockfish (*S. chlorostictus*); greenstriped rockfish (*S.elongatus*); halfbanded rockfish (*S. semicinctus*); harlequin rockfish (*S. variegatus*); honeycomb rockfish (*S.umbrosus*); Mexican rockfish (*S. macdonaldi*); pink rockfish (*S. eos*); pinkrose rockfish (*S. simulator*); pygmy rockfish (*S. wilsoni*); redstripe rockfish (*S. proriger*); rosethorn rockfish (*S. helvomaculatus*); rosy rockfish (*S.rosaceus*); silvergray rockfish (*S. brevispinis*); speckled rockfish (*S. ovalis*); squarespot rockfish (*S. hopkinsi*); starry rockfish (*S. constellatus*); stripetail rockfish (*S. saxicola*); swordspine rockfish (*S. ensifer*); tiger rockfish (*S. nigrocinctus*); vermilion rockfish (*S. miniatus*); and yellowtail rockfish (*S. flavidus*).

With the exception of greenstriped and greenspotted rockfish, none of the minor shelf rockfish species in this complex have been assessed. Under Option 1, no changes to individual stock status or complex status are expected.

Bocaccio

Declared overfished in 1999, bocaccio are one of the larger rockfish in southern California. Pelagic young-of-year bocaccio typically recruit to shallow habitats and sub-adult bocaccio are more common in shallower water than adults and are commonly found around piers and other shore structures. Adult bocaccio are typically found in a broad range of habitats and depths, and can develop large mid-water aggregations; high densities tend to be more associated with more complex substrates. As with many other shelf species of rockfish, there is a clear trend towards larger fish at greater depths. Adults are highly sedentary and exhibit some ontogenetic movement to greater depths which is common for most shelf species. (Field et al, 2009)

Results of the current assessment indicate that bocaccio are rebuilding quickly. Under Option 1, no changes to stock status or rebuilding progress are expected.

Cowcod

Cowcod were declared overfished in 1999. They are primarily encountered in depths greater than 50 fm (Butler et. al., 1999). Though cowcod do occur from 20 fm to 267 fm (Love et. al., 2003), submersible surveys at the northern end of the Southern California Bight, indicate that juvenile cowcod were most common from 49 fm to 82 fm and adults were most common at depths of 66 fm to 115 fm (Butler et al., 1999). These trends in the depth distribution are repeated in the proportion of catch by depth from the trawl fishery in the Southern California Bight where cowcod were predominantly encountered in depths deeper than 65 fm (Butler et al., 1999). Recent submersible surveys indicate that juvenile cowcod occur over a wide range of habitat types, at depths between 28 fm and 180 fm and typically avoid soft sediment substrate, favoring hard substrate such as cobble and boulder fields or rock ridges (Love and Yoklavich, 2008). Juvenile cowcod are found in depths greater than 30 fm, and are vulnerable to recreational fishing gear (Love and Yoklavich, 2008; Dick et al., 2007).

Results of the 2009 data report indicate that cowcod are rebuilding, albeit slowly. Under Option 1, no changes to stock status or rebuilding progress are expected.

<u>Socio-Economic Impacts under Option 1</u>

Under Option 1, public comment submitted to National Marine Fisheries Service on the 2011-12 FEIS indicate that over 140 vessels from various ports in the SMA have been affected by the prohibition on shelf rockfish retention. Those communities include the following: Dana Point, Long Beach, Marina Del Rey, Mission Bay, Newport Beach, Oceanside, San Diego, San Pedro, Santa Barbara, Santa Monica, Santa Paula, and Temecula.

Those same public comments also spoke to the loss of trips and loss of revenue as a result of the CCA implementation and prohibition on shelf rockfish retention. Under Option 1, some loss to industry would be expected as a result of CCA implementation and prohibition on shelf rockfish retention, but that amount cannot be quantified at this time. The prohibition of shelf rockfish retention would likely result in increased operating costs to the industry. Trip durations would be increased because it takes longer for individuals to reach their bag limits as a result of discarding shelf rockfish. More time would be spent on the water, resulting in higher fuel costs and the overall number of trips could be reduced, resulting in lost income.

<u>Fiscal Impacts under Option 1</u>

Under Option 1, fiscal impacts to the state of California are high due to differing regulations inside and outside the CCA. Fiscal impacts include public outreach and education, enforcement, and regulation maintenance as a result of this regulatory complexity.

Option 2: Allow retention of shelf rockfish in the recreational fishery, excluding bronzespotted, canary, cowcod and yelloweye rockfish, from 0-20 fm in the CCAs, when the season is open.
Under Option 2, retention of shelf rockfish in the recreational fishery will be permissible inside depths of 20 fm or less inside the CCA when the season for groundfish is open. Bocaccio, an overfished and desirable recreational species could be retained under this option[14]; retention of bronzespotted, canary, cowcod, and yelloweye bronzespotted rockfish will remain prohibited. No changes to commercial retention regulations are proposed and retention of all rockfish (except prohibited species) in the commercial fishery will be permissible within the depths and seasons open to groundfish fishing both inside and outside the CCA.

Change in Fishing Activity in CCAs Compared to Option 1
Fishing activity under Option 2 is expected to be similar to Option 1. It is highly unlikely that an overall increase in fishing effort in the entire SMA would result compared to Option 1 due to the remoteness of fishing locations (40 to 100 miles from port). As indicated by public testimony (see 2011-2012 FEIS), some increase could be realized but it is not clear whether it would be new effort or an effort shift from other areas outside the CCA. No changes in fishing effort for non-groundfish trips are expected compared to Option 1.

Change in Recreational Groundfish Catch in CCAs Compared to Option 1
If fishing effort and encounters with shelf rockfish, including bocaccio and cowcod, are similar to the catch under Option 1, allowing retention in this area will reduce the overall bycatch of shelf rockfish. The bycatch reduction would occur because fish previously discarded would be retained. However, it is assumed that not all shelf rockfish would be retained.

Data Uncertainty Compared to Option 1
Under Option 2, uncertainty associated with angler identifications of shelf rockfish are expected to decrease compared to Option 1. Instead of having to discard shelf rockfish species, anglers could retain them and identification could be verified by CRFS samplers. No changes to uncertainty associated with identifications to nearshore or overfished species are expected compared to Option 1.

Biological Impacts Compared to Option 1

Projected Impacts
Minor Shelf Rockfish South of 40°10' N latitude
Under Option 2, the overall mortality of shelf rockfish could increase compared to Option 1 even though bycatch is reduced, whereas total mortality of nearshore rockfish, cabezon or greenling could be reduced because anglers may prefer to fill their 10 fish RCG bag limit with larger shelf rockfish species. This could result in high grading where smaller desirable fish are temporarily retained and discarded for the more prized catch (size or species).

Despite the increase in total mortality under Option 2, the risk of exceeding the recreational HG let alone the entire minor shelf rockfish ACL[15], is low. A doubling of total mortality from the entire SMA (both inside and outside the CCA), would still not likely result in the ACL being exceeded for the minor shelf rockfish complex (Table D-26). This event is not likely to occur because it would assume that the entire 10 fish RCG bag limit is filled solely by shelf rockfish and that angler effort both inside and outside the

[14] Anglers would still have to abide by current regulations, including sub-bag limit, size limit, and season restrictions.
[15] In September 2011, the PFMC limited the scope of harvest specifications for 2013-14 in order to more closely reflect those in place for 2012. Therefore, it is likely that the 2013-14 shelf rockfish ACL will be the same as in 2011-12.

CCA increases. Changes of this magnitude based simply on allowing shelf rockfish retention inside 20 fm or less in the CCA are not realistic.

Table D-26. Estimated total fishing mortality of shelf rockfish south of 40°10' N latitude assuming a doubling of recreational mortality in the Southern Management Area (south of 34°27' N. latitude) compared to the annual catch limit (ACL). (source: WCGOP and RecFIN)

Year	Recreational (mt)		Commercial (mt)	Total Mortality (mt)	ACL (mt)	% ACL
	40°10' - 34°27'	south of 34°27'				
2006	203	144	59	406	714	56.7%
2007	186	244	57	487	714	68.2%
2008	80	182	41	303	714	42.4%
2009	159	174	27	360	714	50.4%
2010	110	202	40	352	714	49.3%

Bocaccio
Under Option 2, some increase to bocaccio mortality would be expected as a result of allowing shelf rockfish retention inside 20 fm or less in the CCA, but the overall projected mortality will not change compared to Option 1. As discussed under Option 1, mortality attributed to inside the CCA are an overestimate because the model assumes the depth restrictions and retention requirements inside the CCA are the same as outside. Therefore, allowing retention of shelf rockfish inside the CCA may more closely align actual mortality with projected mortality.

Bocaccio mortality as a result of the incoming 2010 year class are expected to be the same as Option 1. If the year class is as strong as projected, any increase in mortality as a result of the year class and/or allowing shelf rockfish retention could still be accommodated without exceeding the recreational HG, let alone the entire ACL.

Cowcod
Under Option 2, no changes to projected mortality of cowcod are expected to occur compared to Option 1. Projected mortality of cowcod for the entire California recreational fishery under this option are 0.2 mt.

Stock Status
Minor Shelf Rockfish South of 40°10' N latitude
Under Option 2, no changes to individual stock status or complex status are expected compared to Option 1.

Bocaccio
Under Option 2, no changes to stock status or rebuilding progress are expected compared to Option 1.

Cowcod
Under Option 2, no changes to stock status or rebuilding progress are expected compared to Option 1.

Social-Economic Impacts compared to Option 1
Under Option 1, public comment submitted to National Marine Fisheries Service on the 2011-12 FEIS indicate that over 140 vessels from various ports in the SMA have been affected by the prohibition on shelf rockfish retention. Those communities include the following: Dana Point, Long Beach, Marina Del Rey, Mission Bay, Newport Beach, Oceanside, San Diego, San Pedro, Santa Barbara, Santa Monica, Santa Paula, and Temecula.

Those same public comments spoke to the loss of trips and loss of revenue as a result of the CCA implementation and prohibition on shelf rockfish retention. Under Option 2, some industry representatives indicate that profits of $25,000 to $50,000 (10 to 15 percent increase in revenue) could be expected by allowing shelf rockfish retention. Estimates of increased revenue (assuming 140 vessels) range from $3.5 million to $7 million.

Allowing retention of shelf rockfish could also reduce operating costs compared to Option 1. Individuals could reach their bag limits faster and with less regulatory discarding which could result in less time on the water, lower fuel costs, and increased opportunities for more trips.

Fiscal Impacts Compared to Option 1
Under Option 2, fiscal impacts to the state of California are expected to be less than Option 1. Public outreach and education, enforcement, and regulation maintenance will still be necessary, but outreach and education costs will be less due to the reduction in regulatory complexity.

Option 3: Align species retention and depth restriction regulations inside and outside the CCA when the season is open to fishing for groundfish species to reduce bycatch in the recreational fishery.
Under Option 3, there will be no difference in regulations inside and outside the CCA. Retention of all federal groundfish (including shelf and slope rockfish) and state-managed species in the recreational fishery will be permissible within legal depths when the season for groundfish is open. Bocaccio, an overfished and desirable recreational species could be retained under this option[16]; retention of bronzespotted, canary, cowcod and yelloweye rockfish will remain prohibited. No changes to commercial retention regulations are proposed and retention of all rockfish (excluding prohibited species) in the commercial fishery will be permissible within the depths and seasons open to groundfish fishing both inside and outside the CCA.

Way points approximating the 60 fm depth contour inside the CCA do not currently exist in federal regulations and would need to be defined if this alternative is implemented in regulation.

Change in Fishing Activity in CCAs Compared to Option 1
Fishing activity under Option 3 is expected increase compared to Option 1. As indicated by public testimony (see 2011-2012 FEIS), some increase could be realized but it is not clear whether it is new effort or an effort shift from other areas outside the CCA. No changes in fishing effort for non-groundfish trips are expected compared to Option 1.

Change in Recreational Groundfish Catch in CCAs Compared to Option 1
Groundfish catch is expected to increase relative to Option 1 as a result of allowing retention of all groundfish species. Allowing retention of these species is expected to reduce bycatch of all groundfish species because fish previously discarded would be retained.

Data Uncertainty Compared to Option 1
Under Option 3, uncertainty associated with angler identifications of all federal groundfish species are expected to decrease compared to Option 1. Instead of having to discard all federal groundfish, anglers would be able to bring them to shore where identification can be verified by CRFS samplers. No changes to uncertainty associated with identifications to nearshore or overfished species are expected compared to Option 1.

[16] Anglers would still have to abide by current regulations, including sub-bag limit, size limit, and season restrictions.

Biological Impacts Compared to Option 1

Projected Mortality

Minor Shelf Rockfish South of 40°10' N latitude

Under Option 3, the overall mortality of shelf rockfish could increase compared to Option 1 even though bycatch is reduced, whereas total mortality of nearshore rockfish, cabezon or greenling could be reduced because fishermen may prefer to fill their 10 fish RCG bag limit with larger shelf rockfish species. This could result in high grading where smaller desirable fish are temporarily retained and discarded for the more prized catch (size or species). Despite the increase in total mortality under Option 3, the risk of exceeding the recreational HG let alone the entire minor shelf rockfish ACL is low.

Other Federal Groundfish Species

Under Option 3, the overall mortality of other federal groundfish species is expected to increase compared to Option 1 because fish previously discarded would be retained. It is unknown whether a HG or ACL would be exceeded as a result of allowing retention.

Bocaccio

Under Option 3, some increase to bocaccio mortality would be expected as a result of allowing retention of all groundfish inside 60 fm or less in the CCA, but the overall projected mortality is not expected to change compared to Option 1. Any increase in mortality as a result of the 2010 year class could still be accommodated without exceeding the recreational harvest guideline, let alone the entire ACL.

Cowcod

Under Option 3, projected mortality of cowcod could be expected to be the same or higher than Option 1. Aligning the retention and depth restrictions inside and outside the CCA (as proposed under this alternative) could increase the likelihood of encounters with cowcod because they have higher encounter rates in deeper depths.

Any increase in mortality, if it does occur, would not cause the non-trawl allocation, let alone the entire ACL to be exceeded because a sufficient buffer exists between the projected mortality and the non-trawl allocation.

Stock Status

Minor Shelf Rockfish South of 40°10' N latitude

Under Option 3, no changes to individual stock status or complex status are expected compared to Option 1.

Other Federal Groundfish Species

Other federal groundfish species consists of stocks with differing biological characteristics, life histories and habitat preferences. The following species or complexes would be included within the general grouping of other federal groundfish:

- Slope rockfish: aurora rockfish (*Sebastes aurora*); bank rockfish (*S. rufus*); blackgill rockfish (*S. melanostomus*); Pacific ocean perch (*S. alutus*); redbanded rockfish (*S. babcocki*); rougheye rockfish (*S. aleutianus*); sharpchin rockfish (*S. zacentrus*); shortraker rockfish (*S. borealis*); and yellowmouth rockfish (*S. reedi*).
- Skates: big skate (*Raja binoculata*), California skate (*R.. inornata*), and longnose skate (*R. rhina*)
- Sharks: leopard shark (*Triakis semifasciata*), soupfin shark (*Galeorhinus zyopterus*), spiny dogfish (*Squalu sacanthias*),

- Flatfish: dover sole (*Microstomus pacificus*), English sole (*Parophrys vetulus*), petrale sole (*Eopsetta jordani*), arrowtooth flounder (*Atheresthes stomias*), and starry flounder (*Platichthys stellatus*)
- Other Flatfish: butter sole (*Isopsetta isolepis*), curlfin sole (*Pleuronichthys decurrens*), flathead sole (*Hippoglossoides elassodon*), Pacific sanddab (*Citharichthys sordidus*), rex sole (*Glyptocephalus zachirus*), rock sole (*Lepidopsetta bilineata*), and sand sole (*Psettichthys melanostictus*).
- Other: finescale codling (*Antimora microlepis*), Pacific rattail (*Coryphaenoides acrolepis*), ratfish
- (*Hydrolagus colliei*), Pacific cod (*Gadus macrocephalus*), Pacific whiting (*Merluccius productus*), sablefish (*Anoplopoma fimbria*), and thornyheads (*Sebastolobus alascanus*, *S. altivelis*)

Although some of these stocks have been formally, most have not; therefore it is unknown whether there would be any changes to individual stock status or complex status compared to Option 1.

Bocaccio
Under Option 3, no changes to stock status or rebuilding progress are expected compared to Option 1. Even if bocaccio mortality increases as a result of this alternative, rebuilding progress is not expected to be jeopardized because bocaccio is rebuilding quickly.

Cowcod
Under Option 3, some changes to stock status and/or rebuilding progress could be expected compared to Option 1. Increasing the depth restriction to 60 fm would allow access to potential cowcod habitat and be contrary to the intent of the CCA.

Social-Economic Impacts Compared to Option 1
Under Option 1, impacts to over 140 vessels in southern California resulting in foregone revenue of 3.5 million to 7 million dollars could be expected, whereas under Option 3 those losses would not be expected. Allowing retention of shelf rockfish could also reduce operating costs compared to Option 1. Individuals could reach their bag limits faster and with less discarding which could result in less time on the water, lower fuel costs, and increased opportunities for more trips.

Fiscal Impacts Compared to Option 1
Under Option 3, fiscal impacts related to the state of California are expected to be equal to or less than Option 1. Although there could be some reduction due to the decrease in regulatory complexity, there could be a subsequent increase due to new workload associated with implementing new RCA lines and educating the public about regulatory changes.

Option 4: Prohibition of All Groundfish in the CCA
Under Option 4, retention of all federal groundfish in the recreational fishery will be prohibited inside the CCA. No changes are proposed to retention of state-managed non-groundfish species (e.g., ocean whitefish, California sheephead) or to commercial fishery regulations. Retention of all rockfish (excluding prohibited species) in the commercial fishery will be permissible within the depths and seasons open to groundfish fishing both inside and outside the CCA.

Change in Fishing Activity in CCAs Compared to Option 1
Under Option 4, no change in fishing activity is expected compared to Option 1. CPFVs mainly travel to the CCA to specifically target non-groundfish species and those trips are still expected to occur even if all federal groundfish retention is prohibited.

Change in Recreational Groundfish Catch Compared to Option 1

Although recreational groundfish catch inside the CCA is expected to be less under Option 4, due to the prohibition on retention, it is not clear how groundfish catch will be affected in the entire SMA. Effort on nearshore rockfish, cabezon, and greenling, which previously occurred inside the CCA, could be directed outside. Fishing could continue inside the CCA for state-managed species. There may not be a change in overall catch compared to Option 1, just the location where that catch occurred.

Data Uncertainty Compared to Option 1
Under Option 4, uncertainty in species identification by anglers is likely to increase for all groundfish species because anglers targeting non-groundfish species may not pay close attention to or be able to identify what was discarded.

Biological Impacts Compared to Option 1

Projected Mortality
Minor Shelf Rockfish South of 40°10' N latitude
Under Option 4, some reduction in total mortality for groundfish species would be expected compared to Option 1 because retained catch would be converted into discarded catch; conversely, discarding would increase compared to Option 1.

Bocaccio
Under Option 4, no changes to projected mortality are expected compared to Option 1 because retention of bocaccio would be prohibited under both options.

Cowcod
Under Option 4, no changes to projected mortality are expected compared to Option 1 because retention of cowcod would be prohibited under both options.

Stock Status
Minor Shelf Rockfish South of 40°10' N latitude
Under Option 4, no changes to individual stock status or complex status are expected compared to Option 1.

Bocaccio
Under Option 4, no changes to stock status or rebuilding progress are expected compared to Option 1.

Cowcod
Under Option 4, no changes to stock status or rebuilding progress are expected compared to Option 1.

Socio-Economic Impacts under Option 1
Under Option 4, socio-economic impacts are expected to be worse than Option 1.

D.10 Remove the California Recreational Bocaccio Size Limit

Overview
The recreational bocaccio fishery has been managed to a harvest guideline (HG) since the early 2000s, which is 131 mt in 2012; the presumptive harvest guidelines are expected to increase to 168 mt (2013) and 174 mt (2014; Table D-27). Bocaccio are the only rockfish subject to a recreational size limit, which is a ten inch minimum size limit to protect recruiting juvenile fish (Table D-28). The majority of the bocaccio catch comes from the southern part of the state (south of Point Conception - 34°27’ N. latitude)

where recreational anglers are allowed to access the shelf 10 months of the year to depths of 60 fm (360 feet).

The 10 inch minimum size limit was initially implemented in 2000 to protect juveniles from pier and jetty anglers during years of heavy recruitment. At that time, managers believed that bocaccio below that size, would have a high survival rate when caught in shallow water. However, the minimum size limit has been relatively ineffective in protecting juvenile fish even following good recruitment years (e.g., 2003, 2005 and 2009). Recent data suggest that there have been very few encounters of small bocaccio, and even fewer discards, suggesting that the size limit has been ineffective in reducing mortality by protecting juvenile fish.

Table D-27. 2012 Harvest specifications for bocaccio south of 40°10' N. latitude in metric tons, implemented in regulation.

Species	OFL	ABC	ACL	HG
Bocaccio	732	700	263	131

Table D-28. Recreational statewide management measures for bocaccio in California in 2012.

Bag Limit –2 fish w/in the 10 fish RCG complex bag limit
Size limit – 10 inch minimum size
Seasons and Depth Restrictions—Same as those for other rockfish and lingcod by Management Area

Management Issue:
Due to the need to protect overfished rockfish species, which resulted in limited access to deeper water, California's recreational fishery has been unable to attain their bocaccio HG in recent years (Table D-29).

Bocaccio has shown steady progress toward rebuilding under the current rebuilding plan. Application of the constant harvest rate in the current rebuilding plan corresponds with an ACL for 2013-2014 that is larger than the ACL in recent years. CDFG proposes to remove the statewide recreational ten inch size limit for bocaccio and the additional projected mortality can be accommodated within the higher 2013-2014 ACLs and HGs.

Table D-29. West Coast Groundfish total mortality estimates of bocaccio south of 40°10' N. latitude (in metric tons) for the California recreational fishery compared to the harvest guideline from 2006-2010

Year	Total Mortality	HG	% of HG
2006	42.0	43.0	98%
2007	53.6	66.3	81%
2008	35.0	66.3	53%
2009	46.4	66.3	70%
2010	57.2	66.3	86%

Management Options

Option 1- No Action: Maintain the ten inch minimum size limit

Under Option 1, the ten inch minimum size limit would remain in place for all recreational anglers statewide and anglers would be forced to discard small fish. Regulatory complexity would continue and the regulation would continue to be ineffective in reducing mortality by protecting juvenile bocaccio.

Biological Impacts under Option 1

Projected Mortality

Table D-30 summarizes projected mortality of overfished species under Option 1 assuming a 10 inch minimum size limit. The projected mortality of bocaccio under Option 1 is 50.7 mt, or approximately 39 percent of the HG. Bocaccio encounters are anticipated to increase throughout southern California in 2013 due to a strong 2010 year class. If this year class is as strong as projected, under Option 1 some increased encounter rate (and discarding) would be expected, although the amount cannot be quantified. In its report under Agenda Item E.4.b (November 2011), the Groundfish Management Team concluded that any increase in bocaccio catches in 2013, as a result of the 2010 year class, is not expected to exceed the 2011 California recreational harvest guideline (131 mt). If the 2010 year class is not as strong as projected, mortality under No Action would likely be similar to previous years.

Table D-30. Projected mortality of overfished species under Alternative 1

Species	Projected Mortality (mt)
Bocaccio	50.7
Canary Rockfish	11.1
Cowcod	0.3
Yelloweye Rockfish	3.2

Stock Status

Declared overfished in 1999, bocaccio are one of the larger rockfish in southern California. Pelagic bocaccio young-of-year typically recruit to shallow habitats and sub-adult bocaccio are more common in shallower water than adults and are commonly found around piers and other shore structures. Adult bocaccio are typically found in a broad range of habitats and depths, and can develop large mid-water aggregations; high densities tend to be more associated with more complex substrates. As with many other shelf species of rockfish, there is a clear trend towards larger fish at greater depths. Adults are highly sedentary and exhibit some ontogenetic movement to greater depths which is common for most shelf species. (Field et al, 2009)

Results of the current assessment indicate that bocaccio is rebuilding quickly. Under Option 1, no changes to stock status or rebuilding progress are expected.

Socio-Economic Impacts

Currently, bocaccio is the only rockfish species in the recreational sector that has a minimum size limit. Since there are numerous recreational regulations to remember, having an additional size limit adds to the regulatory complexity. Removing the bocaccio size limit could also reduce operating costs compared to No Action. Individuals could reach their bag limits faster and with less regulatory discarding which could result in less time on the water, lower fuel costs, and increased opportunities for more trips.

Option 2-CDFG Preferred Option: Remove the ten inch minimum size limit

CDFG is proposing to remove the minimum size limit of ten inches. Recreational anglers would be allowed to retain all bocaccio regardless of size under this alternative, while abiding by current depth and season restrictions. This action would reduce regulatory complexity and the overall mortality of bocaccio is expected to be minimal. No additional mortality of other overfished species is expected.

Methodology:

Length data from the California Recreational Fisheries Survey (CRFS) from 2005 to 2010 was used to analyze the projected mortality of bocaccio as a result of removing the recreational size limit; both raw sample and estimate data were used. Total lengths from 13,975 bocaccio (retained and released) were measured; fish less than ten inches comprised 19 percent (57 fish) of all discards and 0.5 percent (73) of retained fish (Table D-31). The length frequency distribution of the released bocaccio from 2005 to 2010 is shown in Figure D-6.

The increase in mortality as a result of this analysis was calculated by determining the percentage of fish less than 10 inches (by weight) of all discarded fish. That percentage was applied to the total estimated weight of B2 fish, to determine an overall percent increase in the total catch estimate (A+B1+B2 fish)[17] that would be expected by removing the minimum size limit. For a full description of the methodology refer to Appendix A.

Table D-31. Summary of bocaccio length data (in numbers of fish) from 2005 to 2010 (source: CFRS data)

	Discarded	Retained	Total
All lengths	298	13,677	13,975
Less than 10 in.	57	73	130
% 10 inch	19%	0.5%	0.9%

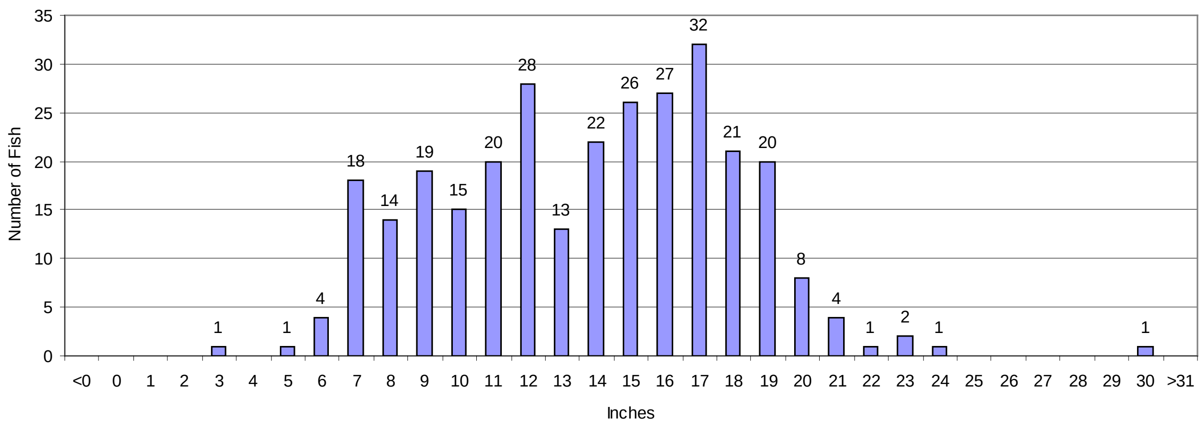


Figure D-6. Length frequency distribution of released bocaccio from 2005 to 2010

<u>Biological Impacts under Option 2</u>

Projected Impacts

Under Option 2, removing the size limit is only expected to increase total bocaccio mortality by 0.36 percent (0.2 mt) compared to Option 1. The total projected mortality, under this alternative, is 50.9 mt. CDFG is not expecting any additional mortality to any overfished groundfish species with this Option.

CDFG is also proposing two additional changes to management measures in the recreational fishery related to bocaccio – increasing the sub-bag limit and allowing retention of shelf rockfish (including bocaccio) inside the Cowcod Conservation Area. The cumulative mortality of all of these proposed changes are not expected to exceed the harvest guideline or ACL.

[17] A fish include sampled dead fish, B1 fish includes both fillets and fish thrown back, and B2 fish includes mainly live fish in excess of bag limits or undersized fish

Table D-32. California recreational projected mortality of bocaccio for 2013-2014, including changes as a result of the proposed action.

	Option 1:	Option 2:
Projected Impacts (mt)	50.7	50.9
Percent of Option 1 HG	39%	39%

<u>Stock Status</u>

It is unlikely that there would be any changes to the stock status of bocaccio under Option 2 since mortality is projected to be within the ACL. Under Option 2, no changes to stock status or rebuilding progress are expected.

<u>Socio-Economic Impacts of Option 2</u>

Currently, bocaccio is the only rockfish species in the recreational sector that has a minimum size for retention. Removing the size restriction for bocaccio would reduce regulatory complexity on a recreational fishery that already has many regulations.

D.11 Sablefish Trip Limits

Overview

The following section discusses catch projection and trip limit analyses for the four fixed gear, daily trip limit (DTL) fisheries, including both limited entry (LE) and open access (OA), north and south of 36° N. lat. for 2011. Hereafter, they will be referred to as follows: LE North, LE South, OA North, and OA South. Proposed trip limits for 2013 and 2014 in the fixed gear, sablefish, DTL fisheries were produced through iteration using GMT catch projection models (models described briefly below, and in detail in the 2011-2012 SPEX EIS).

<u>Management Issue</u>

Proposed trip limit reductions or increases are considered to bring projected catch to within new management targets, resulting from changes to the sablefish ACLs for the areas north and south of 36° N. lat. Landings projections were approximately 91 percent of the landings target, in order to produce trip limits which are likely to result in full attainment of harvest guidelines, while providing sufficient catch buffer, appropriate for the uncertainty in accuracy of estimated landings data, and normal uncertainty associated with statistical model projections. This strategy was supported by the Council in establishing sablefish DTL trip limits for 2012, in the November, 2011 Council meeting.

<u>Management Options</u>

For 2013, in the LE North fishery, proposed trip limits for 2013 were reduced to approximately 85 percent of No Action levels; for the OA North fishery, proposed trip limits were reduced to 68 percent of No Action. In the area south of 36° N. lat., harvest guidelines were higher than No Action (due to a slightly higher sablefish ACL for 2013 and 2014 in this area). For LE South, proposed trip limits were 104 percent of no action; for OA South, 108 percent. Trip limits for 2014 were slightly higher than for 2013 (2 to 5 percent higher) across all four sablefish DTL fisheries, due to higher ACLs in 2014.

<u>Comparison of the Management Options</u>

Analytical Description

The purposes of this analysis are to compare predicted landings between the No Action Alternative management measures and the action alternatives (i.e., Alternatives 1-7), under their resultant regional allocations, and fishery harvest guidelines, for the four fixed gear, sablefish daily trip limit (DTL) fisheries, including limited entry (LE) and open access (OA), both north and south of 36° N. lat.

The ACLs, regional allocations, and fishery landing targets (LTs) only vary between the No Action Alternative and the remaining alternatives, within each year. Levels of these three harvest control points vary only between years (2013-2014), and between No Action and all other alternatives. Within this analysis, “harvest guidelines” is defined as numerical management harvest objectives which are not quotas. These are either cited in regulation or calculated from other higher level numerical management objectives appearing in regulation. These harvest guidelines were reduced to account for discard mortality, the method and rationale for which is described below, to produce “landings targets”, which were used in projection modeling to predict landings, and determine necessary trip limits.

Model Description

The catch projection models used in this analysis are linear regression models that relate trip limits to monthly or bimonthly landings, separately for each fishery. Detailed descriptions of the models can be found in Appendix A. of the 2011-2012 harvest specifications EIS.

Limited entry models were specified as described in the 2011-2012 EIS. Minor differences in model specification were made in the open access models for 2013-2014. Sablefish ex-vessel revenue and fuel prices were removed as predictor variables in the open access north and south models. Although these variables present a meaningful picture in retrospect, when their historical values are known, they do not provide valuable information for making projections of future catch, since fuel prices and sablefish prices in the future are not known, are subject to substantial variability, and either assumptions or projections must be made about these would-be predictor variables themselves. Error in assumptions regarding future values of these variables introduces bias and significantly affects accuracy of projections; using them inflates apparent accuracy and precision, producing unrealistically high multiple-R^2 values and low standard errors for the regressions. Trip limits, on the other hand, are known (are set by the Council process), and their use for projecting catch into the future presents a realistic picture of uncertainty. Data from years 2004-2006, when there was extremely small variation in trip limits, and provided little information content for the model, were removed from the OA South model, and resulted in increased model fit.

Model Input Data

Landings and catch data were acquired from PacFIN using the query “slct_ves_sabl_arid_DTL_no_EFP.sql”. As described in the GMT inseason statements from the April, June, September, and November 2011 Council meetings, data from this query were found this year to have two substantial problems, both of which were corrected before use in the analysis for these harvest specifications. First, historical landings of sablefish with fixed gear, in the LE North, DTL fishery were substantially underestimated from 2004 through 2011, as the software in the PacFIN database which estimates division of fixed gear sablefish landings between the sablefish primary fishery and DTL fisheries was malfunctioning. The software has since been modified to make the most accurate division of catch between the two fisheries which is currently possible, and the GMT and Council are working on a long-range solution that would provide direct catch accounting, which would replace the currently necessary computational estimation procedure. Second, gear-switching provisions under IFQ lead to misattribution of IFQ landings of sablefish using fixed gear, to the various sablefish DTL fisheries. This has also been corrected, and screening procedures have been put in place both in PacFIN and with the states to flag and remove IFQ fish tickets from the “slct_ves_sabl_arid_DTL_no_EFP.sql” query for the sablefish DTL projection models.

Accounting for Discards and Discard Mortality

Landings targets which appear in this section have been reduced from harvest guidelines that would appear in regulation, where applicable, in order to account for discard mortality. The harvest guideline (a specified numerical harvest objective that is not a quota) was multiplied by 15.9% (discard rate estimate), and by 20% (discard mortality rate estimate), and then that product (estimated dead discarded sablefish) was subtracted from the harvest guideline, resulting in a "landings target", which projected landings should be beneath, in order to keep total catch within the harvest guideline. The estimated discard rate used by GMT was taken from the 2010 West Coast Groundfish Observer Program (WCGOP) Total Mortality Report. In the 2009-10 management cycle, the discard rate estimate was the same, and was derived from data in the 2007 WCGOP Total Mortality Report, which was the most recent available data at that time. That discard mortality rate estimate was taken from information in Davis (2001, LTtp://onlinelibrary.wiley.com/doi/10.1111/j.1095-8649.2001.tb00495.x/abstract), Shirrippa and Colbert (2005, LTtp://www.pcouncil.org/wp-content/uploads/Sable05_complete.pdf), and Shirrippa (2007, LTtp://www.pcouncil.org/wp-content/uploads/Sable07v3_0.pdf). Shirrippa (2005) used experimental data and sea surface temperature to predict varying release mortality by gear. The GMT considered that Davis (2001) demonstrated high sensitivity to temperature and deck time, along with high variability of predicted discard mortality in Shirrippa (2005) informed by sea surface temperature data, and adopted an estimate of 20%. This value was also adopted by Taylor 2011 in the current sablefish stock assessment.

Results - No Action Alternative

Under No Action, the following Rockfish Conservation Area boundaries for use of fixed gear, from 2012 regulations, would remain in place for 2013 and 2014 (Table D-33).

Table D-33. Rockfish Conservation Area (RCA) boundaries for fixed gear, under the No Action Alternative.

Area	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec
North of 46° 16'	shore - 100 fm					
45° 03' 83" - 46° 16'	30 - 100 fm					
43° - 45° 03' 83"	30 - 125 fm (125 line reduced to 100 fm during directed halibut season)					
42° - 43°	20 - 100 fm					
40° 10' - 42°	20 fm depth contour - 100 fm					
34° 27' - 40° 10'	30 fm - 150 fm line					
South of 34° 27' (w/islands)	60 m - 150 fm line					

Projected Landings (No Action)

Projected landings under the No Action Alternative are presented in Table D-34 under the limits in Table D-35. The GMT and the Council considered, while constructing and adopting them, respectively, the uncertainty in the landings data seen during 2011 (in terms of correctly separating sablefish primary fishery landings from DTL landings, and separating new IFQ fixed gear landings from DTL landings) along with the normal uncertainty associated with projection models, the No Action trip limit structures for 2012 for each fishery presented here. The No Action Alternative resulted in projected attainments in the range of 91% to 93%, aiming to enable harvest of a high proportion of the HG, yet accommodating previously described uncertainty.

Table D-34 Model-projected landings compared to the landing target under the No Action Alternative, for the fixed-gear, sablefish, DTL fisheries. Landings targets and projected landings are in metric tons (mt) of landed catch.

Fishery	Area	Projection (mt)	Landing Target (mt)	% of LT
LE N.	North of 36° N. lat.	242	265	91%
OA N.	North of 36° N. lat.	381	419	91%
LE S.	South of 36° N. lat.	353	380	93%
OA S.	South of 36° N. lat.	284	309	92%

These trip limits can be adjusted inseason as needed to influence higher or lower catch as 2013 progresses. We strove to present trip limits with a predictable and temporally even structure (which was appreciated by the GAP, in their statement, in the November 2011 Council meeting), and to avoid starting the year with highly variable trip limits, such as resulted from the "rolling over" of 2010 trip limits into 2011, due to unforeseeable delays in implementation.

Table D-35. Trip limits for sablefish DTL fisheries under No Action.

<table>
<tr><th>Area</th><th>Fishery</th><th>Jan-Feb</th><th>Mar-Apr</th><th>May-Jun</th><th>July-Aug</th><th>Sept-Oct</th><th>Nov-Dec</th></tr>
<tr><td rowspan="2">North of 36° N. lat. (U.S./Canada Border to 36° N. lat.)</td><td>LE N.</td><td colspan="6">1,300 lb. per week, not to exceed 5,000 lb. per 2 mo.</td></tr>
<tr><td>OA N.</td><td colspan="6">300 lb. per day, or 1 landing per week of up to 900 lb., not to exceed 1,800 lb. per 2 mo.</td></tr>
<tr><td rowspan="2">South of 36° N. lat.</td><td>LE S.</td><td colspan="6">1,800 lb. per week</td></tr>
<tr><td>OA S.</td><td colspan="6">300 lb. per day, or 1 landing per week of up to 1,350 lb., not to exceed 2,700 lb. per 2 mo.</td></tr>
</table>

Action Alternatives for 2013

Projected landings under the action alternatives are presented in Table D-36 under the trip limits Table D-37. As with the No Action Alternative, we considered the uncertainty in the landings data seen during 2011 (in terms of correctly separating sablefish primary fishery landings from DTL landings, and separating new IFQ fixed gear landings from DTL landings), along with the normal uncertainty associated with projection models, when constructing the trip limit structures for 2013 for each fishery presented here. The action alternative limits result in projected attainments of 91%, aiming to enable harvest of a high proportion of the LT, yet accommodating previously described uncertainty. These trip limits can be adjusted inseason as needed to influence higher or lower landings as 2013 progresses. We strove to present trip limits with a predictable and temporally even structure, using the same rationale as for No Action. Landings targets for each fishery are equal for the action alternatives (i.e., alternatives other than No Action), within each year.

Table D-36. 2013 Model-projected landings under the action alternatives for the limited entry and open access fixed-gear sablefish DTL fisheries for 2013. Landings targets and projected landings are in metric tons (mt) of landed catch.

Fishery	Area	Alternatives Projection (mt)	Landing (mt)	% of LT
LE N.	North of 36° N. lat.	179	197	91%
OA N.	North of 36° N. lat.	266	291	91%
LE S.	South of 36° N. lat.	405	446	91%
OA S.	South of 36° N. lat.	330	362	91%

Projected landings under the action alternatives were lower than No Action for the LE North and OA North fisheries (74 percent and 70 percent of No Action, respectively), and higher than No Action for the LE South and OA South (115 percent and 116 percent, respectively), covarying with changes to the area-specific sablefish ACLs in 2013; see Table D-37 and Figure D-7.

Table D-37. 2013 Model-projected landings under the action alternatives compared to No Action for the fixed-gear sablefish DTL fisheries for 2013. Landings targets and projected landings are in metric tons (mt).

Fishery	Area	Alternatives Projection (mt)	No Action Projection (mt)	% of No action
LE N.	North of 36° N. lat.	179	242	74%
OA N.	North of 36° N. lat.	266	381	70%
LE S.	South of 36° N. lat.	405	353	115%
OA S.	South of 36° N. lat.	330	284	116%

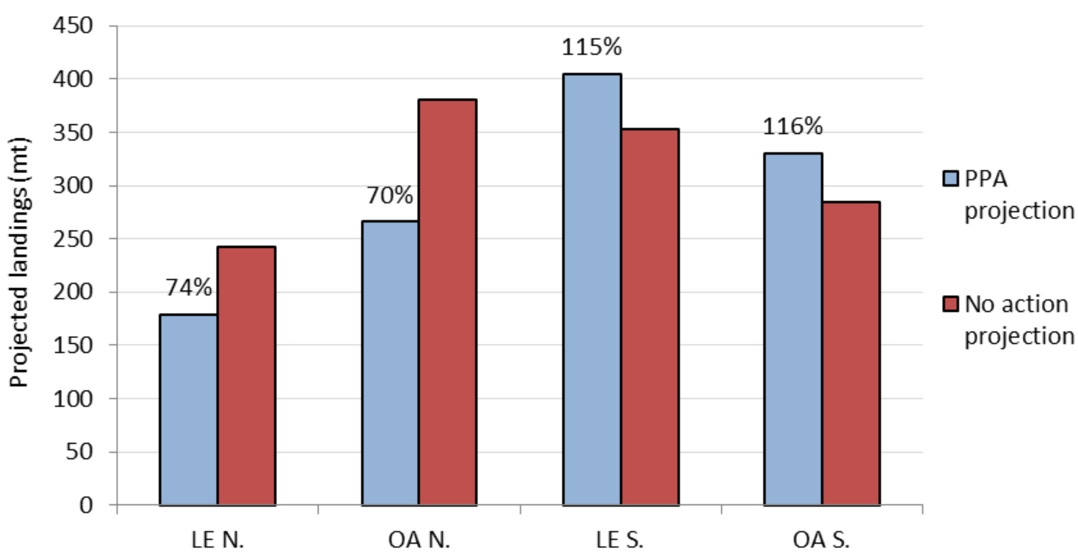


Figure D-7. Projected landings for 2013 under the PPA and No Action, for the four fixed gear, sablefish, DTL fisheries. Column labels show PPA projection as a percentage of No Action.

The proposed trip limits which informed the above landings projections were reduced accordingly in the North, compared with No Action, and increased in the South, compared with No Action (Table D-37), to keep catch within the LTs. For the LE North, weekly trip limits needed to be reduced by 200 pounds per week, and bimonthly limits by 800 pounds, to maintain a similar rate of attainment as in the No Action Alternative. For the OA North, a reduction of 290 pounds per week and 580 pounds per two months was necessary.

For the area south of 36° N. lat., an increase to trip limits of 80 pounds per week was possible in the LE South fishery, while an increase of 110 pounds per week and 220 pounds per bimonthly period was possible in the OA South fishery.

Table D-38. 2013 Proposed trip limits for 2013 in sablefish DTL fisheries under the PPA, and alternatives other than No Action.

Area	Fishery	Jan-Feb	Mar-Apr	May-Jun	July-Aug	Sept-Oct	Nov-Dec
North of 36° N. lat. (U.S./Canada Border to 36° N. lat.)	LE N.	1,100 lb. per week, not to exceed 4,200 lb. per 2 mo.					
	OA N.	300 lb. per day, or 1 landing per week of up to 610 lb., not to exceed 1,220 lb. per 2 mo.					
South of 36° N. lat.	LE S.	1,880 lb. per week					
	OA S.	300 lb. per day, or 1 landing per week of up to 1,460 lb., not to exceed 2,920 lb. per 2 mo.					

Action Alternatives for 2014

Projected landings under the actions alternatives for 2014 are presented in Table D-39. As with the No Action Alternative, we considered uncertainty in the landings data seen during 2011 (in terms of correctly separating sablefish primary fishery landings from DTL landings, and separating new IFQ fixed gear landings from DTL landings), along with the normal uncertainty associated with projection models, when constructing the trip limit structures for 2013 for each fishery presented here. The action alternatives for 2014 results in projected attainments of 91%, aiming to enable harvest of a high proportion of the LT, yet accommodating previously described uncertainty. These trip limits can be adjusted inseason as needed to influence higher or lower landings as 2014 progresses. We strove to present trip limits with a predictable and temporally even structure, using the same rationale as for No Action. Landings targets for each fishery are equal for the action alternatives, within each year.

Table D-39. Model-projected landings under the Action Alternatives in the fixed-gear sablefish DTL fisheries for 2014. Landings targets and projected impacts are in metric tons (mt) of landed catch.

Fishery	Area	Projection (mt)	Landing Targets (mt)	% of LT
LE N.	North of 36° N. lat.	194	214	91%
OA N.	North of 36° N. lat.	290	319	91%
LE S.	South of 36° N. lat.	441	483	91%
OA S.	South of 36° N. lat.	359	393	91%

Projected landings under action alternatives were lower than No Action for the LE North and OA North fisheries (80 percent and 76 percent of No Action, respectively), and higher than No Action for the LE South and OA South (125 percent and 126 percent, respectively), covarying with changes to the area-specific sablefish ACLs in 2013; see Table D-40 and Figure D-8.

Table D-40. **Model-projected landings under the action alternatives compared to No Action in the fixed-gear, sablefish, DTL fisheries for 2014. Landings targets and projected landings are in metric tons (mt).**

Fishery	Area	Alternatives Projection (mt)	No action projection (mt)	% of No act.
LE N.	North of 36° N. lat.	194	242	80%
OA N.	North of 36° N. lat.	290	381	76%
LE S.	South of 36° N. lat.	441	353	125%
OA S.	South of 36° N. lat.	359	284	126%

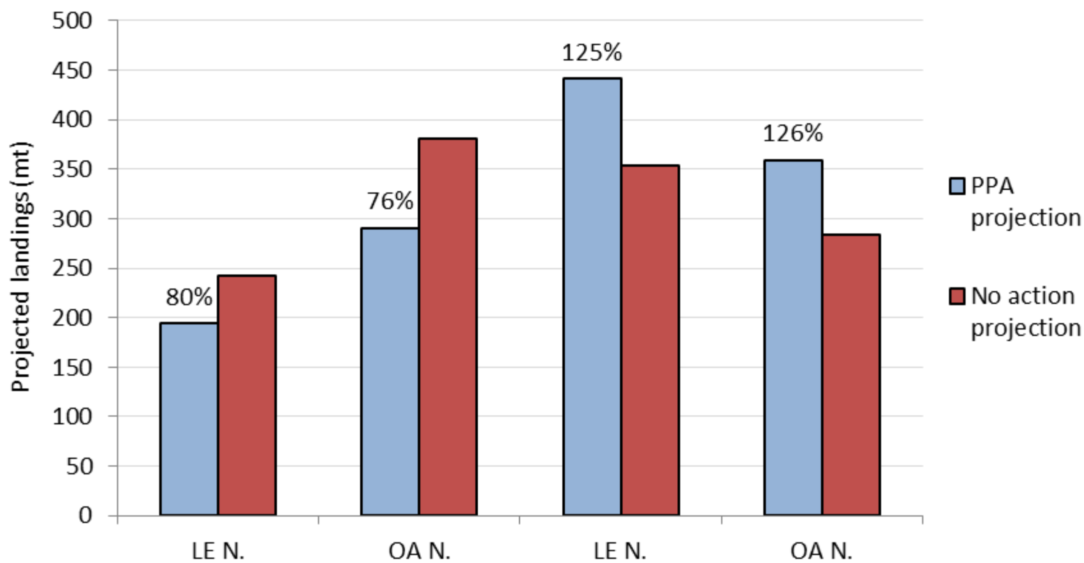


Figure D-8. **Projected landings for 2014 under the Action Alternatives and No Action, for the four fixed gear, sablefish, DTL fisheries. Column labels show PPA projection as a percentage of No Action.**

Table D-41. **Proposed trip limits for 2014, in sablefish DTL fisheries under the action alternatives, other than No Action.**

Area	Fishery	Jan-Feb	Mar-Apr	May-Jun	July-Aug	Sept-Oct	Nov-Dec
North of 36° N. lat. (U.S./Canada Border to 36° N. lat.)	LE N	1,100 lb. per week, not to exceed 4,400 lb. per 2 mo.					
	OA N	300 lb. per day, or 1 landing per week of up to 675 lb., not to exceed 1,350 lb. per 2 mo.					
South of 36° N. lat.	LE S	1,930 lb. per week					
	OA S	300 lb. per day, or 1 landing per week of up to 1,525 lb., not to exceed 3,050 lb. per 2 mo.					

The proposed trip limits which informed the above landings projections were reduced accordingly in the North, compared with No Action, and increased in the South, compared with No Action (Table D-40), to keep catch within the LTs. For the LE North, weekly trip limits needed to be reduced by 200 pounds per week, and bimonthly limits by 600 pounds, to maintain a similar rate of attainment as in the No Action

Alternative. For the OA North, a reduction of 225 pounds per week and 450 pounds per two months was necessary.

For the area south of 36° N. lat., an increase to trip limits of 130 pounds per week was possible in the LE South fishery, while an increase of 175 pounds per week and 350 pounds per bimonthly period was possible in the OA South fishery.

D.12 Regulatory fix: threshold for switch from sablefish primary fishery to DTL fishery

Overview

The Groundfish Management Team (GMT) reviewed Council guidance under Agenda Item G.7, in the November Council meeting: Inseason Adjustments Part II, and provided the following considerations relative to the limited entry fixed gear (LEFG) sablefish fishery north of 36° N. lat.

As per Council discussion, the GMT is addressing the subject of finding a remedy to the unforeseen complications to the LEFG sablefish primary fishery north of 36° N. lat., resulting from elimination of the daily trip limit in the sablefish DTL fishery in the same area. It recently came to the attention of NMFS, enforcement, the GMT, and the Council that elimination of the daily trip limit, at the request of the GAP, and following analysis by the GMT in 2009, caused the unintended consequences of impacting the amount of sablefish that primary fishery participants are allowed land, as they conclude fishing on their tier limits.

Some clarifications are in order on this somewhat complex regulatory topic. While the daily trip limit was in effect, it served a second regulatory purpose, in addition to the obvious one of a daily limit for the DTL fishery; it also served as the poundage threshold, which determines when the fixed gear, sablefish landings of a sablefish primary fishery participant begin being counted as DTL landings, and become subject to those trip limits.

Specifically, if after a delivery, a primary fishery participants remaining tier amount (sum of tier endorsements on the participant's vessel, minus all pounds fished on those endorsements) was less than the daily trip limit amount, all subsequent fixed gear sablefish deliveries by the vessel would be attributed to the DTL fishery. Additionally, any remaining tier amount after this time would be forfeited. The daily limit, when it was in place, was either 300 or 500 pounds. In this case, in the absence of a daily trip limit, "an amount that is smaller than the DTL amount" is interpreted for enforcement purposes to mean an amount that is smaller than the weekly limit, which is currently 1,300 pounds, under the No Action Alternative. This is a significant complication for the primary fishery participants, and means that they must make their final landing within 1,300 pounds, rather than 300 or 500 lbs.

For example, if 2,200 pounds were remaining on one's tier limit, the fisher could land 1,000 pounds in one trip, and be required to forfeit the remaining 1,200 pounds of the tier limit. Subsequently, that vessel's participation in the primary fishery would conclude for the season. Any subsequent landings of sablefish with fixed gear by that vessel would be subject to the DTL fishery regulations. Once a vessel that is eligible to participate in the sablefish primary fishery makes the switch into the DTL fishery, it cannot return to the primary fishery, according to Federal regulations at 50 CFR 660.232(a)(2).

That regulation states:

> *"A vessel that is eligible to fish in the sablefish primary season may fish in the DTL fishery for sablefish once that vessels' primary season sablefish limit(s) have been taken,*

*or after the close of the primary season, whichever occurs earlier. **Any subsequent sablefish landings by that vessel will be subject to the restrictions and limits of the limited entry DTL fishery for sablefish for the remainder of the fishing year***. [emphasis added]."

It also states:

*"No vessel may land sablefish against both its primary season cumulative sablefish limits and against the DTL fishery limits within the same 24 hour period of 0001 hours local time to 2400 hours local time. If a vessel has taken all of its tier limit except for **an amount that is smaller than the DTL amount**, that vessel's subsequent sablefish landings are automatically subject to DTL limits* [emphasis added]."

In this case, in the absence of a daily trip limit, "an amount that is smaller than the DTL amount" is interpreted to mean the weekly limit currently in place. If the fisher were unaware of the enforcement of the weekly-limit threshold, or didn't plan carefully for it, they could unintentionally forfeit close to the full weight weekly limit. At current sablefish ex-vessel prices, this would represent significant lost revenue by the participant.

Management Issue

The elimination of the daily trip limit in the LEFG sablefish DTL fishery, north of 36° N. latitude., at the request of the Groundfish Advisory Subpanel (GAP) and analysis of the GMT in 2009, caused the unintended consequences of impacting the amount of sablefish that LEFG primary fishery participants north of 36° N. latitude are allowed to land as they conclude fishing on their tier limits.

Management Options

No Action: (Regulations at 660.232.a.3.)

*"If a vessel has taken all of its tier limit except for **an amount that is smaller than the DTL amount**, that vessel's subsequent sablefish landings are automatically subject to DTL limits* [emphasis added]."

Proposed Action: The proposal is to add the following language to regulation, immediately following the excerpt from the No Action Alternative.

"In the absence of a daily limit, 300 pounds would serve as a proxy for the daily limit ("the DTL amount"), only acting as the threshold to facilitate the transition of a vessel from participation in the sablefish primary fishery, to the sablefish DTL fishery."

We propose that 300 pounds should be this amount, as it was the most common daily trip limit in this fishery over the past seven years, and would give maximum access of a fisher to their tier pounds. Out of the 80 months between January 2003, through August of 2009, in which a daily trip limit was in place for the LE North sablefish DTL fishery, in 68 of those months a daily limit of 300 pounds was in place, and during the other 12 months, a limit of 500 pounds was in place. The 500 pound limit was put in place to enable higher harvest of DTL sablefish, rather than to limit access to tier limit (primary fishery) poundage.

Alternatively, the threshold for transitioning from the sablefish primary fishery to the DTL fishery could be permanently set to 300 pounds, regardless of what the daily limit in the DTL fishery north of 36° N. lat. might be, whether or not a daily limit was in place.

Comparison of Management Options

To review, in the 660.232.a.3 (above), the "DTL amount" refers to the daily trip limit which is currently in regulation. It is also used to establish the threshold for a sablefish primary tier fisher transitioning from the primary to DTL fishery, upon exhausting his/her tier pounds. When no daily limit is specified in regulation, enforcement officials must implement the weekly limit for the transition instead, which is much larger, and this often leads to the unintentional forfeiture of fish, as described above. Since the daily trip limit was eliminated in this fishery, the proportion of the primary share that went unharvested has been larger than when there was a daily trip limit in place. In 2009 through 2011, an average of 6.7 percent of the primary landed share has been left unharvested, compared with 4.7 percent during the five previous years (2004 through 2008).

Biological Impacts

There is no conservation concern in harvesting this amount.

Socio-Economic Impacts

If the No Action Alternative were left in place, it is probable that the amount of unharvested sablefish in the primary tier fishery would remain higher than when there was a daily trip limit in this fishery. It is the intent of the regulations that the primary landed share be harvested, which provides a greater economic benefit compared to No Action. The action alternative would allow fishermen to harvest a greater amount of sablefish and associated revenue in the tier fishery before switching into the DTL fishery.

D.13 Blackgill Rockfish South of 40°10 N. Latitude Management Measures

Overview

For 2011-12 groundfish fisheries, blackgill rockfish have been managed as part of the overall southern slope rockfish complex and its harvest specifications have contributed to the complex as a whole (Table D-42). Although blackgill rockfish south of 40°10 N. latitude was assessed previously, species-specific harvest specifications were never defined in federal regulation. That is, it was never given its own overfishing limit (OFL), acceptable biological catch (ABC), or annual catch limit (ACL). Targeting of blackgill rockfish occurs in all commercial fisheries south of 40°10' N. latitude Blackgill rockfish management measures are detailed in Table D-43.

Table D-42. 2012 Harvest Specifications for Minor Slope Rockfish Complex south of 40°10' N. latitude in Metric Tons, Implemented in Regulation.

Species	OFL	ABC	ACL
Minor Slope Rockfish South	903	832	626

Table D-43. Blackgill Rockfish Management Measures for the 2012 Groundfish Fisheries, south of 40°10' N. latitude.

Fishery	
Commercial	No sorting requirement for all commercial landings
--Limited Entry Trawl	Managed under slope rockfish IFQ
--Limited Entry Fixed Gear	Bi-monthly limit management under slope rockfish complex. Current limits south of 40°10' N. latitude are: Periods 1-6: "*40,000 lb/2 months slope rockfish & darkblotched rockfish*" Bi-monthly limits can be adjusted through routine inseason action.
--Open Access	Bi-monthly limit management under slope rockfish complex. Current bi-monthly limits by area are: 40°10' N. latitude to 38° N. latitude: Periods 1-6: "*slope rockfish & darkblotched rockfish - Per trip, no more than 25% of weight of the sablefish landed*" South of 38° N. latitude: Periods 1-6: "*10,000 lb/2 months slope rockfish & darkblotched rockfish*" Bi-monthly limits can be adjusted through routine inseason action.

Management Issue

An assessment was performed for blackgill rockfish for use in the 2013-2014 management cycle. Although the 2011 blackgill rockfish assessment indicated that historical catches have been higher than the preliminary harvest specifications (OFL and ABC) for 2013-14, they never exceeded the historical contribution to the complex.

Total catch data (landings plus discard) by sector from the West Coast Groundfish Observer Program Total Mortality Reports in recent years (2006-2010) can be found in Table D-44.

Table D-44. West Coast Groundfish Total Mortality Estimates in Metric Tons by Sector for Blackgill Rockfish from 2006-2010.

Year	Trawl	Non-Trawl	Other	Total Mortality
2006	65.7	57.0	0.4	123.1
2007	28.6	19.0	3.2	50.8
2008	35.6	21.3	14.8	71.7
2009	48.0	84.6	3.4	136.0
2010	61.4	84.6	6.3	152.3

Council staff calculated the presumptive ABC for 2013-14 based on the 2011 stock assessment estimate of OFL and the Council's P* decision from 2011-12 (P* = 0.40) (Table D-45). Given that blackgill stock is below 40 percent depletion, a 40-10 adjustment was applied to its contribution to the complex.

Table D-45. Presumptive 2013-2014 OFLs and ABCs for Blackgill Rockfish south of 40º10' N latitude in Metric Tons.

Year	OFL	ABC
2013	131	119
2014	134	122

The estimated mortality provided by WCGOP for blackgill rockfish from 2006-2010 would have exceeded the presumptive 2013-14 OFLs in 2009 and 2010 (Table D-44, compared to Table D-45).

Management Options

The decision before the Council at the September and November 2011 Council meetings was whether to 1) continue status quo management of blackgill rockfish within the minor slope rockfish complex, 2) continue managing blackgill rockfish within the minor slope rockfish complex south and implement a harvest guideline, or 3) remove blackgill rockfish from the minor slope rockfish south complex and manage it with stock specific harvest specifications.

Option 1, No Action – Manage Blackgill Rockfish within the Minor Slope Rockfish Complex (south of 40°10' N. latitude)

Under Option 1, blackgill rockfish would continue to contribute to the harvest specifications for the minor slope rockfish south complex; no sorting requirement would be implemented. The blackgill rockfish contribution would be based on the results from the 2011 stock assessment. The management measures outlined in Table D-43 would remain in place and could be modified inseason through routine management measures to slow landings if necessary.

Although there is no formal requirement to sort blackgill rockfish to individual species under Option 1, many in the fleet already do so. Blackgill rockfish are easy to identify and are more valuable compared to other slope rockfish; therefore individual sorting of blackgill rockfish is expected to continue under Option 1.

Under Option 1, the following management measures would be available by fleet to control catches of blackgill rockfish within the minor slope rockfish complex, if necessary.

Limited Entry IFQ

The total catch of blackgill rockfish taken in the IFQ fishery will count against the slope rockfish south of 40°10' N. latitude IFQ. One measure available to the IFQ fishery to reduce the catch of blackgill rockfish would be an adjustment to the seaward boundary of the RCA (trawl and non-trawl RCAs are currently at 150 fm). Because blackgill rockfish are most abundant from 160 to 270 fm, it is probable that to effectively reduce blackgill rockfish mortality, the RCA would have to be moved to depths that would effectively eliminate all slope rockfish opportunities, which would adversely affect the IFQ fishery. Voluntary avoidance by the fleet has proven successful in the whiting fishery and could be requested for slope rockfish to reduce blackgill rockfish encounters.

Non-Trawl

In the limited entry (LE) and open access (OA) fisheries, blackgill rockfish is included within the aggregate slope rockfish bi-monthly limits. Under current regulations, the slope rockfish bi-monthly limits outlined in Table D-43 could be taken entirely of blackgill. The only measures available to these fisheries to slow blackgill rockfish catches under Option 1 is to adjust the seaward boundary of the RCA (similar to the IFQ fishery), voluntary avoidance, or reductions in bi-monthly limits. Any reductions to bi-monthly limits would be applied to the aggregate slope rockfish limit and would likely be severe (because it would apply to the entire slope complex, not just blackgill rockfish) and would limit access to other healthy slope rockfish species.

Biological Impacts

Projected Impacts

Although projected catches for blackgill rockfish could exceed its contribution to the minor slope rockfish complex under Option 1, the overall slope rockfish complex harvest specification would not be exceeded.

Stock Status
Under Option 1, the status of blackgill rockfish stock is expected to maintain its upward trajectory as indicated by the 2011 assessment (Field and Pearson, 2011). The increase in biomass is most likely due in part to implementation of the Cowcod Conservation Areas (CCA) in 2001 which removed fishing pressure and provided protection to a large fraction of the blackgill rockfish habitat. As no modifications to depth restrictions are anticipated for the CCA, no changes to stock status are anticipated under Option 1.

Socio-economic Impacts
Under Option 1, any inseason action taken to reduce catches (e.g., RCA modifications, reductions in bi-monthly limits) would likely be severe and could effectively eliminate target opportunities in other valuable fisheries such as sablefish. Voluntary avoidance would have the fewest impacts on the fleet because known blackgill rockfish hotspots could be avoided. Although this could reduce or eliminate a directed fishery for blackgill rockfish, it still could allow for small amounts of blackgill rockfish to be taken incidentally while prosecuting other valuable fisheries, such as sablefish.

Option 2: Manage Blackgill Rockfish within the Minor Slope Rockfish Complex south of 40°10' N. latitude, Establish a Harvest Guideline and a Sorting Requirement.
Under Option 2, blackgill rockfish would continue to contribute to the harvest specifications for the minor slope rockfish south complex south of 40°10' N. latitude and a blackgill rockfish harvest guideline would be established based on the results from the 2011 stock assessment.

Harvest Guideline
Under Option 2, harvest guidelines of 106 mt and 110 mt would be established for 2013 and 2014 respectively. Based on the FMP, the harvest guideline would be further divided 63% trawl (67 mt) and 37% non-trawl (39 mt)[18]. Although establishment of a harvest guideline does not mean that action has to be taken based upon projected attainment, it does allow for more flexibility in creating management measures to limit catch.

Sorting Requirement
Under Option 2, implementing a sorting requirement is not expected to change current fleet practices compared to Option 1. A sorting requirement could have an impact on state and federal programs because time and money may need to be invested into state sampling programs to increase the accuracy of identification. Increased enforcement may also be necessary to ensure accurate sorting for management.

The following management measures would be available to the IFQ and non-trawl fleets to be used in season in the landings are tracking high.

Limited Entry IFQ
Under a HG, landings and discards in the IFQ fishery would continue to count against slope rockfish QP[19]. Because a sorting requirement would be implemented, it is possible blackgill rockfish landings could be verified by catch monitors and port biologists. Discards at sea would be recorded by the observer at the species level, as currently done. If mortality appears to be tracking higher than the HG[20], the Council could reduce blackgill rockfish catches by moving the seaward boundary of the RCA, which

[18] Since increasing the harvest guideline to 110 mt (in 2014) will not result in any appreciable change in bi-monthly limits, the 2013 values were assumed for all calculations.
[19] Species specific IFQ can only be issued based on an ACL, not a harvest guideline.
[20] Per federal regulations, attainment of a HG does not require action or closure of a fishery.

could adversely affect IFQ fishermen as described above under Option 1, or request voluntary avoidance by the fleet.

Non-Trawl

Under Option 2, modifications to bi-monthly limits were investigated to keep blackgill rockfish removals within the yearly non-trawl allocation. No changes are proposed for the overall slope rockfish bi-monthly limits. Per Council guidance at the November 2011 meeting, the non-trawl blackgill rockfish allocation was divided 60% LE (23.4 mt) and 40% OA (15.6 mt)[21] to facilitate modeling bi-monthly limits. As removals in the LE and OA fisheries would have exceeded the 2013-2014 harvest targets given past fishery behavior (Figure 1), reductions in bi-monthly limits may provide an effective tool for controlling catches.

Blackgill rockfish landings as recorded in PacFIN from 2005-2010 for LE and OA fixed gear fleets were used to analyze catch limits by fleet and period. Bi-monthly limits for the LE fishery maintained the No Action area designation (south of 40º10' N. latitude); whereas bi-monthly limits for the OA fishery were modified from the No Action area designations (40º10' N. latitude to 38º N latitude; south of 38º N latitude) to a single area (south of 40º10' N latitude). For analytical and managerial ease, bi-monthly limits are assumed the same in each bi-monthly period. Two modeling approaches (using 90% and 100% attainment of the non-trawl allocation) were used to analyze bi-monthly limits. The years 2008 to 2010 were ultimately chosen as the basis for modeling the trip limits in this analysis because they are the most representative of current and future activities. For a full description of bi-monthly limit methodology refer to Appendix A.

Limited Entry Bi-Monthly Limit Options

Table D-46 summarizes a range of bi-monthly limits for blackgill rockfish in the LE fishery under varying assumptions of catch attainment. The bi-monthly limit options range from 1,200 lb/2 months (Option A) to 1,375 lb/2 months (Option B). The percentage of vessels affected per bi-monthly period by each of the options are provided in Figure D-10, which is generally less than 15% for all options over all periods.

Under Option 2, the LE bi-monthly limits would need to be restructured to accommodate the new sub-limit for blackgill. Currently the bi-monthly limit is "*40,000 lb/2 months of slope rockfish and darkblotched rockfish*". The bi-monthly limit could be restructured as "*40,000 lb/2 months of slope rockfish and darkblotched rockfish, of which no more than XX lb can be blackgill rockfish*".

Table D-46. Range of sub-limits for blackgill rockfish in the limited entry non-trawl fishery. Bi-monthly limits are modeled for the area south of 40º10' N latitude and may include rounding to facilitate management.

Option	Period limit	Calculation Assumptions
Option A	1,200 lb/2 mo	Assumes 90% attainment of LE portion of non-trawl allocation using average catch of all participating vessels from 2008 to 2010.
Option B	1,375 lb/2 mo	Assumes 100% attainment of LE portion of non-trawl allocation using average catch of all participating vessels from 2008 to 2010.

Open Access Bi-Monthly Limit Options

Unlike the LE fishery, OA fishery bi-monthly limits are divided at 38º N. latitude and structured differently in both areas. Since the original rationale documenting the need for the area divisions and the differences in period limit structuring is no longer available, the areas were combined for this analysis.

[21] Percentages were based on average participation from 2005 to 2010.

Table D-47 summarizes a range of OA bi-monthly limits under varying assumptions catch attainment. The bi-monthly limit options range 410 lb/2 months (Option A) to 480 lb/2 months (Option B). The OA fishery has traditionally been more unpredictable than the LE fishery, making it difficult to accurately predict catch and fleet behavior.

Under this Option, the bi-monthly limits would need to be restructured to accommodate the new sub-limit for blackgill rockfish. For the area south of 40º 10' N latitude, a new bi-monthly limit could be implemented as "*10,000 lb/2 months of slope rockfish and darkblotched rockfish, of which no more than XX lb can be blackgill rockfish*".

Overall, the percentages of open access vessels per bi-monthly period affected by each of these options are provided in

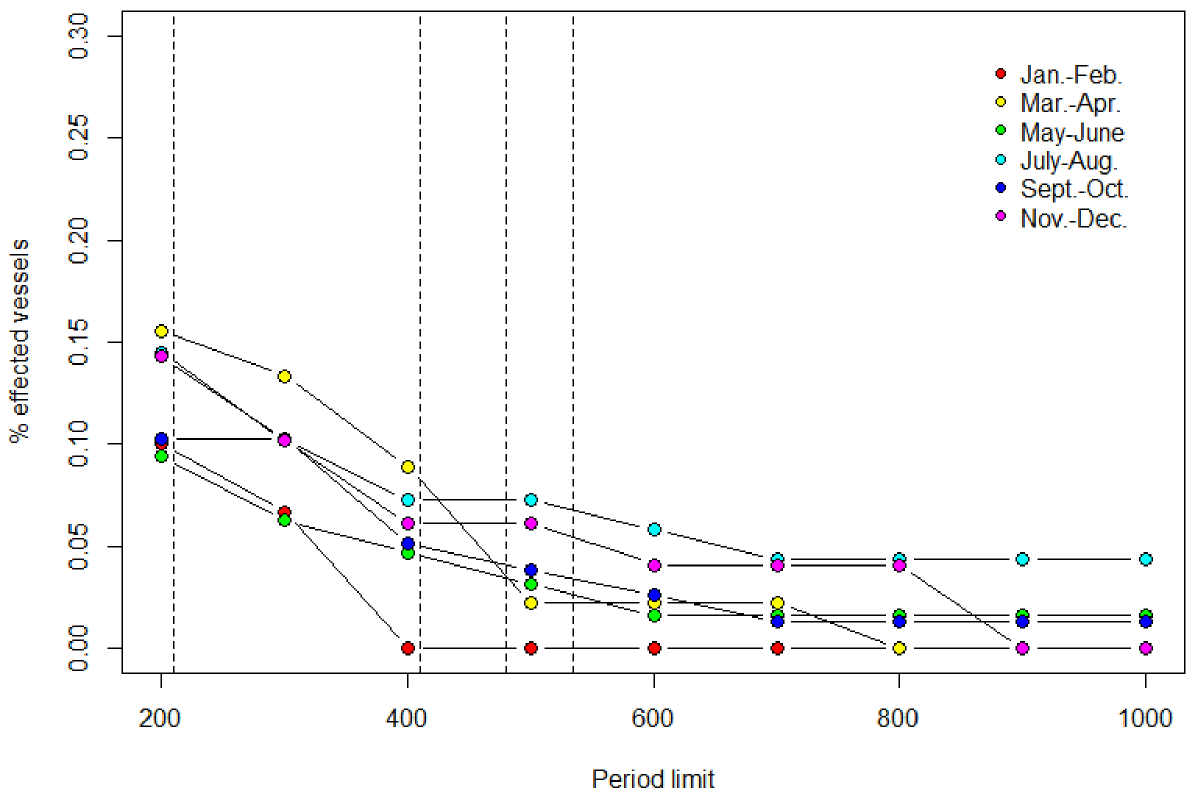


Figure D-11, which is generally 5 to 15% for most options.

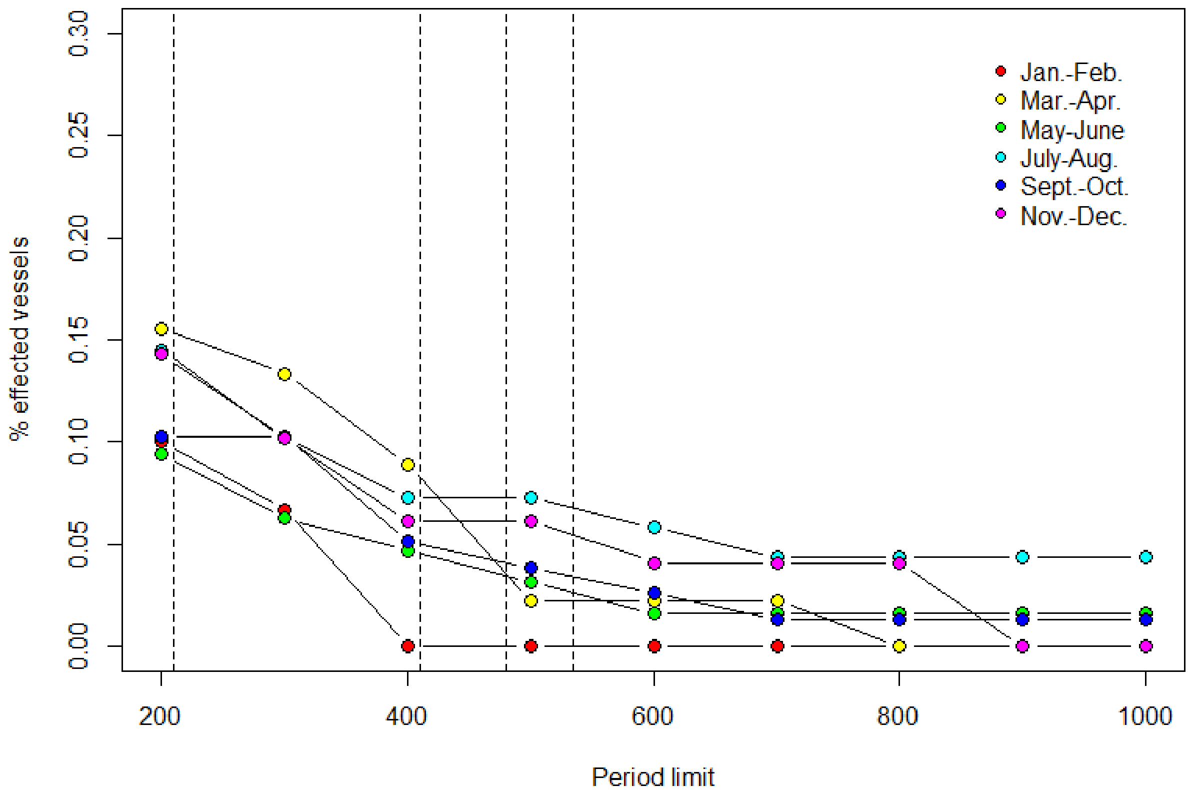


Table D-47. Range of sub-limits for blackgill rockfish in the open access non-trawl fishery, assuming one area (south of 40°10' N. latitude). Values may be rounded for ease of management.

	Bi-monthly Limit	Description
Option A	410 lb/2 mo	Assumes 90% attainment of OA portion of non-trawl allocation using average catch of all participating vessels from 2008 to 2010.
Option B	480 lb/2 mo	Assumes 100% attainment of OA portion of non-trawl allocation using average catch of all participating vessels from 2008 to 2010.

<u>Comparison of the Management Options</u>

<u>Biological Impacts</u>

Projected Impacts

Under Option 2, projected catches for blackgill rockfish would be expected to stay within the harvest guideline.

Stock Status

Under Option 2, a positive change to the stock status of blackgill rockfish could be expected compared to Option 1, but the extent is unknown. Blackgill are a long-lived, resilient species so small changes to total mortality over a short time period would not be expected to have any detectible impact on stock status.

Socio-economic Impacts
Under Option 2, the fleet is expected to be negatively impacted due to the decrease in landings to stay within 2013-14 harvest specifications. This impact is expected to be mainly experiences by the non-trawl fisheries that target blackgill rockfish.

Although the percentage of LE and OA vessels affected per bi-monthly period is generally less than 15% for all options, the loss in vessel revenue will not be equal among those vessels. Some of these vessels directly targeted blackgill rockfish and had landings far above the proposed bi-monthly limits. Their losses will be much greater than a vessel that only had landings at or slightly above the new proposed bi-monthly limits. Since the LE fleet targeting blackgill primarily operates out of southern California, disproportionate losses in blackgill rockfish revenues will affect that fleet and local communities in that area.

Since the majority of the fleet is already sorting blackgill rockfish to species due to its higher value compared to other slope rockfish species, daily operations are not expected to change as a result of a sorting requirement.

Option 3: Remove Blackgill Rockfish from the Minor Slope Rockfish Complex and Apply Species Specific Harvest Specifications (ie, ACL)
Blackgill rockfish would be removed from the minor slope rockfish south complex and its contribution to the harvest specifications for the minor slope rockfish south complex would be removed (thus lowering the minor slope rockfish complex harvest specifications). Blackgill rockfish would be managed under its own ACL, which would be based on the results from the 2011 stock assessment, and sorting requirement would be implemented.

*Sorting Requiremen*t
Under Option 3, implementing a sorting requirement is not expected to greatly change current fleet practices compared to Options 1 or 2. Similar to Option 2 a sorting requirement could have an impact on state and federal programs because all blackgill would have to be tracked and monitored. Some increase in time and money may be expected relative to increase the accuracy of identification. Increased enforcement may be necessary to enforce the new sorting requirements.

Limited Entry IFQ
Under an ACL, QS/QP would be established for the IFQ fishery and all landings and discards would be counted against the newly formed blackgill rockfish QP. The default proxy to distribute blackgill QS would be based on that used for slope rockfish unless the Council chose to re-evaluate a different methodology. Depending on the amount of blackgill available to the trawl fishery, it is possible that blackgill QP could be as constraining, if not more, than many overfished species and limit access to many healthy target stocks.

Non-Trawl
Under Option 3, an ACL effectively functions the same as a harvest guideline (see Option 2) except projected attainment of an ACL does require management action. Reductions in bi-monthly limits would also be an effective tool for controlling catches, but unlike Option 2, establishment of an ACL would allow for species specific limits to be implemented. Therefore, no sub-limits within the slope rockfish limits would need to be applied. Any of the options presented under Option 2 in Table D-46 or Table D-47 could be implemented as a blackgill specific limit.

Comparison of the Management Options

<u>Biological Impacts</u>
Projected Impacts
Under Option 3, projected catches are expected to be lower than Option 1 and the same as Option 2.

Stock Status
Under Option 3, no changes to stock status are expected compared to Option 2. Some positive change to the stock status could be expected compared to Option 1, but the extent is unknown.

<u>Impacts to Industry</u>
Impacts to industry under Option 3 are expected to be the same as under Option 2. The fleet is expected to be negatively impacted compared to Option 1.

Figure D-9. Removals of blackgill rockfish in the limited entry (top panel) and open access (bottom panel) fisheries south of 40º10' N latitude. Solid horizontal lines are the 2013 harvest guidelines; Broken horizontal lines are the 2014 harvest guidelines.

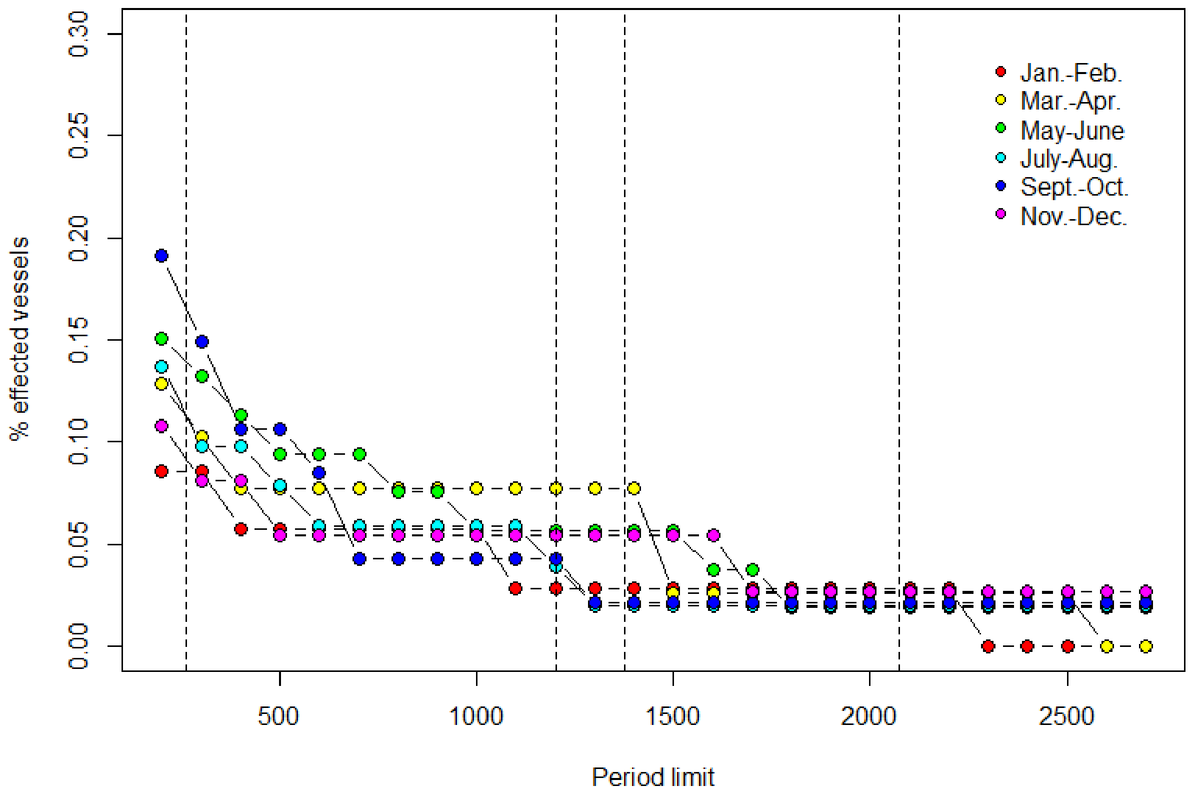


Figure D-10. Percentage of vessels per bi-monthly period (summarized from 2005-2010) that would need to reduce catch to comply with each of the proposed bi-monthly limit options for the limited entry fishery.

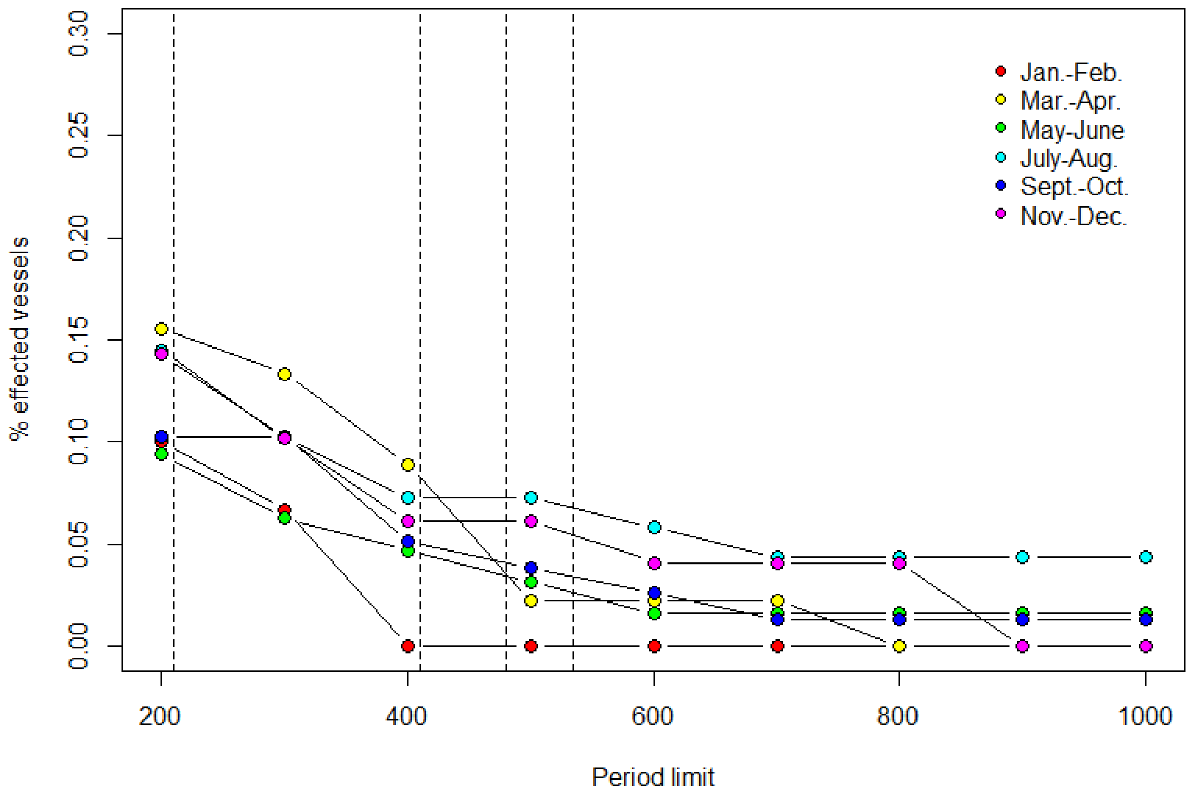


Figure D-11. Percentage of vessels per bi-monthly period (summarized from 2005-2010) that would need to reduce catch to comply with each of the proposed bi-monthly limit options for the open access fishery south of 38º N. latitude.

D.14 Longnose Skate Management Measures

Overview

Historically, longnose skate (*Raja rhina*) were not commercially important and were mostly caught as bycatch in trawl fisheries. Discards were estimated at 93% prior to 1995, and 53% thereafter (Gertseva and Schirripa 2008). The commercial importance and retention of this species appears to be increasing, however. Longnose skate landings have increased from 313 mt in 2002 (Gertseva and Schirripa 2008) to 977 mt in 2010 (Bellman et al. (2011). This 2010 level represents the 4th largest landing for longnose skate since 1950.

Herein we provide an analysis to examine the efficacy of potential management measures that could be used to restrain the catch of longnose skate by west coast commercial fisheries, if needed. Alternative trip limits and RCAs are provided. Other potential measures are also discussed.

Prior to March, 2012, catch accounting (e.g., Bellman et al., 2011) assumed that 100% of the discarded longnose skate died. Recently, however, the Council adopted the SSC recommendation that WCGOP reports should apply discard mortality rates shown in stock assessments (Agenda Item F.2.b, REVISED Supplemental SSC Report, March 2012. Stock assessments (e.g., Gertseva and Schirripa 2008) assumed

50% discard mortality for longnose skate for all gear types. It should be noted that the new 50% discard-mortality rate assumption is applied only as we look forward (i.e., when evaluating options toward the end of this report). In most cases prior to that section, 100% discard mortality is shown because that was the historical perception.

2009-2010 Total Mortality of Longnose Skate

The West Coast Groundfish Observer Program (WCGOP) reported total fishing mortalities for longnose skate of 1,455 and 1,387 mt during 2009 and 2010, respectively (Bellman et al., 2010 and 2011), while assuming that all discarded longnose skate died. Under the 100% discard-mortality rate assumption, it was thought that mortality exceeded the optimum yield (OY) during both years (Table D-48; Bellman et al., 2010 and 2011). These total mortality estimates did not exceed the Annual Biological Catch (ABC; Table D-48), however. Under a 50% discard mortality assumption, only 83% and 88% of the OYs would have been attained during 2009 and 2010 (see Agenda Item E4b, Supplemental GMT Report 3, November 2011).

Table D-48. West coast groundfish total mortality estimates (mt) for longnose skate from 2009-2010 assuming 100% mortality (Bellman et al., 2010 and 2011) and 50% mortality (Agenda Item F.2.b, Revised Supplemental SSC Report, March 2012) for discarded longnose skate.

Year	Estimated mortality (mt) assuming 100% discard mortality	Estimated mortality (mt) Assuming 50% discard mortality	Optimum yield (OY) (mt)	Estimated mortality (% of OY) assuming 100% discard mortality	Allowable Biological Catch (ABC)
2009	1455.1	1,120.3	1,349	108%	3,428
2010	1,386.5	1,181.8	1,349	103%	3,269

2011-2012 Harvest Specifications

Longnose skate were considered “trawl dominant” catch under Amendment 21, therefore trawl and non-trawl allocations were set at 95 percent and 5 percent, respectively, for 2011-2012 fisheries. No within trawl allocation was necessary since longnose skate is not managed with Individual Fishing Quotas (IFQs) or allocations for the at-sea whiting sectors.

Longnose skate was removed from the “Other Fish” complex in 2009, and sorting became a requirement beginning March 6, 2009. The 2011-2012 harvest specifications for this species resulted in an annual catch limit (ACL) of 1,349 mt for 2011 and 2012 (Table D-49).

Table D-49. 2011-2012 harvest specifications for longnose skate in metric tons, implemented in regulation. OFL = overfishing limit; ABC = annual biological catch; ACL = annual catch limit.

Year	OFL	ABC	ACL
2011	3,128	2,990	1,349
2012	3,006	2,873	1,349

Historically, there has been little effort to restrict longnose skate catches because markets and landings were generally limited (with the exception of some high landings during the 1990s when Asian markets developed; Gertseva and Schirripa 2008). Subsequently, most longnose skate were caught incidentally while pursuing other species. Management measures to reduce "targeting" and restrict catches have therefore been unnecessary.

2011 - 2012 Management Measures (= No Action):

Management measures used to control catches and improve monitoring of longnose skate for the 2011-12 fisheries are summarized in Table D-50. The sorting requirement, first implemented in 2009, provides for better monitoring relative to previous years when longnose skate were reported within the "Other Fish" complex. Rockfish conservation areas (RCAs; Table D-51 and Table D-52) in regulation may inadvertently provide some catch-controls for longnose skate, because the depth distribution of this species extends from near shore to 600 fm (Keller et al. 2008). Hence, RCAs may prevent the capture of longnose skate throughout the middle of their depth distribution along the entire west coast for non-whiting groundfish fisheries. Trip limits are currently listed as "unlimited" but can be adjusted through inseason action.

Table D-50. Management measures affecting longnose skate catch and monitoring for the 2011-2012 (= No Action) groundfish fisheries.

Fishery	**Management Measure**
Commercial	
--All Commercial landings	Sorting required for all commercial landings
--Limited Entry Trawl	Non-IFQ species, trip limit management. Unlimited trip limits coast-wide that can be adjusted through routine inseason action. RCAs may inadvertently reduce catch.
--Limited Entry Fixed Gear	Trip limit management. Unlimited trip limits coast-wide that can be adjusted through routine inseason action. RCAs may inadvertently reduce catch.
--Open Access Fixed Gear	Trip limit management. Unlimited coast-wide trip limits that can be adjusted through routine inseason action. RCAs may inadvertently reduce catch.
Recreational	
--Washington	Included as part of the 12 fish groundfish bag limit (landed fish) implemented in federal regulation.
--Oregon	Included as part of the 10 fish marine bag limit (landed fish) implemented in federal regulation. Oregon state regulations limit retention to 7 fish marine bag limit.
--California	Included as part of a 20 fish finfish bag limit (landed fish) implemented in federal regulation. California state regulations limit retention of longnose skate species to no more than 10 within the 20 fish fin fish bag limit.

Table D-51. Limited entry non-whiting trawl RCAs for 2010-2012 (= No Action. Depth is in fathoms (fm)

Limited Entry Non-Whiting Trawl

<table>
<tr><th>Year</th><th>Area (N. latitude)</th><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>Jun</th><th>Jul</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
<tr><td rowspan="6">2012</td><td>North of 48°10'</td><td colspan="2">0 - [m]200</td><td colspan="2">0 - 200</td><td colspan="4">0 - 150</td><td colspan="2">0 - 200</td><td colspan="2">0 - [m]200</td></tr>
<tr><td>48°10' - 45°46'</td><td colspan="2" rowspan="2">75 - [m]200</td><td colspan="2">75 - 150</td><td colspan="2">75 - 150</td><td colspan="2">100 - 150</td><td colspan="4">75 – 150</td></tr>
<tr><td>45°46' - 40°10'</td><td colspan="4">75 - 200</td><td colspan="2">100 - 200</td><td colspan="2">75 - 200</td><td colspan="2">75 - [m]200</td></tr>
<tr><td>40°10' - 34°27'</td><td colspan="12" rowspan="2">100 – 150</td></tr>
<tr><td>South 34°27' (mainland)</td></tr>
<tr><td>South 34°27' (islands)</td><td colspan="12">0 – 150</td></tr>
<tr><td rowspan="6">2011</td><td>North of 48°10'</td><td colspan="2">0 - [m]200</td><td colspan="2">0 - 200</td><td colspan="4">0 – 150</td><td colspan="2">0 - 200</td><td colspan="2">0 - [m]200</td></tr>
<tr><td>48°10' - 45°46'</td><td colspan="2" rowspan="2">75 - [m]200</td><td colspan="2" rowspan="2">75 - 200</td><td colspan="2">75 - 150</td><td colspan="2">100 - 150</td><td colspan="4">75 - 150</td></tr>
<tr><td>45°46' - 40°10'</td><td colspan="2">75 - 200</td><td colspan="2">100 - 200</td><td colspan="2">75 - 200</td><td colspan="2">75 - [m]200</td></tr>
<tr><td>40°10' - 34°27'</td><td colspan="12" rowspan="2">100 – 150</td></tr>
<tr><td>South 34°27' (mainland)</td></tr>
<tr><td>South 34°27' (islands)</td><td colspan="12">0 – 150</td></tr>
<tr><td rowspan="6">2010</td><td>North of 48°10'</td><td colspan="2">0 - [m]200</td><td colspan="2">0 - 200</td><td colspan="4">0 – 150</td><td colspan="2">0 - 200</td><td>0 - [m]200</td><td>0 - 250</td></tr>
<tr><td>48°10' - 45°46'</td><td colspan="2" rowspan="2">75 - [m]200</td><td colspan="2" rowspan="2">75 - 200</td><td colspan="2">75 - 150</td><td colspan="2">100 - 150</td><td colspan="2" rowspan="2">75 - 200</td><td rowspan="2">75 - [m]200</td><td rowspan="2">75 - 250</td></tr>
<tr><td>45°46' - 40°10'</td><td colspan="2">75 - 200</td><td colspan="2">100 - 200</td></tr>
<tr><td>40°10' - 34°27'</td><td colspan="12" rowspan="2">100 – 150</td></tr>
<tr><td>South 34°27' (mainland)</td></tr>
<tr><td>South 34°27' (islands)</td><td colspan="12">0 – 150</td></tr>
</table>

Table D-52. Non-trawl rockfish conservation areas (RCAs) for limited entry and open access fixed gear (2010-2012; = No Action). Depth is in fathoms.

Limited Entry and Open Access Fixed Gear

<table>
<tr><th>Year</th><th>Area (N. lat.)</th><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>Jun</th><th>Jul</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
<tr><td rowspan="7">2012</td><td>North 46 16</td><td colspan="12">0 - 100</td></tr>
<tr><td>45 03 83 - 46 16</td><td colspan="12" rowspan="2">30 - 100</td></tr>
<tr><td>43 00 - 45 03 83</td></tr>
<tr><td>42 00 - 43 00</td><td colspan="12">20 - 100</td></tr>
<tr><td>40 10 - 42 00</td><td colspan="12">20 - 100</td></tr>
<tr><td>34 27 - 40 10</td><td colspan="12">30 - 150</td></tr>
<tr><td>South 34 27 (+ islands)</td><td colspan="12">60 - 150</td></tr>
<tr><td rowspan="7">2011</td><td>North 46 16</td><td colspan="12">0 - 100</td></tr>
<tr><td>45 03 83 - 46 16</td><td colspan="12">30 - 100</td></tr>
<tr><td>43 00 - 45 03 83</td><td colspan="12">30 - 125 (125 line reduced to 100 fm during directed halibut days)</td></tr>
<tr><td>42 00 - 43 00</td><td colspan="12">20 - 100</td></tr>
<tr><td>40 10 - 42 00</td><td colspan="12">20 - 100</td></tr>
<tr><td>34 27 - 40 10</td><td colspan="12">30 - 150</td></tr>
<tr><td>South 34 27 (+ islands)</td><td colspan="12">60 - 150</td></tr>
<tr><td rowspan="7">2010</td><td>North 46 16</td><td colspan="12">0 - 100</td></tr>
<tr><td>45 03 83 - 46 16</td><td colspan="12">30 - 100</td></tr>
<tr><td>43 00 - 45 03 83</td><td colspan="12">30 - 125 (125 line reduced to 100 fm during directed halibut days)</td></tr>
<tr><td>42 00 - 43 00</td><td colspan="12">20 - 100</td></tr>
<tr><td>40 10 - 42 00</td><td colspan="12">20 - 100</td></tr>
<tr><td>34 27 - 40 10</td><td colspan="12">30 - 150</td></tr>
<tr><td>South 34 27 (+ islands)</td><td colspan="12">60 - 150</td></tr>
</table>

Management Issue

2013-2014 Harvest Specifications and Historical Total Mortality Estimates

The 2012–2014 harvest specifications are shown in Table D-53.

Table D-53. 2012 overfishing limits (OFLs), annual biological catch (ABCs), and annual catch limits (ACLs) along with the final preferred 2013-2014 OFLs and ABCs for longnose skate in metric tons.

Year	OFL	ABC	ACL
2012	3,006	2,873	1,349
2013	2,902	2,774	[a]TBA
2014	2,816	2,692	[a]TBA

[a] Although the preliminary preferred ACL for 2013 and 2014 is 2,000 mt, both 1,349 and 2,000 mt ACLs will be analyzed in the 2013-14 EIS.

The 2009 and 2010 estimated total fishing mortality for longnose skate (1,455 and 1,387 mt, respectively; Bellman et al. 2010, 2011), which was calculated assuming 100% discard mortality rates, would not exceed the final preferred 2013-14 OFLs or ABCs, nor would these have exceeded the preliminary preferred ACL of 2,000 mt (Table D-53). This reported longnose skate mortality during 2009-2010 (Bellman et al. 2010, 2011) would, however, exceed the lowest ACL alternative being analyzed within the 2013-14 EIS (i.e., 1,349 mt). However, as pointed out above, the SSC recently recommended that the WCGOP reports only 50% of the discarded longnose skate as dead (all gears; Agenda Item F.2.b, REVISED Supplemental SSC Report, March 2012). The result of this new assumed discard-mortality rate would be lower total mortality estimates for longnose skate during 2009 and 2010 than was previously assumed (Table D-48). Nonetheless, even under the 50% discard-morality assumption, recent catches approach the 1,349 mt level. Therefore, some modifications to existing management measures or new management measures may need to be developed to keep total catch within the ACL if the lowest alternative is selected.

Total catch and discard of longnose skate by sector

Longnose skate catch and discard by sector can be found in Figure D-12 (for 2010) and Table D-54 (2009-2010). Most longnose skate were taken by the limited entry non-whiting trawl fishery (87% - 91%), whereas 7% to 12% were taken by the non-nearshore fixed gear fishery (Figure D-12; Table D-54). Small amounts were taken by other sectors (Table D-54).

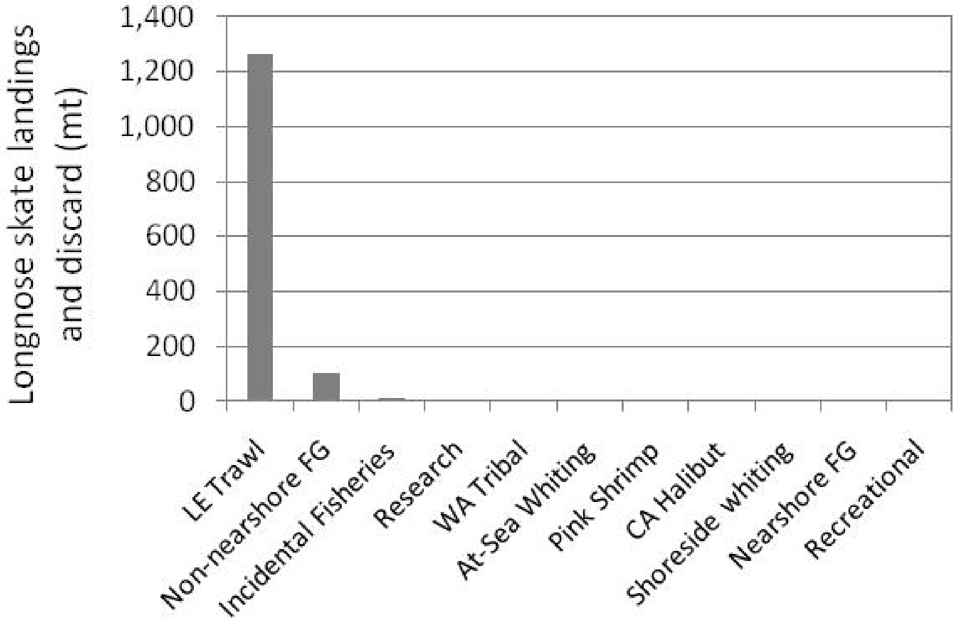


Figure D-12. Total landings and discard of longnose skate (mt) by sector during 2010. Data acquired from Bellman et al. (2011).

Table D-54. West Coast Groundfish Total Mortality Estimates, by Sector in Metric Tons, for longnose skate from 2009-2010. Estimates assume 100% mortality for discarded longnose skate. Data acquired from Bellman et al. (2010 and 2011).

	Shoreside commercial fisheries								Total recreational fishing mortality					
YEAR	LE bottom trawl	CA halibut	Pink shrimp	Non-nearshore fixed-gear	Nearshore fixed-gear	Shoreside hake mid-water trawl	WA tribal landings	All at-sea hake fisheries	WA	OR	CA	Research	Remaining incidental OA fisheries landings	Estimated total fishing mortality
2009	1,275.4	--	2.1	173.3	0.0	0.1	--	0.2	--	--	--	2.8	1.3	1455.1
2010	1,266	0.1	0.4	103.2	0.0	0.1	1.3	0.6	--	0.0	--	1.7	13.0	1,386.5

Distribution of longnose skate along the U.S. west coast

Approximately 80% of longnose skate commercial catch (landings + discards) occur north of 40°10' N latitude (Figure D-13; Bellman et al. 2011). This roughly coincides with the pattern of longnose skate catch per unit effort (CPUE) estimates shown by the 2005 west coast groundfish trawl survey (Keller et al. 2008), which shows highest densities north of 40°30' N latitude (Table D-55). Longnose skate CPUE was ranked #10 relative to all other species caught by the 2005 survey over all INPFC areas and depth strata combined.

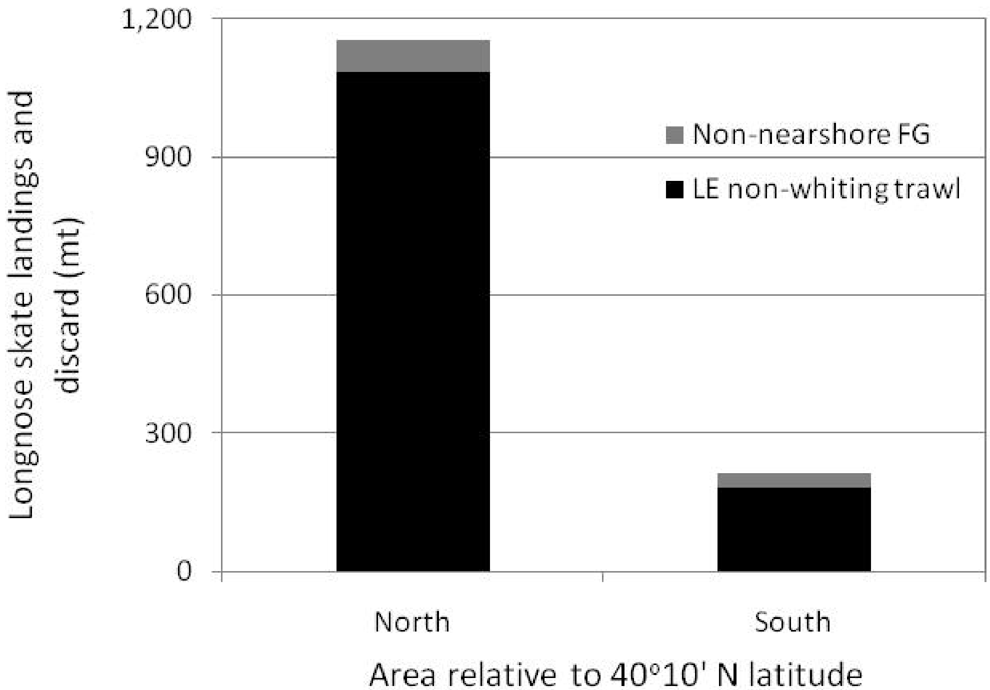


Figure D-13. Longnose skate landings and discard off the U.S. west coast during 2010 for non-nearshore fixed gear (FG) and limited entry (LE) non-whiting trawl fisheries north and south of 40°10' N latitude. Data acquired from Bellman et al. (2011).

Table D-55. Mean catch per unit effort (CPUE; kg/ha) for longnose skate caught during the 2005 west coast trawl survey by International North Pacific Commission (INPFC) area. Data acquired from Keller et al. (2008).

INPFC Area	Southern boundary	CPUE (kg/ha)
U.S.-Vancouver	47°30' N. latitude	8.83
Columbia	43°00' N. latitude	4.88
Eureka	40°30' N. latitude	5.52
Monterey	36°00' N. latitude	4.51
Conception	Southern boundary of EEZ	1.89

The depth distribution for longnose skate caught by the 2005 west coast trawl survey is shown in Table D-56 (Keller et al. 2008). Overall, highest densities were found between 100-301 fm (9.20 kg/ha) and lowest seaward of 301 fm (0.78 kg/ha). Densities were also high shoreward of 100 fm (4.85 kg).

Table D-56. Mean CPUE (kg/ha) of longnose skate by depth strata in all INPFC areas combined during the 2005 West coast groundfish trawl survey. Data acquired from Keller et al. (2008).

Depth (m)	Depth (fm)	CPUE (kg/ha)
55 – 183	30 – 100	4.85
184 – 549	100 - 301	9.20
550 – 1,280	302 - 702	0.78

Trends in annual landings, discard and price per pound

Gertseva and Schirripa (2008) showed that the assumed discard rate for longnose skate prior to 1995 was 93%, but decreased to 53% after 1995 when Asian markets developed. Discarding of all skate species has continued to decrease in recent years, from approximately 50% in 2006 and 2007 to 28% in 2010 (Figure D-14). Consequently, landings of longnose skate have showed a constant increase over the past decade, from 313 mt in 2002 (Gertseva and Schirripa 2008) to 977 mt in 2010 (Bellman et al. 2011). This 2010 landed amount of longnose skate represents the 4th largest landing for this species 1950 (see Gertseva and Schirripa 2008).

Longnose skate discard was much different between non-whiting trawl and non-trawl fisheries during 2009 – 2010. The average discard by sector for those years was 32% for trawl, but 87% for non-trawl. The relatively low discard rate shown in Figure D-14 is because longnose skate is primarily encountered by trawl Table D-54.

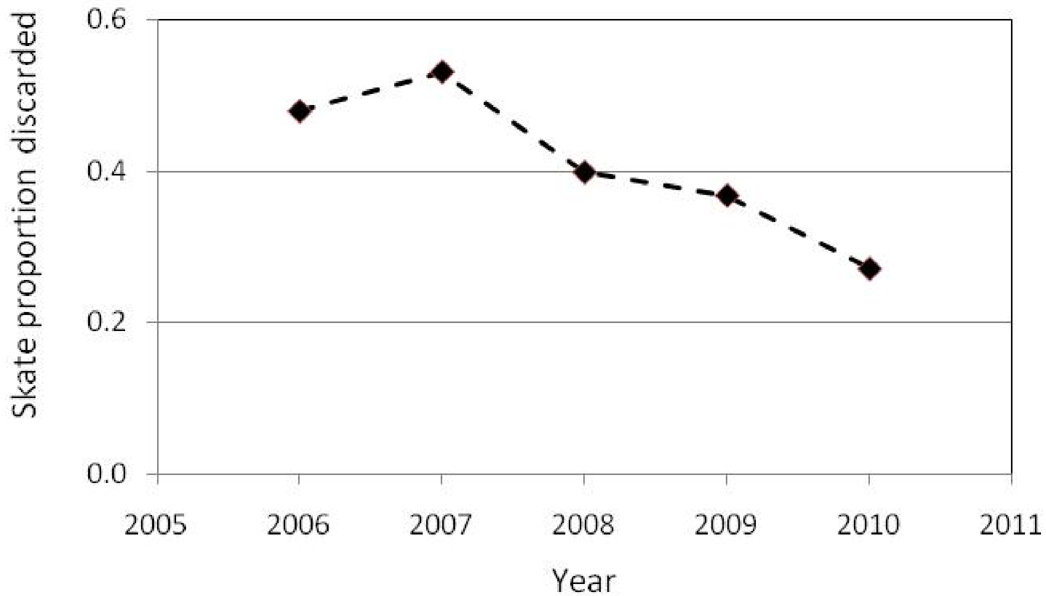


Figure D-14. Proportion of skate (longnose skate + "other skate") discarded by the limited entry non-whiting trawl and non-nearshore fixed gear fisheries. All skate were combined because longnose skate were not sorted until 2009. Data were acquired from Hastie and Bellman (2007) and Bellman et al. (2008-2011).

The ex-vessel prices paid for longnose skate has increased during recent years, especially for the limited entry non-whiting trawl fishery. The average price per pound for longnose skate delivered by non-whiting trawl vessels increased from $0.19 in 2009 to $0.32 during 2011 (Figure D-15). The coast-wide average price per pound for longnose skate has remained somewhat constant and lower for fixed gear vessels, increasing from $0.26 per pound in 2009 to $0.28 per pound in 2011.

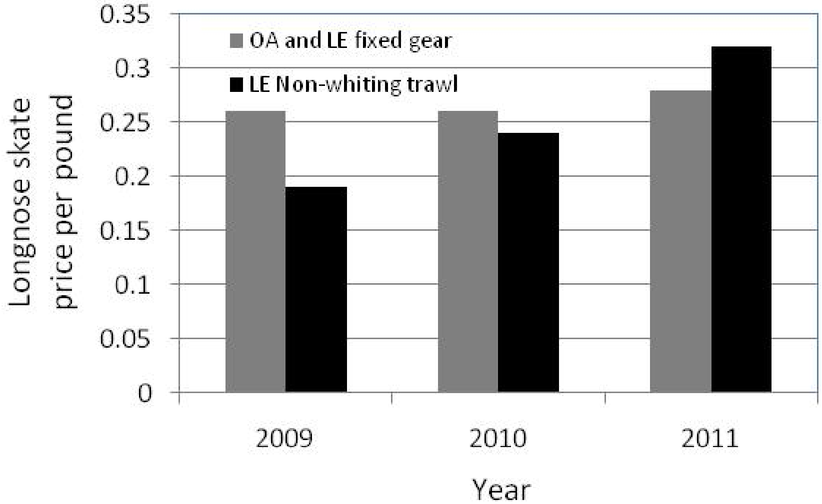


Figure D-15. Longnose skate price per pound for limited entry (LE) and open access (OA) fixed gear (gray) and limited entry non-whiting trawl (black) by year. Data acquired from PacFIN.

Only “unspecified skate” is shown in the PacFIN data base prior to 2009. To put the current average price per pound of longnose skate ($0.28 - $0.32) into historical perspective, the price per pound for “unspecified skate” is shown for the limited entry trawl fishery from 1994 – 2011 (Figure D-16). The price per pound fluctuated between $0.13 and $0.18 from 1994-2006, then abruptly increased in 2007 to $0.24. The highest price per pound for “unspecified skate” was recorded in 2011 ($0.35), during the first year of the Individual Fishing Quota (IFQ) fishery.

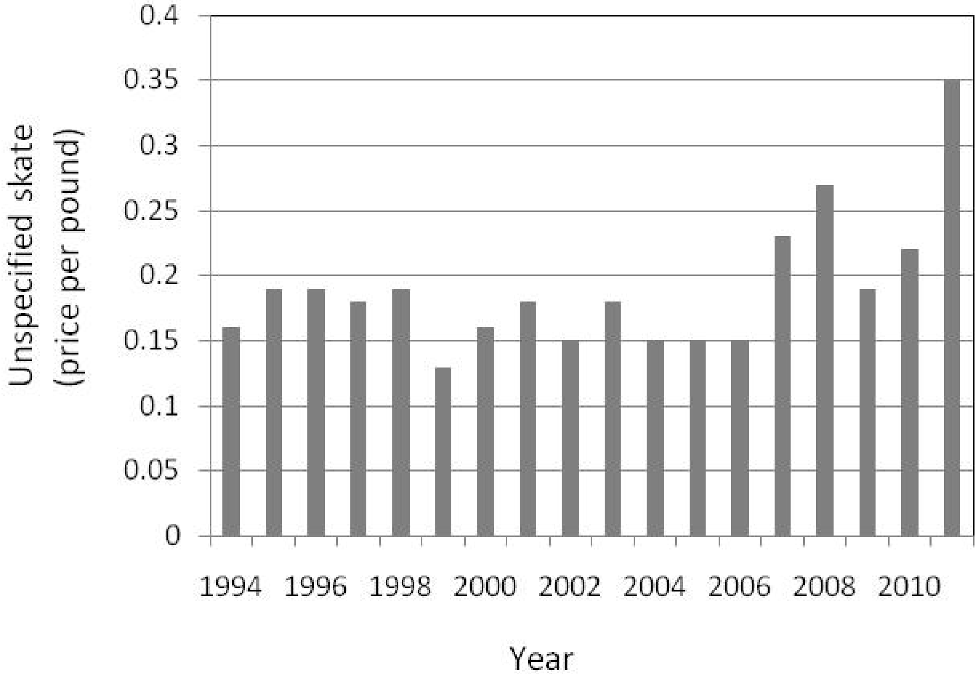


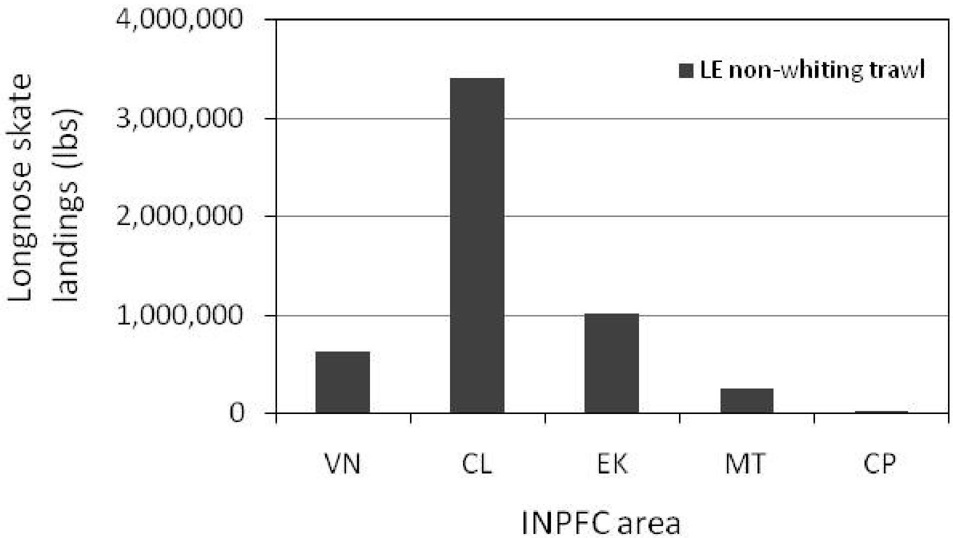
Figure D-16. "Unspecified skate" price per pound for limited entry non-whiting trawl fisheries by year. Data acquired from PacFIN.

Landings by area and port

Approximately 2/3 of the limited entry non-whiting trawl landings of longnose skate occurred in the Columbia INPFC area from 2009-2011, reaching 3.4 million pounds over the 3-year period (Figure D-17a; PacFIN data). Significant landings were also shown for Eureka (1.0 million pounds), Vancouver (0.6 million pounds), and Monterey (0.3 million pounds) INPFC areas. Port groups receiving most longnose skate landings from limited entry non-whiting trawlers were Columbia River Oregon, Coos Bay, Newport, and Eureka area port groups (1.8, 1.1, 1.1, and 0.6 million pounds, respectively; Figure D-18a). Each of the other port groups received less than 0.2 million pounds of longnose skate during 2009-2011.

Landings of longnose skate by fixed gear fisheries (Figure D-17b) were much lower than shown for the trawl fisheries (Figure D-17a) over the 2009-2011 period, ranging from highs of 56,000 and 41,000 pounds for the Columbia and Eureka INPFC areas to lows of 11,000 pounds for the Monterey and Conception INPFC areas during 2009-2011 (Figure D-17b). Landings of longnose skate in the Vancouver INPFC area were 21,000 pounds over this same period. Most longnose skate landings by limited entry and open access fixed gear fisheries occurred in the Coos Bay, Brookings, and Northern Puget Sound port groups during 2009-2011 (47,000, 33,000, and 16,000 pounds, respectively; Figure D-18b).

A



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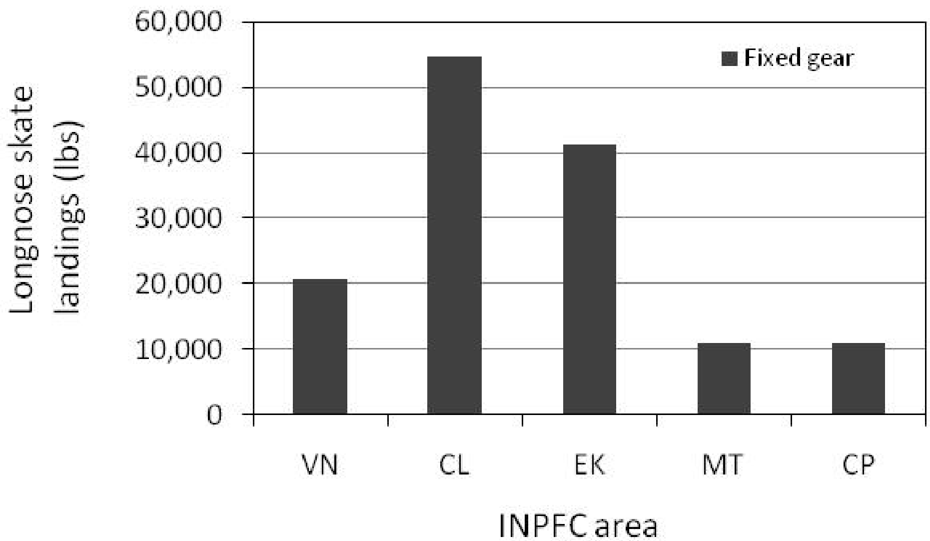
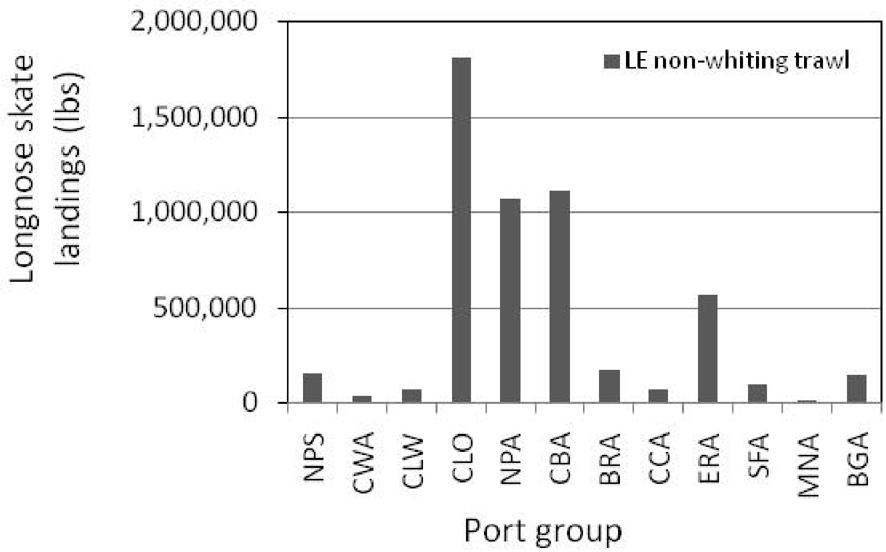


Figure D-17. Longnose skate landings (lbs.) by International North Pacific Fishery Commission (INPFC) area during 2009-2011 for (A) limited entry non-whiting trawl and (B) limited entry and open access fixed gear fisheries. Data were acquired from PacFIN. INPFC areas are: VN = Vancouver, CL = Columbia, EK = Eureka, MT = Monterey, and CP = Conception.

A



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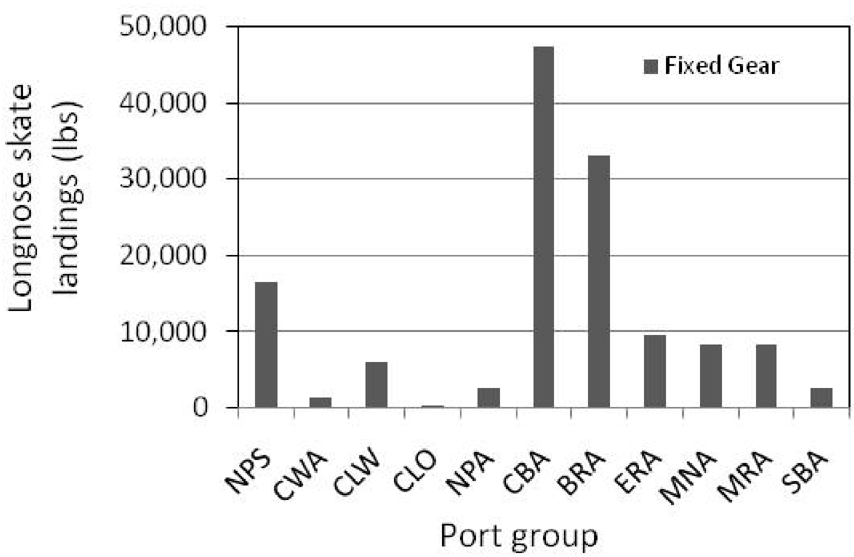


Figure D-18. Longnose skate landings (lbs.) by port group during 2009-2011 for (A) limited entry non-whiting trawl and (B) open access and limited entry fixed gear. Data were acquired from PacFIN. Port group areas are: BGA = Fort Bragg; BRA = Brookings; CBA = Coos Bay; CCA = Crescent City; CLO = Columbia River Oregon Ports; CLW = Columbia River Washington Ports; CWA = Coastal Washington; ERA = Eureka; MNA = Monterey; MRA = Morro Bay Area; NPA = Newport; NPS = North Puget Sound; SBA = Santa Barbara; SFA = San Francisco. Port group areas with less than three vessels making landings were omitted for confidentiality.

Basis for and Development of Potential New Management Measures

Longnose skate may require more restrictive management measures to keep fishing mortality below their respective ACLs (see Table D-53; also see Agenda Item E.9.b, GMT Report 2, November 2011). Although longnose skate have been intermittently retained and sold in the past, demand and markets may be increasing. Landings have increased recently to nearly all time high levels (see above) and ex-vessel price for skates have reached highest levels ever recorded (Figure D-16). This suggests that the increasing trend in landings observed since 2004 may continue. Whether an increase in total mortality will accompany potential increases in landings is uncertain. If this species is only incidentally caught while pursuing other species (see Gertseva and Schirripa 2008), then an increase in landings may reflect higher retention, and not increased targeting or the development of a targeted fishery. On the other hand, the increase in price could lead to more frequent or prolonged fishing in areas with relatively high concentrations of longnose skate, relative to that observed in the recent past.

The GMT previously suggested that longnose skate may be managed using time-area tools, such as trip limits and depth restrictions (Agenda Item E.9.b, GMT Report 2, November 2011). This section describes the development and basis for new (or additional) management measures (besides No Action). Data from WCGOP and PacFIN data were used to develop and evaluate these potential measures and options. Other potential management measures are also discussed.

Trip Limits

Trip limits may effectively reduce total mortality if trip limits (a) discourage targeting, (b) encourage fishermen to move out of or avoid areas with high longnose skate catch rates because of the burden required to sort and discard large volumes that cannot be landed, and (c) result in trip limit induced discards (instead of landings) if the mortality of discarded skate is low. It is clear that reducing targeting, or the potential for targeting, may reduce total mortality. It is also clear that fishing in areas with lower incidental catch rates may reduce total mortality. However, if trip limits result in discards (rather than landings) without affecting fishers behavior (e.g., fishing location), and if the discard mortality is 100%, then trip limits may simply convert landed mortality into discard mortality at a 1:1 conversion. In this case, total mortality would be unaffected by trip limits. Although the WCGOP had previously assumed 100% discard mortality for longnose skate (e.g., Bellman et al., 2011), catch monitoring will now assume a 50% discard mortality rate for the species, as recommended by the SSC (Agenda Item F.2.b, REVISED Supplemental SSC Report, march 2012) and shown by (Gertseva and Schirripa 2008). Under the 50%-discard mortality assumption, trip limits may be effective for reducing total mortality even if catches are incidental and fishermen behavior does not change (e.g., they do not move from areas with high longnose skate catch rates and continue targeting other species while discarding skate in excess of trip limits).

Are Longnose Skate Targeted? It has been assumed that longnose skate are not the primary target for trawl or fixed gear fisheries. Instead, it has been assumed that this species is caught incidentally while targeting other species. The following is an examination of longnose skate catches to provide insight on whether longnose skate targeting occurs. We caution that this analysis uses historical data and thus may not accurately predict the future, especially since the price for skate has been increasing and is now at an all-time high (Figure D-16). The behavior of fishermen now (and in the future) may be different than what had occurred in the past.

Catch per haul or set: West coast groundfish observer data show that maximum catches of longnose skate per set or haul were less than 6,000 lbs. for trawl and less than 1,300 lbs. for fixed gear during 2009 and 2010 (Figure D-19). Most hauls where longnose skate were present in the catch produced less than 500 lbs. (trawl) and less than 200 lbs. (fixed gear), with very few larger hauls. These catch rates suggest that longnose skate are most commonly encountered at relatively low volumes, but are occasional caught at somewhat high volumes by both gear types.

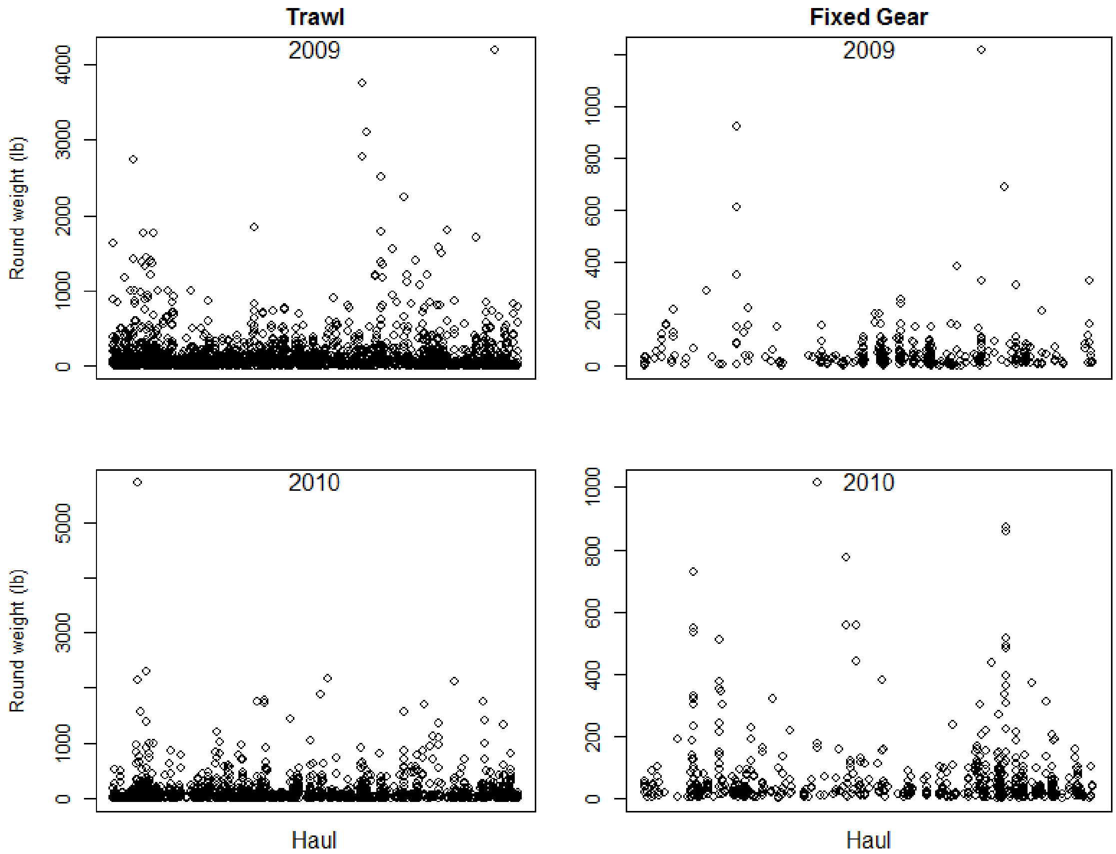


Figure D-19. Longnose skate catch (lbs.) by haul or set by limited entry non-whiting trawl (Trawl) and limited entry and open access fixed gear (Fixed Gear) during 2009 and 2010. Only positive tows were included. Data were acquired from the WCGOP.

Discard and retention weight per trip: Prior to 2008, most WCGOP observed limited entry non-whiting trawl trips showed higher maximum catches when discarding longnose skate than when retaining the species (Figure D-20). During this period, maximum longnose skate catch per trip was less than approximately 500 pounds when retained (except for 2002), while at the same time, maximum longnose skate catches for trips that discarded the species typically ranged from 2,000 pounds to nearly 10,000 pounds. This is supported by the 75th percentile for trips discarding and retaining longnose skate prior to 2008 – 75th percentiles were typically higher for trips that discarded longnose skate than for those that retained the species on for trawl vessels. One would expect the opposite if targeting occurred, or if fishers that discarded the catch (e.g., due to no market) chose to avoid or leave areas with high longnose skate concentrations.

Discard behavior changed for the limited entry non-whiting trawl sector during the 2008-2010 period, when larger hauls of longnose skate began to be retained. The range of longnose skate weight became more similar between retained and discarded trips beginning 2008, and the 75th percentile for trawl trips retaining longnose skate far exceeded those that discarded the species throughout trips. We suggest that this is a result of the increasing price per pound (and market) that began to develop for trawlers in 2007 for longnose skate (see Figure D-15 and Figure D-16).

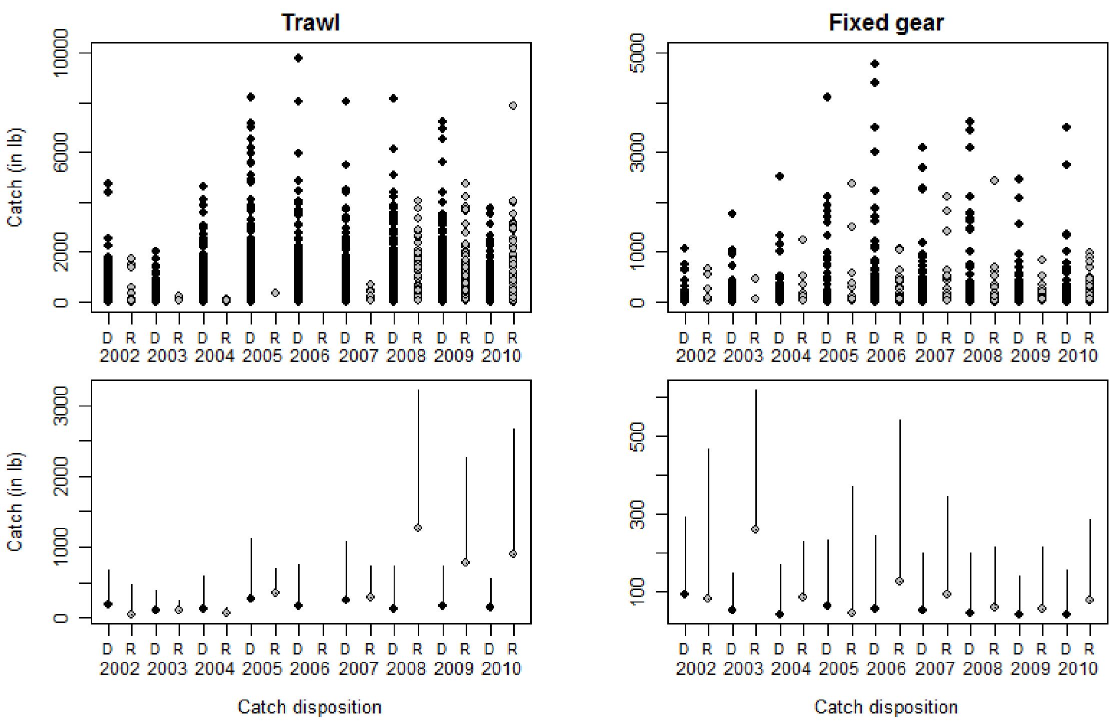


Figure D-20. Longnose skate catches by trips (top row) and median (point) and 75% quantile (upper end of vertical bars) catch values (bottom row) in observed trips that discarded (D; black points) or retained (R; gray points) longnose skate for years 2002-2010 for two gear types (columns).

Although we show trawlers retaining more longnose skate during 2008-2010 than during previous years (Figure D-20), we suggest that these data do not support the argument that fishermen began targeting "schools" of the species, but rather fishermen more frequently selected trawling sites with known concentrations of longnose skate along with other groundfish species. In these cases, they simply began retaining incidentally caught longnose skate more frequently. These results also suggest, however, that although the incidental catch and discard of longnose skate is typically low (e.g., low 75th percentile bars), many fishers that discard longnose skate remain in areas with relatively high skate catch rates (i.e., they do not avoid or leave these areas). If these fishermen opted to move from areas with high skate encounters, the range of discarded weights would be less than the range of retained weights.

The pattern of trips retaining longnose skate is different for the fixed gear sector than for the trawl sector. Differences in catch weight of longnose skate are slight between fixed-gear trips retaining and those trips discarding the species (Figure D-20). The median and 75th percentile of longnose skate catch per trip is much more similar between retained and discarded trips, although in general the 75th percentile is slightly higher for trips retaining longnose skate. Price per pound has not increased as dramatically for the fixed gear sectors as shown for the trawl sector (Table D-51). These data suggest that trip size is not a good predictor of longnose skate retention, suggesting that fixed gear fishers are not targeting longnose skate and are not moving out of areas with large concentrations of longnose skate even while discarding the catch.

Landing size of longnose skate relative to other groundfish: Another way to evaluate whether longnose skate are targeted is to compare the landed weight of longnose skate to the landed weight of all groundfish species by trip (Figure D-21). For those cases where longnose skate were landed, there was typically little relationship between longnose skate landings and total groundfish landings, except perhaps at the smallest landing levels. Longnose skate landings for the limited entry non-whiting trawl fishery were typically less than 6,000 pounds per trip (99% of the landings), whereas total groundfish landings for those trips typically exceeded 20,000 pounds, and reached 130,000 pounds (Figure D-21a). Landings for limited entry and open access fixed gear trips followed a similar trend but on a smaller scale (Figure D-21b). Most landings were less than 500 pounds for open access fixed gear (95% of the landings) and less than 1,000 pounds for limited entry fixed gear (93% of the landings). These landings were typically dominated by groundfish species other than longnose skate (Figure D-21b). Note that even for cases where landings of longnose skate were relatively large for fixed-gear trips (e.g., > 1,000 pounds per trip), longnose skate typically represented less than approximately 1/3 of the total groundfish landings per trip. These results, coupled with the results shown in Figure D-20, demonstrate that longnose skate are typically caught incidentally and landed with other groundfish species. Fishermen may opt, however, to remain in areas or select areas known for relatively high longnose skate concentrations, as demonstrated in Figure D-20 for trawl since 2008.

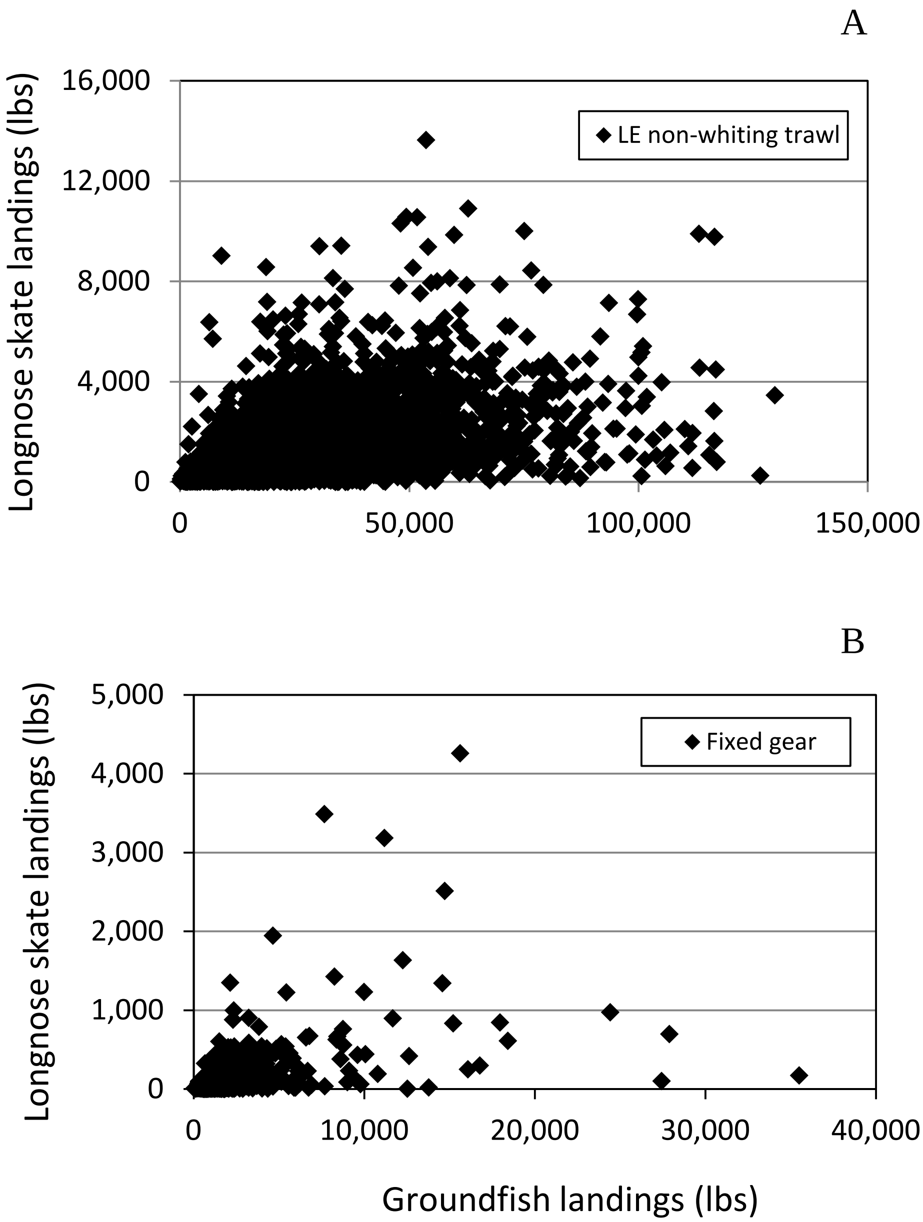


Figure D-21. Landing weight (pounds) of longnose skate and of all groundfish by trip during 2009-2011 for (A) limited entry non-whiting trawl and (B) limited entry and open access fixed gear. Data were acquired from PacFIN.

Bimonthly Landings and Basis for the Selection of Alternative Trip Limits: Bimonthly landings of longnose skate over nearly a 3-year period (2009 – October 2011) by limited entry non-whiting trawl vessels are shown in Figure D-22. Cumulative bimonthly landings of longnose skate ranged from only a few pounds to nearly 40,000 pounds per vessel per bimonthly period. The pattern of bimonthly landings is somewhat linear until approximately 10,000-12,000 pounds, where vessels began landing increasingly more longnose skate relative to the rest of the fleet (i.e., approximate inflection point). Half of the bimonthly landings by limited entry non-whiting trawlers (50^{th} percentile) were less than 3,810 pounds whereas the 75^{th} percentile of bimonthly landings resulted in 7,261 pounds. The 90^{th} percentile was 11,971 pounds. Three alternative bimonthly trip limits (=Options) for the limited entry non-whiting trawl fishery were identified based on approximate 50, 75, and 90 percentiles: 4,000, 7,000, and 12,000 pounds per bimonthly period.

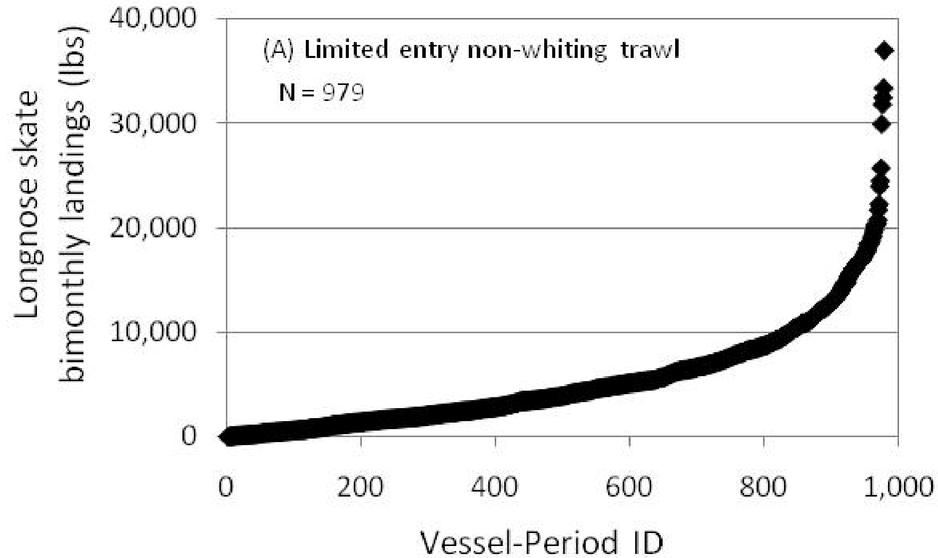
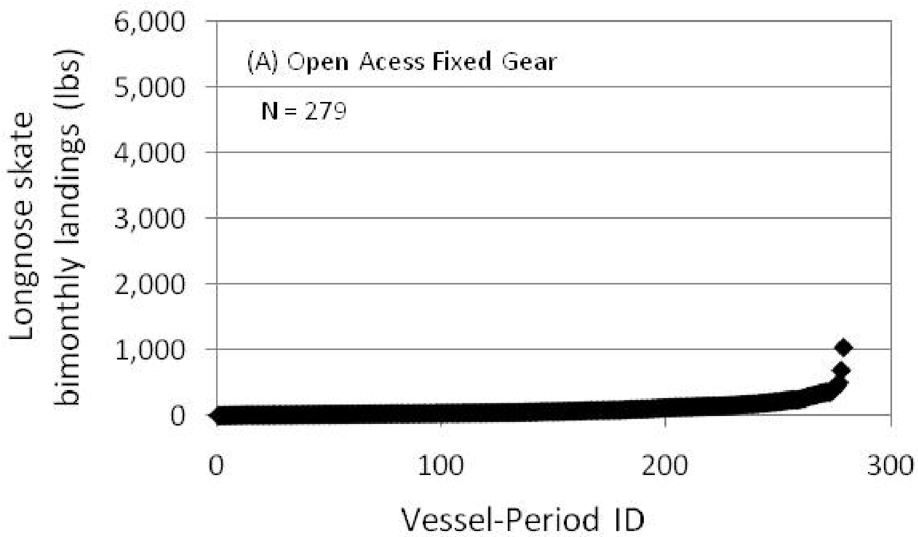


Figure D-22. Bimonthly landings (lbs.) of longnose skate by vessel and period for 2009 – October 2011 (sorted by bimonthly-landing size) for limited entry non-whiting trawl. Each vessel and landing period (by year) were assigned individual identification numbers (ID) based on landing volume. Landings without longnose skate were excluded.

Bimonthly landings of longnose skate over nearly a 3-year period (2009 – October 2011) by fixed gear fisheries (limited entry and open access) are shown in Figure D-23. Nearly all cumulative bimonthly landings were less than 1,000 pounds for the open access fishery, whereas bimonthly landings for the limited entry fixed gear fishery reached nearly 6,000 pounds in some instances. The pattern of bimonthly landings for limited entry fixed gear fisheries (primarily non-nearshore fishery) is somewhat linear until approximately 500 pounds, when vessels began landing increasingly more longnose skate relative to the rest of the fleet (i.e., approximate inflection point). Half of the bimonthly landings by limited fixed gear vessels (50^{th} percentile) were less than 187 pounds, whereas the 75^{th} percentile of bimonthly landings resulted in 482 pounds. The 90^{th} percentile was 1,040 pounds. We therefore identified three alternative bimonthly trip limits for the open access and limited entry fixed gear sectors based on these approximate 50, 75, and 90 percentiles: 200, 500, and 1,000 pounds per bimonthly period.



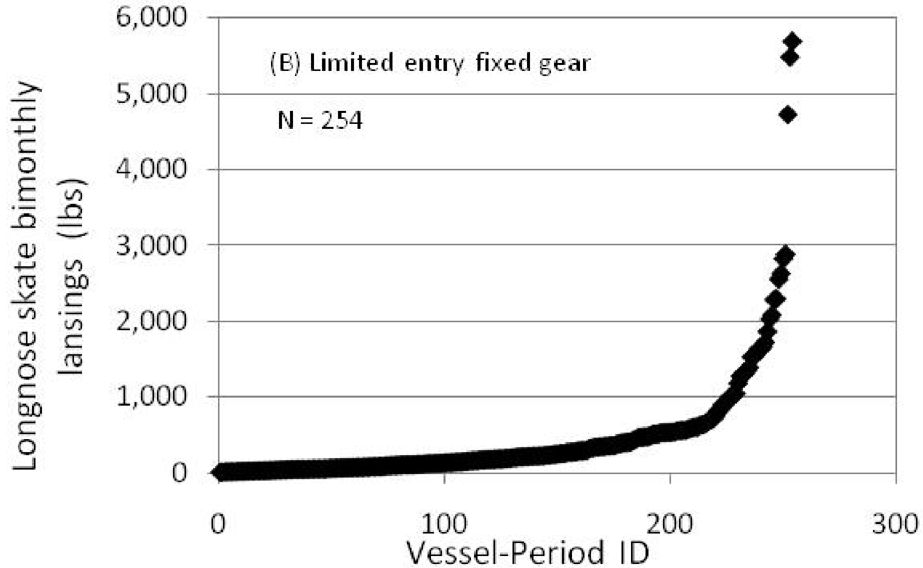


Figure D-23. Bimonthly landings (lbs.) of longnose skate by vessel and period for 2009 – October 2011 (sorted by bimonthly-landing size) for (A) Open access fixed gear, and (B) limited entry fixed gear. Each vessel and landing period (by year) were assigned individual identification numbers (ID) based on landing volume. Landings without longnose skate were excluded.

Can trip limits reduce longnose skate mortality? It is uncertain how any reduction in landings may alter total mortality of longnose skate, because catch size is not a good predictor of retention. If the trip limit resulted in reduced targeting (or moving from areas with high concentrations of longnose skate), then some reduction in total mortality may occur. This analysis suggests that most longnose skate are incidentally caught while targeting other species, and are landed along with other groundfish species (Figure D-21). This is especially true for the limited entry trawl fishery, which contributes approximately 90% of the longnose skate catch coastwide (Table D-54). It is unlikely, therefore, that trip limits will have a large effect on encounter rates as long as conditions remain similar to the recent past (e.g., catch size has not been a good predictor of retention). It was pointed out, however, that the price (Figure D-15) and landings for longnose skate have recently increased, so trip limits may prevent the potential of increased targeting in the future. We acknowledge the potential for increased targeting (or reluctance to move from areas with high longnose skate catch) if prices and markets continue to develop.

A reduction in total mortality may occur if some proportion of discarded longnose skate survives, even if fishing behavior does not change (i.e., fishermen do not change their fishing location and strategy once reaching the trip limit). Although during previous years, catch accounting assumed discard mortality of 100% for longnose skate (e.g., Bellman et al. 2011), it is likely that some of the discarded skate survive. Gertseva and Schirripa (2008) suggested 50% discard mortality for longnose skate, and Enever et al. (2009) recently demonstrated short term mortality of 45% for skates caught and discarded by demersal trawlers. Effective March 2012, the assumed discard mortality rate for longnose skate is 50% (Agenda Item F.2.b, REVISED Supplemental SSC Report, March 2012); hence, trip limits will likely reduce mortality even if fishermen behavior does not change.

Commercial catch rates by depth and identification of potential alternatives for depth-based management

West coast groundfish survey data showed highest densities of longnose skate to 300 fm, after which densities dropped precipitously (Table D-56). Limited entry non-whiting trawl and limited entry and open access fixed gear sets or hauls showed a similar pattern but perhaps more of an expanded pattern (Table D-57 and Table D-58). Depending on the area, longnose skate catch and CPUEs during 2002-2010 were generally high until 250-350 fathoms, after which catches and CPUEs drop.

Interpretations of Table D-57 and Table D-58 should be made with caution. These represent catches of longnose skates only during observed hauls, therefore, sample sizes are small and may not be representative of the fleet. These hauls also represent fishers targeting other groundfish specie while catching longnose skate incidentally (see above). Fishing patterns could change if prices continue to increase for this species. Finally, low catches at some depth strata are reflective of RCA restrictions rather than longnose skate density. For example, observed catches of longnose skate by trawl during 2002-2010 generally decline between 100-200 fm (Table D-57), where RCAs have commonly been implemented (Table D-51). Low observed catches of longnose skate due to RCAs are also apparent for fixed gear at depths less than 100 fm (north of 40^{o}10’ N latitude) and depths less than 150 fm (south of 40^{o}10’ N latitude). This demonstrates that the current RCA structure already prevents the capture of longnose skate across depth ranges where there densities are high (see Table D-56).

Table D-57. Observed catch of longnose skate (mt) north of 45°46' N latitude by depth (fm) for fixed gear and trawl sets (or hauls) for 2002-2010.

	Fixed Gear				Trawl			
Area 1	Depth (fm)	Catch (lb.)	%	CPUE	Depth (fm)	Catch (lb.)	%	CPUE
North of 48°10'	0-100	0	0.0%	0.00	0-100	17,485	26.9%	6.14
	100-150	2,906	15.7%	7.50	100-150	33,967	52.3%	14.02
	150-200	3,635	19.7%	6.49	150-200	12,637	19.4%	29.28
	200-250	3,706	20.1%	5.37	200-250	86	0.1%	2.23
	250-300	4,948	26.8%	4.68	250-300	496	0.8%	3.01
	300-350	2,413	13.1%	3.63	300+	322	0.5%	2.64
	350+	872	4.7%	5.56				
	Total	18,481				64,993		

Area 2	Depth (fm)	Catch (lb.)	%	CPUE	Depth (fm)	Catch (lb.)	%	CPUE
48°10' to 45°46'	0-50	0	0	0.00	0-50	11,673	0	17.90
	50-100	112	0.1%	14.89	50-100	274,683	44.7%	10.59
	100-150	36,992	27.7%	9.18	100-150	51,708	8.4%	13.54
	150-200	47,247	35.4%	8.44	150-200	17,476	2.8%	10.89
	200-250	31,182	23.4%	7.95	200-250	94,579	15.4%	11.54
	250-300	12,632	9.5%	5.60	250-300	99,454	16.2%	10.66
	300-350	4,008	3.0%	5.63	300-350	49,768	8.1%	5.90
	350-400	676	0.5%	6.15	350-400	12,481	2.0%	3.57
	400+	490	0.4%	3.56	400-450	2,795	0.5%	3.92
					450-500	217	0.0%	2.36
					500+	126	0.0%	2.85
	Total	133,340			Total	614,961		

Table D-58. Observed catch of longnose skate (mt) south of 45°46’ N latitude by depth (fm) for fixed gear and trawl sets for 2002-2010.

	Fixed Gear				Trawl			
Area 3	Depth (fm)	Catch (lb.)	%	CPUE	Depth (fm)	Catch (lb.)	%	CPUE
45°46 to 40°10	0-150	15,832	0	12.29	0-100	112,267	0	9.79
	150-200	35,620	38.7%	8.13	100-150	47,314	7.3%	10.28
	200-250	28,431	30.9%	9.98	150-200	5,417	0.8%	8.70
	250-300	10,466	11.4%	11.19	200-250	182,844	28.1%	11.95
	300+	1,766	1.9%	5.40	250-300	202,704	31.2%	10.00
					300-350	83,093	12.8%	5.64
					350-400	11,342	1.7%	3.33
					400-450	4,080	0.6%	3.93
					450-500	114	0.0%	1.57
					500-550	146	0.0%	3.28
					550-600	270	0.0%	2.06
					600	91	0.0%	2.36
	Total	92,115			Total	649,683		

Area 4	Depth (fm)	Catch (lb.)	%	CPUE	Depth (fm)	Catch (lb.)	%	CPUE
South of 40°10'	0-100	18	0.0%	1.15	0-50	2,107	0.4%	2.30
	100-150	0	0.0%	0.00	50-100	86,473	15.7%	8.34
	0-200	264	0.5%	8.38	100-150	85,675	15.5%	18.58
	200-250	5,630	11.0%	7.36	150-200	23,807	4.3%	12.97
	250-300	10,881	21.3%	8.17	200-250	105,945	19.2%	20.54
	300-350	26,730	52.3%	4.50	250-300	112,195	20.4%	19.55
	350-400	6,079	11.9%	2.62	300-350	106,087	19.2%	17.42
	400-450	654	1.3%	1.17	350-400	19,930	3.6%	5.62
	450-500	471	0.9%	2.06	400-450	5,447	1.0%	3.85
	500-550	268	0.5%	1.44	450-500	1,777	0.3%	2.70
	550-600	63	0.1%	1.56	500-550	1,391	0.3%	3.15
	600+	63	0.1%	1.04	550+	441	0.1%	3.14
	Total	51,122				551,276		

Depth restrictions in addition to current No Action RCAs (see Table D-51 and Table D-52) may reduce the catch (or catch rates) of longnose skate relative to status quo. For trawl, 15-30% of the longnose skate catch occurs between 200 and 250 fm south of 48°10’ N latitude, where CPUEs were among the highest (Table D-51 and Table D-52). Extending the seaward RCA from 200 to 250 fm may therefore reduce longnose skate catch. Actions could also be taken shoreward of the RCA to reduce catches (or catch rates) of longnose skate; 44% of the observed longnose skate caught between 40°10’ and 45°46’ was at 50-100 fm during 2002-2010, where CPUEs were also relatively high (Table D-57). The shoreward trawl

RCA was typically 75 fm in this area (Table D-51), which suggests that moving the trawl RCA from 75 to 50 fm may reduce catch (or catch rates) of longnose skate .

Adjusting RCAs to prevent catches by fixed gear fisheries would provide less of a savings than adjustments made to trawl fisheries, because fixed gear catches represent only approximately 10% of the longnose skate catch (Table D-54). Nonetheless, additional depth restrictions may reduce catch of longnose skate by fixed gear sectors. Approximately 16–28% of the longnose skate catch occurs between 100 and 150 fm north of 45°46’ N latitude (Table D-57). Implementing a 150 fm RCA coastwide may therefore reduce catches of longnose skate for these sectors.

There is great uncertainty regarding the level of savings that may occur by extending the trawl RCAs seaward to 250 fm (i.e., whether total mortality would be reduced). Longnose skate are incidentally caught while fishers target other species (e.g., Dover sole, sablefish, thornyheads; Figure D-21). Moving the RCA deeper to 250 fm would require fishers to target the other groundfish species at more restrictive depths and potentially less productive grounds, while continuing to catch longnose skate incidentally. Longnose skate are still abundant seaward of 250 fm (Table D-56), and commercial logbook data (
Figure D-24) and observer data (Table D-57 and Table D-58) demonstrate that longnose skate are commonly caught outside of 250 fm. Because catch rates for target species may decrease if the most productive fishing grounds are closed, fishing effort (number of hauls or sets) may increase in order to attain the quota pounds of target species (under the IFQ fishery) or tier limits (for the limited entry sablefish fishery). This increased fishing effort could ultimately eliminate any potential savings of longnose skate by moving the RCA to 250 fm; these potential catches are difficult to predict.

A 300 fm seaward depth restriction for trawl would clearly reduce catches of longnose skate. Although some commercial catches continue to occur beyond 300 fm (Table D-57 and Table D-58), longnose skate densities drop to exceptionally low levels beyond this depth contour (Table D-56).

Two depth restriction options are analyzed herein: (a) move the shoreward trawl RCA from 75 fm to 50 fm between 45°46’ and 48°10’ N latitude and (b) move the seaward trawl RCA from 200 (or 150 fm) to 300 fm. The potential benefits to the longnose skate resource of moving the seaward RCA to depths shallower than 300 fm (e.g., 250 fm) is uncertain and cannot be predicted.

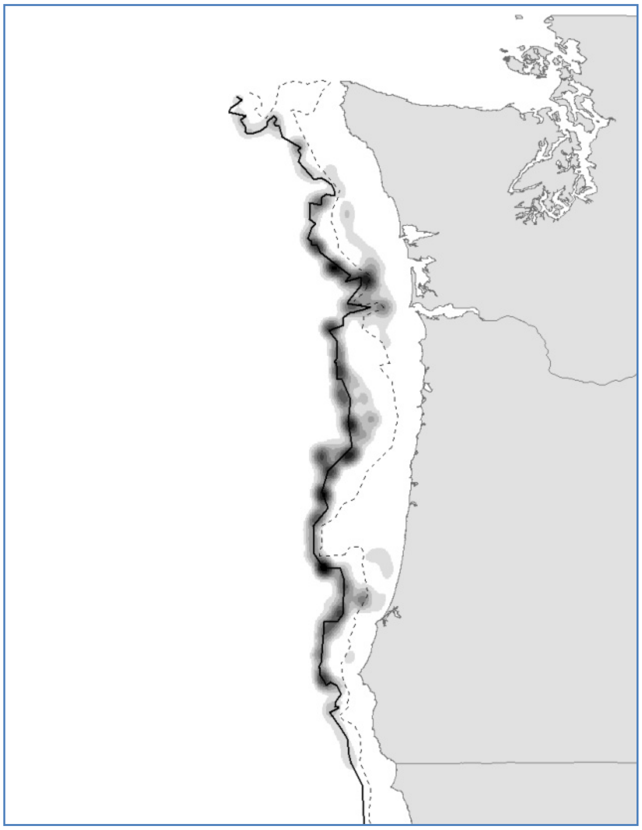


Figure D-24. Distribution of limited entry non-whiting trawl tows (shaded areas) where longnose skate were retained and recorded in logbooks during 2010. Darker shading represents higher number of tows with longnose skate. Dashed line = 75 fm line; Solid line = 250 fm line. RCA lines were included for reference only. Data was acquired from the PacFIN data base. Only hauls where a hail weight was recorded are included.

Comparison of Management Options

No Action

No Action, management measures are shown for longnose skate in Table D-50, Table D-51, and Table D-52. Trip limits would remain unlimited, and RCAs shown for 2012 in Table D-51 and Table D-52 would remain in place. These measures could be modified inseason through routine management measures to slow landings if necessary.

Under No Action, longnose skate would continue to be sorted and reported to species on state landing reports and federal fish tickets. Historical discard rates would be used inseason for catch projections and the basis for trip limit adjustments. Catch estimates would be revised post season using landed catch as reported to PacFIN combined with observer based discard rates provided by WCGOP and specific to the fishing year. The determination of total fishing mortality relative to the harvest specifications would be evaluated post season for all fisheries.

Biological Impacts: Under No Action, one can assume that total catch and discards of longnose skate would be similar to recent historical levels. Assuming 50% discard mortality, total fishing mortality during 2009 and 2010 (1,120 and 1,182 mt, respectively; Table D-48) would be less than the 2013 PPA ACL (2,000 mt) and the 2013 No Action ACL (1,349 mt) analyzed in the DEIS (Table D-53). Hence, biological impacts under No Action may not be significant, assuming catch and discard in 2013 and 2014 are similar to those observed during 2009-2010.

Socio-economic impacts:
Affected Fisheries: The primary fisheries affected by status quo trip limits and RCAs are limited entry non-whiting trawl, limited entry non-nearshore fixed gear, and open access non-nearshore fixed gear. Approximately 90% of the recent historical catch (landings + discard) has been made by the limited entry non-whiting trawl fishery, and approximately 10% has been made by non-nearshore fixed gear sectors; other sectors are less affected (Table D-51). This is a limited entry non-whiting trawl dominant fishery.

Even though historical catch and discard levels suggest no biological impact under No Action (see above), the potential of exceeding sector-specific allocations must be evaluated. If allocations are projected to be exceeded, then sector-specific trip limits or other management measures may be needed (see options below). The 2013 and 2014 allocations for shoreside trawl are 1,739 mt (for PPA ACL) and 1,154 mt (for No Action ACL; Table D-59). Total mortality for this sector, using an assumed discard mortality rate of 50%, ranged from 1,025 – 1,106 mt, which is less than the allocations. The estimated total mortality for non-trawl fisheries (65 – 91 mt assuming 50% discard mortality) under No Action is less than the Preliminary Preferred non-trawl allocation (193.8 mt), but higher than the No Action allocation (61 mt). Hence, additional management measures would be needed to reduce total mortality for non-trawl fisheries if the No Action ACL for longnose skate is selected (see Options below).

Table D-59. 2013 and 2014 longnose skate ACLs and allocations for non-trawl and shoreside trawl (also see Tables 2-11 and 2-12) under two ACLs analyzed within the DEIS. Expected range of total mortality by sector is shown for comparison (minimum and maximum). Expected mortality was calculated using historical catch and discard presented for 2009 and 2010 by Bellman et al. (2010 and 2011) while assuming 50% discard mortality for trawl and non-trawl gear.

Option	ACL	Shoreside trawl allocation	No Action shoreside trawl total mortality (50% discard mortality)	Non-trawl allocation	No Action non-trawl total mortality (50% discard mortality)
Preliminary Preferred	2,000	1,739	1,025 – 1,106	193.8	65 - 91
No Action	1,346	1,154		61	

Distribution of Fishery Effort: Approximately 84% of longnose skate catch (landings + discard) occur north of 40°10’ N latitude (Figure D-13); most longnose skate landings occur in the Columbia INPFC area (Figure D-17). Approximately 64% of longnose skate landings by the limited entry non-whiting trawl fishery were made within the Columbia INPFC area (Figure D-17). These trawl landings also occurred to a lesser extent in other INPFC areas (e.g. 12% and 19% in Vancouver and Eureka areas, respectively). Limited entry and open access fixed gear landings of longnose skate were primarily in Columbia (39%), Eureka (30%), and Vancouver (15%) INPFC areas (Figure D-17).

Importance to port groups/communities: Longnose skate are typically delivered as part of mixed groundfish complex (primarily caught seaward of the current RCA), and represent a small percentage of total groundfish landings. Primary trawl deliveries (2009-2011) were made to Oregon ports (Columbia River, Newport, and Coos Bay area ports; 34%, 20%, and 20.8%, respectively), and to a lesser extent to

Eureka area ports (10.6%) (Table D-52; Figure D-18). Longnose skate caught by fixed gear were primarily landed at Coos Bay (34%), Brookings (24%), and North Puget Sound (12%) area ports during 2009-2011 (Table D-61; Figure D-17).

Ex-vessel value of the landings by port group are shown in Table D-60. Landings from January 2009 – October 2011 = 2.83 years) were averaged as annual landings (i.e., by dividing the total landed weight by 2.83). Landings were then converted to value by multiplying by the average sector-specific landed weight (pounds) by the 2011 average price per pound shown in Figure D-15. The average revenue, calculated using this method, was $602,744 for limited entry non-nearshore trawl and $13,748 for limited entry and open access fixed gear (Table D-52). Top three average annual revenues by gear/sector ranged from $120,899 (Newport area ports) to $205,080 (Columbia River Oregon area ports) for trawl and $1,625 (Northern Puget Sound area ports) to $4,690 (Coos Bay area ports) for fixed gear (Table D-60).

Table D-60. Revenue and percent contribution of longnose skate landings by port group area. Annual-landed weights were calculated by averaging the 2009 – October 2011 landings. Gear/sectors are: LE Trawl = limited entry non-whiting trawl; Fixed Gear = limited entry and open access groundfish fixed gear. Port group areas are: CBA = Coos Bay; CLO – Columbia River Oregon; ERA = Eureka; NPA = Newport; NPS = North Puget Sound; BRA = Brookings. Other port groups were combined into "Remaining". The number of remaining port groups were 12 for LE trawl and 10 for fixed gear

Gear/sector	Port-area group	2009-2011 Weight landed (lbs.)	Percent by area	Annual weight landed (Average; lbs.)	2011 Average price per pound ($)	Average annual revenue ($)
LE Trawl	CLO	1,813,678	34.0%	640,876	0.32	$205,080
	NPA	1,068,757	20.0%	377,653	0.32	$120,849
	CBA	1,110,461	20.8%	392,389	0.32	$125,564
	ERA	565,813	10.6%	199,934	0.32	$63,979
	Remaining	771,805	14.5%	272,723	0.32	$87,271
	TOTAL	5,330,514	100.0%	1,883,574	0.32	$602,744
Fixed gear	NPS	16429	0.12	5,805	0.28	$1,625
	CBA	47407	0.34	16,752	0.28	$4,690
	BRA	33108	0.24	11,699	0.28	$3,276
	Remaining	42012	0.30	14,845	0.28	$4,157
	TOTAL	138,956	1.00	49,101	0.28	$13,748

Options 1 – 5 (general)

Under all of the following management options, longnose skate would continue to be sorted and reported to species on state landing reports and federal fish tickets. Inseason catch accounting and basis for trip limit and/or RCA adjustments will be made using: (a) historical discard rates with near real-time bycatch updates from the WCGOP observer program for the IFQ fishery to improve precision as the year proceeds and/or (b) historical discard amounts (average annual discard beginning 2009) added to landings data provided by PacFIN. Catch estimates would be revised post season using landed catch as reported to PacFIN combined with observer based discard amounts provided by WCGOP and specific to the fishing year. The determination of total fishing mortality relative to the harvest specifications would be evaluated post season for all fisheries.

Option 1 – High Trip Limit: Reduce the longnose skate bimonthly trip limit from unlimited to (a) 12,000 pounds/2 months for limited entry non-whiting trawl and (b) 1,000 pounds/2 months for limited entry and open access fixed gear.

Landings and lost revenue under Option 1 (high-trip limit) relative to No Action are shown in Table D-61 for longnose skate (trawl and fixed gear). In this case, trip limits were 12,000 pounds/2 months for limited entry non-whiting trawl and 1,000 pounds/2 months for fixed gear sectors. These trip limits represent the 90th percentile for landings by the limited entry non-whiting trawl fishery and the limited entry fixed gear fishery. Small adjustments were made to PacFIN data downloaded for this table to allow for direct comparison with Table D-60. Longnose skate weights shown here were increased by factors of 3.19% (trawl) and 0.58% (fixed gear). PacFIN queries were made at different times for this analysis and the analysis shown in Table D-60 resulting in the small differences that were standardized (scaled) using the factors shown above.

Table D-61. Option 1 "high" trip limits for longnose skate and potential landings and lost revenue relative to No Action. Trip limits were selected based on the 90th percentile of landings over the period 2009 – October 2011 (see Figure D-22 and Figure D-23). Annual-landed weights were calculated by averaging the 2009 – October 2011 landings (see above). Gear/sectors are: LE Trawl = limited entry non-whiting trawl; OA FG = open access fixed gear (groundfish); LE FG = limited entry fixed gear (groundfish).

Gear/sector & Option	Bi-monthly trip limit (lbs.)	2009-2011 bimonthly trip limits exceeded (%)	2009-2011 pounds in excess of trip limit (%)	No Action average annual landings (lbs.)	Option 1 average annual landings (lbs.)	Option 1 average amount discarded or avoided due to trip limits (lbs.)	Option 1 average annual revenue lost ($)
No Action							
OA FG	Unl.	0%	0%	9,382			
LE FG	Unl.	0%	0%	39,721			
LE Trawl	Unl.	0%	0%	1,883,511			
TOTAL				1,932,614			
Option 1							
OA FG	1,000	0.4%	0.2%		9,366	16	$5
LE FG	1,000	11.0%	28.3%		28,500	11,221	$3,142
LE Trawl	12,000	9.9%	9.0%		1,713,884	169,627	$54,280
TOTAL					1,751,750	182,854	$57,427

Biological Impacts: Overall, this alternative may reduce landings by 182,854 pounds (83 mt), or 9.5% for limited entry non-whiting trawl and limited entry and open access fixed gear fisheries landings combined (Table D-61). If fishers behavior remained unchanged, and assuming discard mortality were 50%, then total mortality may be reduced by 91,427 pounds (42 mt) for trawl and fixed gear combined relative to No Action. Total mortality would be reduced even more (to a maximum of 83 mt) if this trip limit caused fishermen to reduce targeting or avoid fishing in areas with high concentrations of longnose skate (i.e., so that no additional discarding were caused by trip limits).

No significant biological impacts are expected under Option 1. Under Option 1, the total fishing mortality (all sectors) would be 42 – 83 mt lower than shown under No Action; estimated total mortality for all fisheries shown in Table D-48 would therefore be reduced to a range of 1,037 - 1,140 mt, which is less than both PPA and No Action ACLs analyzed herein (2,000 and 1,349 mt, respectively).

Socio-economic Impacts: Approximately 10% of the limited entry fixed gear and limited entry non-whiting trawl bimonthly landings may be affected by Option 1 trip limits (Table D-61; Figure D-22 and Figure D-23). Open access fisheries would largely be unaffected relative to No Action (Table D-61). Reducing trip limits from unlimited to 12,000 pounds bimonthly for the limited entry non-whiting trawl sector may reduce landed pounds for that sector by 9% (= 169,627 pounds or 78 mt) relative to No Action. Reducing trip limits from unlimited to 1,000 pounds bimonthly for fixed gear sectors could reduce landed pounds by 28.3% for the limited entry fixed gear sector (11,221 pounds or 5 mt reduction relative to No Action) and 0.2% for the open access fixed gear sector (16 pounds or 0.007 mt reduction relative to No Action).

The estimated value of longnose skate revenue forgone under Option 1 relative to No Action is $57,427 ($3,147 for fixed gear and $54,280 for trawl). Oregon port groups would be most impacted by longnose skate trip limits (Table D-60).

The only sector that may require trip limits to keep its mortality below its allocation is the non-trawl fishery if the No Action ACL (61 mt) is selected (Table D-62) Trip limits described under Option 1 may not keep the total mortality by this sector (expected range = 60 – 89 mt) below its No Action allocation. Trip limits may not be required for non-trawl if the PPA allocation is adopted and may not be required for shoreside trawl under either allocation alternative (PPA or No Action).

Table D-62. Expected range of total mortality by sector under Option 1, along with 2013 and 2014 longnose skate ACLs and allocations for non-trawl and shoreside trawl (also see Tables 2-11 and 2-12) for comparison. Expected mortality was initially calculated by using historical catch and discard presented for 2009 and 2010 by Bellman et al. (2010 and 2011) while assuming 50% discard mortality for trawl and non-trawl gear (see Table D-48). Additional savings due to trip limits were subtracted from these total mortality estimates as minimum savings (all lost landings due to trip limits were assumed to be caught and discarded, with a 50% discard mortality rate) or maximum savings (all lost landings due to trip limits were assumed to be avoided, resulting in 0% mortality of the forgone landings). The range of sector-specific mortalities under Option 1 were calculated as: Minimum Expected Mortality = (Minimum No Action Total Mortality) – (Maximum Savings); Maximum Expected Mortality = (Maximum No Action Mortality) – (Minimum Savings).

<table>
<tr><th>Option</th><th>ACL</th><th>Shoreside trawl allocation</th><th>Option 1 shoreside trawl total mortality (50% discard mortality)</th><th>Non-trawl allocation</th><th>Option 1 non-trawl total mortality (50% discard mortality)</th></tr>
<tr><td>Preliminary Preferred</td><td>2,000</td><td>1,739</td><td rowspan="2">947 – 1,067</td><td>193.8</td><td rowspan="2">60 - 89</td></tr>
<tr><td>No Action</td><td>1,346</td><td>1,154</td><td>61</td></tr>
</table>

Option 2 – Moderate Trip Limits: Reduce the longnose skate bimonthly trip limit from unlimited to (a) 7,000 pounds/2 months for limited entry non-whiting trawl and (b) 500 pounds/2 months for limited entry and open access fixed gear.

Landings and lost revenue under Option 2 (moderate-trip limit) relative to No Action are shown in Table D-63 for longnose skate (trawl and fixed gear). In this case, trip limits were 7,000 pounds/2 months for limited entry non-whiting trawl and 500 pounds/2 months for fixed gear sectors. These trip limits represent the 75th percentile for landings by the limited entry non-whiting trawl fishery and the limited entry fixed gear fishery. Small adjustments were made to PacFIN data downloaded for this table to allow for direct comparison with Table D-60. Longnose skate weights shown here were increased by factors of 3.19% (trawl) and 0.58% (fixed gear). PacFIN queries were made at different times for this analysis and the analysis shown in Table D-60 resulting in the small differences that were that were standardized (scaled) using the factors shown above.

Table D-63. Option 2 "moderate" trip limits for longnose skate and potential landings and lost revenue relative to No Action. Trip limits were selected based on the 75th percentile of landings over the period 2009 – October 2011 (see Figure D-22Figure D-23). Annual-landed weights were calculated by averaging the 2009 – October 2011 landings (see above). Gear/sectors are: LE Trawl = limited entry non-whiting trawl; OA FG = open access fixed gear (groundfish); LE FG = limited entry fixed gear (groundfish).

Gear/sector & Option	Bi-monthly trip limit (lbs.)	2009-2011 bimonthly trip limits exceeded (%)	2009-2011 pounds in excess of trip limit (%)	No Action average annual landings (lbs.)	Option 2 average annual landings (lbs.)	Option 2 average amount discarded or avoided due to trip limits (lbs.)	Option 2 average annual revenue lost ($)
No Action							
OA FG	Unl.	0%	0%	9,382			
LE FG	Unl.	0%	0%	39.721			
LE Trawl	Unl.	0%	0%	1,883,511			
TOTAL				1,932,614			
Option 2							
OA FG	500	1.1%	2.8%		9,117	265	$74
LE FG	500	24.8%	40.8%		23,524	16,197	$4,535
LE Trawl	7,000	26.3%	24.8%		1,415,825	467,686	$149,670
TOTAL					1,448,466	484,148	$154,279

Biological Impacts: Overall, this alternative may reduce longnose skate landings by 484,148 pounds (219 mt), or 25% for limited entry non-whiting trawl and groundfish fixed gear fisheries landings combined (Table D-63). If fishers behavior remained unchanged, and assuming discard mortality were 50%, then total mortality may be reduced by 242,074 pounds (110 mt) relative to No Action. Total mortality would be reduced even more (to a maximum of 219 mt) if this trip limit caused fishermen to reduce targeting or fishing in areas with high concentrations of longnose skate (i.e., so that no additional discarding were caused by trip limits).

No significant biological are expected under Option 2. Under Option 2, the total fishing mortality (all sectors) would be 110 – 220 mt lower than shown under No Action; estimated total mortality for all fisheries shown in Table D-48 would be reduced to range of 901 – 1,072 mt, which is less than both PPA and No Action ACLs analyzed herein (2,000 and 1,349 mt, respectively).

Socio-economic Impacts: Approximately 25% of the limited entry fixed gear and limited entry non-whiting trawl bimonthly landings may be affected by Option 2 trip limits (Table D-63; Figure D-22 and Figure D-23). Only approximately 1% of the open access bimonthly landings (number) may be affected by this trip-limit option relative No Action (Table D-63). Reducing trip limits from unlimited to 7,000 pounds bimonthly for the limited entry non-whiting trawl sector would reduce landed pounds for that sector by 24.8% (= 467,686 pounds or 212 mt) relative to No Action. Reducing trip limits from unlimited to 500 pounds bimonthly for fixed gear sectors would reduce landed pounds by 40.8% for the limited entry fixed gear sector (= 16,197 pounds or 7 mt relative to status quo) and 2.8% for the open access fixed gear sector (265 pounds or 0.1 mt relative to No Action).

The estimated value of longnose skate revenue forgone under Option 2 relative to No Action is $154,279 ($4,609 for fixed gear and $149,670 for trawl). Oregon port groups would be most impacted by longnose skate trip limits (Table D-60).

The only sector that may require trip limits to keep its mortality below its allocation is the non-trawl fishery if the No Action ACL (61 mt) is selected (Table D-64) Trip limits described under Option 2 may not keep the total mortality by this sector (expected range = 58 – 88 mt) below its No Action allocation. Trip limits may not be required for non-trawl if the PPA allocation is adopted and may not be required for shoreside trawl under either allocation alternative (PPA or No Action).

Table D-64. Expected range of total mortality by sector under Option 2, along with 2013 and 2014 longnose skate ACLs and allocations for non-trawl and shoreside trawl (also see Tables 2-11 and 2-12) for comparison. Expected mortality was initially calculated by using historical catch and discard presented for 2009 and 2010 by Bellman et al. (2010 and 2011) while assuming 50% discard mortality for trawl and non-trawl gear (see Error! Reference source not found.**). Additional savings due to trip limits were subtracted from these total mortality estimates as minimum savings (all lost landings due to trip limits were assumed to be caught and discarded, with a 50% discard mortality rate) or maximum savings (all lost landings due to trip limits were assumed to be avoided, resulting in 0% mortality of the forgone landings). The range of sector-specific mortalities under Option 1 were calculated as: Minimum Expected Mortality = (Minimum No Action Total Mortality) – (Maximum Savings); Maximum Expected Mortality = (Maximum No Action Mortality) – (Minimum Savings).**

Option	ACL	Shoreside trawl allocation	Option 2 shoreside trawl total mortality (50% discard mortality)	Non-trawl allocation	Option 2 non-trawl total mortality (50% discard mortality)
Preliminary Preferred	2,000	1,739	813 - 961	193.8	58 - 88
No Action	1,346	1,154		61	

Option 3 – Low Trip Limits: Reduce the longnose skate bimonthly trip limit from unlimited to (a) 4,000 pounds/2 months for limited entry non-whiting trawl and (b) 200 pounds/2 months for limited entry and open access fixed gear.

Landings and lost revenue under Option 3 (low-trip limit) relative to No Action are shown in Table D-65 for longnose skate (trawl and fixed gear). In this case, trip limits were 4,000 pounds/2 months for limited entry non-whiting trawl and 200 pounds/2 months for fixed gear sectors. These trip limits represent the 50^{th} percentile for landings by the limited entry non-whiting trawl fishery and the limited entry fixed gear fishery. Small adjustments were made to PacFIN data downloaded for this table to allow for direct comparison with Table D-60. Longnose skate weights shown here were increased by factors of 3.19% (trawl) and 0.58% (fixed gear). PacFIN queries were made at different times for this analysis and the analysis shown in Table D-60 resulting in the small differences that were that were standardized (scaled) using the factors shown above.

Table D-65. Option 3 "low" trip limits for longnose skate and potential landings and revenue relative to No Action. Trip limits were selected based on the 50th percentile of landings over the period 2009 – October 2011 (see Figure D-22Figure D-23). Annual-landed weights were calculated by averaging the 2009 – October 2011 landings (see above). Gear/sectors are: LE Trawl = limited entry non-whiting trawl; OA FG = open access fixed gear (groundfish); LE FG = limited entry fixed gear (groundfish).

Gear/sector & Option	Bi-monthly trip limit (lbs.)	2009-2011 bimonthly trip limits exceeded (%)	2009-2011 pounds in excess of trip limit (%)	No Action average annual landings (lbs.)	Option 3 average annual landings (lbs.)	Option 3 average amount discarded or avoided due to trip limits (lbs.)	Option 3 average annual revenue lost ($)
No Action							
OA FG	Unl.	0%	0%	9,382			
LE FG	Unl.	0%	0%	39,721			
LE Trawl	Unl.	0%	0%	1,883,511			
TOTAL				1,932,614			
Option 3							
OA FG	200	12.2%	16.2%		7,862	1,520	$426
LE FG	200	48.4%	68.0%		12,730	26,991	$7,558
LE Trawl	4,000	48.3%	45.6%		1,024,422	859,089	$274,909
TOTAL					1,045,014	887,520	$282,893

Biological Impacts; Overall, this alternative may reduce landings by 887,520 pounds (402 mt), or 46% for limited entry non-whiting trawl and limited entry and open access fixed gear fisheries combined (Table D-65). If fishers behavior remained unchanged, and assuming discard mortality were 50%, then total mortality may be reduced by 443,760 pounds (201 mt) relative to No Action. Total mortality would be reduced even more (to a maximum of 402 mt) if this trip limit caused fishermen to reduce targeting or fishing in areas with high concentrations of longnose skate (i.e., so that no additional discarding were caused by trip limits).

No significant biological are expected under Option 3. Under Option 3, the total fishing mortality (all sectors) would be 201 – 402 mt lower than shown under No Action; estimated total mortality for all fisheries shown in Table D-48 would be reduced to a range of 718 – 981 mt, which is less than both PPA and No Action ACLs analyzed herein (2,000 and 1,349 mt, respectively).

Socio-economic Impacts: Approximately 50% of the limited entry fixed gear and limited entry non-whiting trawl fleet may be affected by Option 3 trip limits, whereas 12% of the open access bimonthly landings (number) may be affected by this trip-limit option relative to No Action (Table D-65; Figure D-22 and Figure D-23). Reducing trip limits from unlimited to 4,000 pounds bimonthly for the limited entry non-whiting trawl sector would reduce landed pounds for that sector by 45.6% (= 859,089 pounds or 390 mt) relative to No Action. Reducing trip limits from unlimited to 200 pounds bimonthly for fixed gear sectors would reduce landed pounds by 68% for the limited entry fixed gear sector (= 26,991 pounds or 12 mt relative to No Action) and 16.2% for the open access fixed gear (= 1,520 pounds or 0.7 mt relative to No Action).

The estimated value of longnose skate revenue forgone under this Option 3 relative to No Action is $282,893 ($7,984 for fixed gear and $274,909 for trawl). Oregon port groups would be most impacted by longnose skate trip limits (Table D-60).

The only sector that may require trip limits to keep its mortality below its allocation is the non-trawl fishery if the No Action ACL (61 mt) is selected (Table D-66) Trip limits described under Option 3 may not keep the total mortality by this sector (expected range = 52 – 85 mt) below its No Action allocation. Trip limits may not be required for non-trawl if the PPA allocation is adopted and may not be required for shoreside trawl under either allocation alternative (PPA or No Action).

Table D-66. Expected range of total mortality by sector under Option 3, along with 2013 and 2014 longnose skate ACLs and allocations for non-trawl and shoreside trawl (also see Tables 2-11 and 2-12) for comparison. Expected mortality was initially calculated by using historical catch and discard presented for 2009 and 2010 by Bellman et al. (2010 and 2011) while assuming 50% discard mortality for trawl and non-trawl gear (see Error! Reference source not found.**). Additional savings due to trip limits were subtracted from these total mortality estimates as minimum savings (all lost landings due to trip limits were assumed to be caught and discarded, with a 50% discard mortality rate) or maximum savings (all lost landings due to trip limits were assumed to be avoided, resulting in 0% mortality of the forgone landings). The range of sector-specific mortalities under Option 1 were calculated as: Minimum Expected Mortality = (Minimum No Action Total Mortality) – (Maximum Savings); Maximum Expected Mortality = (Maximum No Action Mortality) – (Minimum Savings).**

<table>
<tr><th>Option</th><th>ACL</th><th>Shoreside trawl allocation</th><th>Option 3 shoreside trawl total mortality (50% discard mortality)</th><th>Non-trawl allocation</th><th>Option 3 non-trawl total mortality (50% discard mortality)</th></tr>
<tr><td>Preliminary Preferred</td><td>2,000</td><td>1,739</td><td rowspan="2">635 - 991</td><td>193.8</td><td rowspan="2">52 - 85</td></tr>
<tr><td>No Action</td><td>1,346</td><td>1,154</td><td>61</td></tr>
</table>

<u>Option 4 – Extend Seaward Trawl RCA Deeper:</u> Extend trawl seaward RCA to 300 fm coastwide.

Biological Impact: Extending the trawl RCA from 150 or 200 fm to 300 fm coastwide may decrease encounters with longnose skate substantially. Approximately 15.9% of the longnose skate observed catch (coastwide) was made seaward of 300 fm by observed trawl trips where CPUEs were relatively low (Table D-57 and Table D-58). The density of longnose skate was also shown to drop to low levels seaward of 300 fm (Table D-56).

The actual savings in total catch of longnose skate under this management measure cannot estimated from the data obtained WCGOP; additional data is required to provide a reasonable estimate of impacts to the resource. However, it is expected that the biological impact of Option 4 may be significant.

Socio-economic Impacts: It is difficult to estimate revenue loss (in ex-vessel value) that may be caused by this RCA change because additional data are required from WCGOP to estimate potential reduced encounters (total catch) caused by this measure. Maximum revenues are shown in Table D-61; the direct loss would be something less than ~$600,000, and would likely be in the low $100,000's. Most of this loss would be incurred by the Oregon trawl fleet. The loss in longnose skate landings revenue may be lower than anticipated, however, because landings may be more of a function of market than encounters for this species (see above), at least in the recent past.

Any direct revenue loss due to a reduction in longnose skate landings may be inconsequential relative to other associated economic and safety impacts of a seaward RCA change. This measure would (a) force fishers off some of their most productive fishing grounds and on to less productive areas, (b) require more fishing effort to catch targeted species at levels similar to status quo, (c) require fishers to travel greater distances and spend more time on the water to catch targeted species at levels similar to status quo, and (d) concentrate fishers into a smaller fishing area, resulting in likelihood of increased gear impacts. These impacts will either reduce landings of target species (e.g., sablefish, Dover sole, thornyheads), or increase time and expense (e.g., fuel, number of trips, and days at sea) to maintain status quo landings of target species. The additional time at sea, running distance, and potential gear conflicts also may result in increased accidents at sea. The impact to communities under alternative 4, based on these criteria, would be severe and significant relative to No Action and relative to Options 1 – 3.

<u>Option 5 – Extend Shoreward Trawl RCA Shallower</u>: Extend shoreward trawl RCAs from 75-100 fm to 50 fm between 45°46' and 48°10' N latitude.

Biological Impact: Extending the shoreward trawl RCA from 75-100 fm to 50 fm between 45°46' and 48°10' N latitude may decrease encounters with longnose skate (Table D-57). The actual savings in total catch of longnose skate under this management measure cannot be estimated from the data obtained WCGOP; additional data is required to provide a reasonable estimate of impacts to the resource. Although uncertain, the biological impact may be significant relative to No Action, but less significant than Option 4.

Impacts to communities: It is difficult to estimate revenue loss (in ex-vessel value) that may be caused by this RCA change because additional data are required from WCGOP to estimate potential reduced encounters (total catch) caused by this measure. Most revenue loss would be incurred by the Oregon trawl fleet. The loss in longnose skate landings revenue may be lower than anticipated, however, because landings may be more of a function of market than encounters for this species (see above), at least in the recent past.

Any ex-vessel revenue loss caused by reduced landings of longnose skate (due to RCAs) may be small relative to other economic and safety impacts associated with moving the shoreward trawl RCA to 50 fm. This measure would (a) force fishers off some of their most productive fishing grounds in the nearshore area and onto less productive areas within the nearshore, (b) require more fishing effort to catch targeted species at levels similar to status quo, (c) concentrate fishers into a smaller area, resulting in likelihood of increased gear conflicts, (d) reduce or eliminate the catch of flatfish species that are primarily found between 50 and 100 fm, and (e) create gear conflicts and potential competition with nearshore fixed gear fisheries. The impact to communities under Option 5, based on these, would be severe relative to the No Action option and Options 1 – 3.

Other Potential Management Measures and Considerations

Other management measures or considerations are available to reduce fishing mortality for longnose skate. The alternatives provided above may reduce longnose skate catch, but may result in a high cost to communities and fishers (especially RCA changes). The following considerations may reduce mortality of longnose skate with lower associated impacts to communities than those described in alternatives 1-5.

- Gear modifications may reduce fishing mortality of longnose skate. For example, flexible grates and escape panels (e.g., halibut excluders) have been shown to effectively allow escapement of skate at fishing depth while retaining most target species that enter the net. These types of potential management measures could be further explored and considered as a regulatory or a voluntary measure if it is anticipated that longnose skate catch might exceed the ACL under status quo management measures.

- Voluntary avoidance of areas with highest longnose skate catch rates may be considered to keep longnose skate catch below the ACL.

Summary of Management Options and Comparison of Impacts

A summary of management measures and associated impacts are provided in Table D-67. Note that under No Action, total mortality of longnose skate may be lower than the preliminary preferred and No Action ACLs (i.e., less than 2,000 and 1,349 mt, respectively), suggesting no significant biological impact under the No Action management measure option. Management measure options were analyzed, however, in the event inseason tracking and monitoring predicts higher fishing mortality than anticipated. Prices and retention have increased over the past few years, so that situation may occur.

Under the PPA ACL for longnose skate (2,000 mt), the total mortality by sector will likely be below each sector allocation. Under the No Action ACL, however, the non-trawl allocation may be exceeded during 2013 and 2014.

Trip limit options (Options 1 – 3) would be effective for reducing No Action fishing mortality for the non-whiting trawl fishery, if necessary. This fishery retained approximately 68% of the longnose skate encountered during 2009 and 2010 (i.e., discarded 32%), so trip limits may cause increased discard (of which 50% may survive) or change fishermen's behavior (fishermen may choose to avoid areas with high concentrations of longnose skate). Hence, this measure could be used to significantly reduce total mortality relative to No Action. Options 1-3 would have moderate to significant impacts to communities – severity of impacts to communities increase as option number increases. Option 3 would have most significant impacts to communities and would affect approximately 50% of the non-whiting trawl fishermen and reduce landings by approximately $250,000.

Trip limits for fixed gear fisheries (Options 1 – 3), on the other hand, may not significantly reduce longnose skate mortality relative to No Action. Few longnose skate encountered by this fishery are landed (13% landed; 87% discarded), so trip limits will likely not change fishermen behavior relative to No Action. Conversely, Options 1 – 3 will have no significant impacts on this fishery since most are already discarded and the annual revenue lost due to the trip limits range from only $3,142 for Option 1 to $7,984 for Option 3.

Moving the seaward RCA deeper (Option 4) or the shoreward RCA shallower (Option 5) may result in significant biological impacts relative to No Action, however, additional data is required to estimate the extent of that impact. Regardless, expanding the RCAs to reduce mortality will have most significant impacts on communities relative to No Action and relative to Options 1 – 3 (trip limits).

Voluntary avoidance or use of excluder devices may provide significant biological impacts (i.e., may be most effective at reducing mortality) while having the least impact on communities.

Table D-67. Comparison and summary of management options.

Option	Management Measure	Biological Impacts	Socio-Economic Impacts
No Action	Trip Limit: Status quo RCA: Status quo	No significant biological impact. PPA ACL = 2,000 mt No Action ACL = 1,349 mt Expected total mortality (all fisheries and set asides) = 1,120 to 1,182 mt Caution is advised if price, targeting, and retention increase.	**<u>Shoreside Trawl Allocation</u>:** Expected total mortality = 1,025 – 1,106 mt - Preliminary Preferred Allocation (1,739 mt) - No Action Allocation (1,154 mt) **<u>Non-trawl Allocation</u>** Expected total mortality = 65 – 91 mt - Preliminary Preferred Allocation (194 mt) - ***No Action ACL (61 mt)*** - ***Expected Mortality Exceeds Allocation*** **<u>Revenue:</u>** Average annual ex-vessel value was $602,744 (trawl) and $13,748 (LE and OA fixed gear). **<u>Fisheries Most Affected</u>**: Limited entry bottom trawl (historically caught 90%) and non-nearshore fixed gear (LE and OA historically caught 10%). **<u>Discard and mortality rates</u>:** Recent discard rates are approximately 32% for non-whiting trawl and 87% for fixed gear. Assumed discard mortality is 50% for non-whiting trawl and fixed gear. **<u>Areas Most Affected</u>**: Most encounters (catch and discard) and landings occur north of 40°10' N latitude and in the Columbia INPFC area. Oregon ports receive

Option	Management Measure	Biological Impacts	Socio-Economic Impacts
			most landings; North Puget sound and Eureka area ports are also but to a lesser extent.
Option	Management Measure	Biological Impacts	Socio-Economic Impacts
Option 1	Trawl trip limit = 12,000 lbs. / 2 months Non-trawl trip limit = 1,000 lbs. / 2 months	*Moderate reductions relative to No Action; possibly significant biological impact* Option 1 trip limits reduces total mortality (all sectors and set asides) by 42 – 83 mt relative to No Action Expected total mortality (all fisheries and set asides) = 1,037 – 1,140 mt PPA ACL = 2,000 mt No Action ACL = 1,349 mt	**<u>Shoreside Trawl Allocation</u>:** Expected Total Mortality = 947 – 1,067 mt - Preliminary Preferred Allocation (1,739 mt) - No Action Allocation (1,154 mt) **<u>Non-trawl Allocation</u>** Expected Total mortality = 60 – 89 mt - Preliminary Preferred Allocation (194 mt) - ***No Action Allocation (61 mt)*** - ***Expected Mortality Exceeds allocation*** **<u>Revenue:</u>** Average annual ex-vessel value was reduced by \$54,280 (trawl) and \$3,142 (LE and OA fixed gear) relative to No Action. **<u>Landings:</u>** Average annual landings reduced by 169,627 pounds or 77 mt (trawl) and 11,237 pounds or 5.1 mt (LE and OA fixed gear) relative to No Action.
Option	Management Measure	Biological Impacts	Socio-Economic Impacts
Option 2	Trawl trip limit = 7,000 lbs. / 2 months Non-trawl trip limit = 500 lbs. / 2 months	*Significant reductions in total mortality relative to No Action (significant biological impact)* Option 2 trip limits	**<u>Shoreside Trawl Allocation</u>:** Expected Total Mortality = 813 – 961 mt - Preliminary Preferred Allocation (1,739 mt)

Option	Management Measure	Biological Impacts	Socio-Economic Impacts
		reduces total mortality (all sectors and set asides) by 110 - 220 mt relative to No Action Expected total mortality (all fisheries and set asides) = 901 – 1,072 mt PPA ACL = 2,000 mt No Action ACL = 1,349 mt	- No Action Allocation (1,154 mt) **<u>Non-trawl Allocation</u>** Expected Total mortality = 58 – 88 mt - Preliminary Preferred Allocation (194 mt) - ***No Action Allocation (61 mt)*** - ***Expected Mortality May Exceed Allocation*** **<u>Revenue:</u>** Average annual ex-vessel value was reduced by $149,670 (trawl) and $4,609 (LE and OA fixed gear) relative to No Action. **<u>Landings:</u>** Average annual landings reduced by 467,686 pounds or 212 mt (trawl) and 16,462 pounds or 7.5 mt (LE and OA fixed gear) relative to No Action.
Option	Management Measure	Biological Impacts	Socio-Economic Impacts
Option 3	Trawl trip limit = 4,000 lbs. / 2 months Non-trawl trip limit = 200 lbs. / 2 months	*No significant biological impact* Option 3 trip limits reduces total mortality (all sectors and set asides) by 201 - 402 mt relative to No Action Expected total mortality (all fisheries and set asides) = 718 - 981 mt	**<u>Shoreside Trawl Allocation</u>:** Expected Total Mortality = 635 – 991 mt - Preliminary Preferred Allocation (1,739 mt) - No Action Allocation (1,154 mt) **<u>Non-trawl Allocation</u>** Expected Total mortality = 52 – 85 mt

Option	Management Measure	Biological Impacts	Socio-Economic Impacts
		PPA ACL = 2,000 mt No Action ACL = 1,349 mt	- Preliminary Preferred Allocation (194 mt) - ***No Action Allocation (61 mt)*** - ***Expected Mortality May Exceed Allocation*** **Revenue:** Average annual ex-vessel value was reduced by $274,909 (trawl) and $7,984 (LE and OA fixed gear) relative to No Action. **Landings:** Average annual landings reduced by 859,089 pounds or 390 mt (trawl) and 28,511 pounds or 12.9 mt (LE and OA fixed gear) relative to No Action.
Option 4	Extend the trawl RCA from 150 or 200 fm to 300 fm coastwide	*Significant biological impact relative to No Action, but the level of impact is uncertain.*	**Shoreside Trawl:** *The socio-economic impact of Option 4 would be severe and significantly higher than expected impacts of No Action and of Options 1 – 3.* **Non-trawl:** *No Significant Impact*
Option 5	Extend shoreward trawl RCAs to 50 fm between 45°46’ and 48°10’ N latitude	*Significant biological impact relative to No Action, but the level of impact is uncertain.*	**Shoreside Trawl:** *The socio-economic impact of Option 5 would be severe and significantly higher than expected impacts of No Action and of Options 1 – 3.* **Non-trawl:** *No Significant Impact*

D.15 Spiny Dogfish Management Measures

Overview
Spiny dogfish (*Squalus sucklei*) was assessed for the first time off the off the U.S. west coast in 2011 (Gertseva and Taylor 2011). This species is currently not considered overfished; the spawning output at the beginning of 2011 was estimated to be 29,337 thousands of fish, which represents 53% of the unfished spawning output level (Gertseva and Taylor 2011).

Since 2002, average discard rates have been 85% and 52% for trawl and hook-and-line fisheries, respectively (Gertseva and Taylor 2011). More than 90% of the recent catch has been landed in Washington. A small portion of the catch is taken by recreational fisheries.

Herein we provide an analysis to examine the efficacy of potential management measures that could be used to restrain the catch of spiny dogfish shark by west coast commercial fisheries, if needed. Alternative trip limits and RCAs are provided for fixed gear and limited entry non-whiting trawl fisheries. Considerations of set asides or allocations are shown for the at-sea whiting sector. Other potential measures are also discussed.

Prior to March, 2012, catch accounting (e.g., Bellman et al., 2011) assumed that 100% of the discarded dogfish shark died. Recently, however, the Council adopted the SSC recommendation that WCGOP reports should apply discard mortality rates shown in stock assessments (Agenda Item F.2.b, REVISED Supplemental SSC Report, March 2012. Stock assessments (e.g., Gertseva et al. 2011) assumed 50% dogfish shark discard mortality for fixed gear (i.e., hook and line and pots), but retained the 100% discard mortality assumption for all trawls. It should be noted that the new 50% discard-mortality rate assumption is applied to non-trawl sectors herein only as we look forward (i.e., when evaluating management options toward the end of this report). In most cases prior to that section, 100% discard mortality is shown for all sectors because that was the historical perception.

<u>2006-2010 Total Mortality of Spiny Dogfish Shark and "Other Fish"</u>

Spiny dogfish shark is managed within the "Other Fish" complex but is sorted by regulation. Therefore, fishing mortality of dogfish and the "Other Fish" complex are described in this section.

The West Coast Groundfish Observer Program (WCGOP) reported total fishing mortalities for dogfish shark (Table D-68) that ranged from a low of 1,215 mt (2010) to a high of 2,497 mt (2008) while assuming that all discarded dogfish died from all gear types. The trend is similar for "Other Fish" category, which includes spiny dogfish shark (Table D-68). Note that beginning 2009, longnose skate were removed from the "other fish" category. Had longnose skate been included in this category during all years, then the adjusted "other fish" mortality would have been 3,969 mt in 3,617 mt in 2009 and 2010, respectively.

There was no optimum yield (OY) or allowable biological catch (ABC) for dogfish shark during this period; these harvest specifications were provided only for the "other fish" complex. The total mortality of "other fish" did not exceed the ABC or OY during any of the years shown in Table D-68, even under the assumption of 100% discard mortality for dogfish shark among all gear types.

Note that beginning March, 2012, catch accounting will assume new discard rates for dogfish shark relative to assumptions made prior to 2012. From that date forward, WCGOP will report 100% discard mortality for dogfish for all gear types except fixed gear (i.e., longline and pot gear), for which 50% mortality will be assumed. Estimated total mortality using these new assumed discard mortality rates are included in (Table D-53) for comparative purposes.

Table D-68. West coast groundfish total mortality estimates (mt) for dogfish shark and "Other Fish" complex from 2006-2010. Total mortality estimates prior to 2012 assume 100% mortality for discarded dogfish shark among all gear types. Data acquired from Hastie and Bellman (2007) and Bellman et al. (2008-2011). For comparison and future projections, dogfish shark mortality estimates were provided assuming 50% discard mortality for fixed gear and 100% mortality for all other gears, as specified under Agenda Item F.2.b, Revised Supplemental SSC Report, March 2012.

Year	Estimated dogfish mortality (mt) assuming 100% discard mortality	Estimated dogfish mortality (mt) assuming 50% discard mortality for fixed gear	[a]"Other Fish" mortality (mt), assuming 100% discard mortality for dogfish	"Other Fish" ABC (mt)	"Other Fish" Optimum yield (OY) (mt)
2006	1,407	1,222	3,452	14,600	7,300
2007	1,504	1,346	4,516	14,600	7,300
2008	2,497	2,393	5,339	14,600	7,300
2009	1,207	1,032	[b]2,514	11,200	5,600
2010	1,215	1,093	[c]2,231	11,200	5,600

[a]Other fish category consisted of cabezon (north of 42^{o} N latitude), kelp greenling, spiny dogfish shark, other sharks, **longnose skate**, big skate, unspecified skate, ratfish, morids, and grenadiers until 2009. Longnose skate was removed from the "other fish" category beginning 2009.

[b]**Longnose skate** was removed from the other fish complex in 2009. Longnose skate total mortality in 2009 was 1,455.1 mt (Bellman et al., 2010). Had longnose skate not been removed, the "Other Fish" total mortality for 2009 would have been 3,969 mt.

[c]**Longnose skate** was removed from the other fish complex in 2009. Longnose skate total mortality in 2010 was 1,386.5 mt (Bellman et al., 2011). Had longnose skate not been removed, the "Other Fish" total mortality for 2010 would have been 3,617 mt.

2011-2012 Harvest Specifications

For 2011-12 groundfish fisheries, spiny dogfish harvest specifications were analyzed and continued to be implemented in regulation with the "Other Fish" complex (Table D-69). Note that longnose skate was removed from the "Other Fish" complex beginning 2009, so the harvest specifications shown in Table D-69 for "Other Fish" were substantially lower than pre-2009 levels (see Table D-68).

Table D-69. 2011-2012 harvest specifications for “”Other Fish” in metric tons, implemented in regulation. OFL = overfishing limit; ABC = annual biological catch; ACL = annual catch limit.

Year	Species	OFL (mt)	ABC (mt)	ACL (mt)
2012	Other fish	11,150	7,742	5,575
2011	Other fish	11,150	7,742	5,575

<u>2012 – 2012 Management Measures (= No Action)</u>

Spiny dogfish are caught by trawl, commercial fixed gear, and recreational fisheries. Management measures that may control catches of dogfish shark for these fisheries in 2011-12 are summarized in Table D-70. All commercial landings of spiny dogfish are sorted. Rockfish conservation areas (RCAs; Table D-71 and Table D-72) in regulation may inadvertently provide some catch-controls for dogfish shark, because the depth distribution of this species extends from near shore to 470 fm (Keller et al., 2007a, 2007b, 2008). Hence, RCAs prevent the capture of some dogfish shark throughout a portion of their depth distribution along the entire West Coast. Trip limits range from 60,000 lb./month (limited entry trawl) to 100,000-200,000 lbs./2 months (limited entry and open access fixed gear).

Table D-70. Management measures affecting dogfish shark catch and monitoring for the 2011-2012 (= No Action) groundfish fisheries.

Fishery	**Management Measure**
Commercial	
--All Commercial landings	Sorting required for all commercial landings
--Limited Entry Trawl	Non-IFQ species. Trip limit management. Coastwide limits are: Periods 1-6: 60,000 lb./month. Trip Limits can be adjusted through routine inseason action. Current RCA structure may inadvertently reduce catch.
--Limited Entry Fixed Gear	Trip limit management. Coastwide limits are: Periods 1-2: 200,000 lb./2 months Period 3: 150,000 lb./2 months Periods 4-6: 100,000 lb./2 months Trip limits can be adjusted through routine inseason action. Current RCA structure may inadvertently reduce catch.
--Open Access Fixed Gear	Trip limit management. Coastwide limits are: Periods 1-2: 200,000 lb./2 months Period 3: 150,000 lb./2 months Periods 4-6: 100,000 lb./2 months Trip limits can be adjusted through routine inseason action. Current RCA structure may inadvertently reduce catch.
Recreational	
--Washington	Included as part of the 12 fish groundfish bag limit (landed fish) implemented in federal regulation.
--Oregon	Included as part of the 10 fish marine bag limit (landed fish) implemented in federal regulation. Oregon state regulations limit retention to 7 fish marine bag limit.
--California	Included as part of a 20 fish finfish bag limit (landed fish) implemented in federal regulation.

Table D-71. Limited entry non-whiting trawl RCAs for 2010-2012 (= No Action). Depth is in fathoms (fm).

Limited Entry Non-Whiting Trawl

<table>
<tr><th>Year</th><th>Area (N. latitude)</th><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>Jun</th><th>Jul</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
<tr><td rowspan="6">2012</td><td>North of 48°10'</td><td colspan="2">0 - [m]200</td><td colspan="2">0 - 200</td><td colspan="4">0 - 150</td><td colspan="2">0 - 200</td><td colspan="2">0 - [m]200</td></tr>
<tr><td>48°10' - 45°46'</td><td colspan="2" rowspan="2">75 - [m]200</td><td colspan="2">75 - 150</td><td colspan="2">75 - 150</td><td colspan="2">100 - 150</td><td colspan="4">75 – 150</td></tr>
<tr><td>45°46' - 40°10'</td><td colspan="4">75 - 200</td><td colspan="2">100 - 200</td><td colspan="2">75 - 200</td><td colspan="2">75 - [m]200</td></tr>
<tr><td>40°10' - 34°27'</td><td colspan="12" rowspan="2">100 – 150</td></tr>
<tr><td>South 34°27' (mainland)</td></tr>
<tr><td>South 34°27' (islands)</td><td colspan="12">0 – 150</td></tr>
<tr><td rowspan="6">2011</td><td>North of 48°10'</td><td colspan="2">0 - [m]200</td><td colspan="2">0 - 200</td><td colspan="4">0 – 150</td><td colspan="2">0 - 200</td><td colspan="2">0 - [m]200</td></tr>
<tr><td>48°10' - 45°46'</td><td colspan="2" rowspan="2">75 - [m]200</td><td colspan="2" rowspan="2">75 - 200</td><td colspan="2">75 - 150</td><td colspan="2">100 - 150</td><td colspan="4">75 - 150</td></tr>
<tr><td>45°46' - 40°10'</td><td colspan="2">75 - 200</td><td colspan="2">100 - 200</td><td colspan="2">75 - 200</td><td colspan="2">75 - [m]200</td></tr>
<tr><td>40°10' - 34°27'</td><td colspan="12" rowspan="2">100 – 150</td></tr>
<tr><td>South 34°27' (mainland)</td></tr>
<tr><td>South 34°27' (islands)</td><td colspan="12">0 – 150</td></tr>
<tr><td rowspan="6">2010</td><td>North of 48°10'</td><td colspan="2">0 - [m]200</td><td colspan="2">0 - 200</td><td colspan="4">0 – 150</td><td colspan="2">0 - 200</td><td>0 - [m]200</td><td>0 - 250</td></tr>
<tr><td>48°10' - 45°46'</td><td colspan="2" rowspan="2">75 - [m]200</td><td colspan="2" rowspan="2">75 - 200</td><td colspan="2">75 - 150</td><td colspan="2">100 - 150</td><td colspan="2" rowspan="2">75 - 200</td><td rowspan="2">75 - [m]200</td><td rowspan="2">75 - 250</td></tr>
<tr><td>45°46' - 40°10'</td><td colspan="2">75 - 200</td><td colspan="2">100 - 200</td></tr>
<tr><td>40°10' - 34°27'</td><td colspan="12" rowspan="2">100 – 150</td></tr>
<tr><td>South 34°27' (mainland)</td></tr>
<tr><td>South 34°27' (islands)</td><td colspan="12">0 – 150</td></tr>
</table>

Table D-72. Non-trawl rockfish conservation areas (RCAs) for limited entry and open access fixed gear (2010 – 2012; = No Action). Depth is in fathoms.

Limited Entry and Open Access Fixed Gear

Year	Area (N. lat.)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	North 46 16	0 - 100											
	45 03 83 - 46 16	30 - 100											
	43 00 - 45 03 83												
	42 00 - 43 00	20 - 100											
	40 10 - 42 00	20 - 100											
	34 27 - 40 10	30 - 150											
	South 34 27 (+ islands)	60 - 150											
2011	North 46 16	0 - 100											
	45 03 83 - 46 16	30 - 100											
	43 00 - 45 03 83	30 - 125 (125 line reduced to 100 fm during directed halibut days)											
	42 00 - 43 00	20 - 100											
	40 10 - 42 00	20 - 100											
	34 27 - 40 10	30 - 150											
	South 34 27 (+ islands)	60 - 150											
2010	North 46 16	0 - 100											
	45 03 83 - 46 16	30 - 100											
	43 00 - 45 03 83	30 - 125 (125 line reduced to 100 fm during directed halibut days)											
	42 00 - 43 00	20 - 100											
	40 10 - 42 00	20 - 100											
	34 27 - 40 10	30 - 150											
	South 34 27 (+ islands)	60 - 150											

Management Issue 2013-2014 Harvest Specifications

Final preferred overfishing limits (OFLs) and Allowable Biological Catch (ABCs were adopted for the Other Fish complex at the March 2012 Council meeting. The values for these specifications (Table D-73) are calculated as the sum of the known contributions of component stocks. The dogfish component of the Other Fish complex OFL and ABC is provided for reference.

Table D-73. Final preferred 2013-2014 OFLs and ABCs for the Other Fish Complex and the spiny dogfish shark component that contributed to the Other Fish complex specifications.

Year	Species or Complex	OFL (mt)	ABC (mt)	PPA - ACL (mt)
2013	Other Fish	6,832	4,717	4,717
	Dogfish component	2,980	2,044	NA
2014	Other Fish	6,802	4,697	4,697
	Dogfish component	2,950	2,024	NA

2013-2014 Harvest Specifications Relative to Historical Total Mortality Estimates

The 2009 - 2010 estimated total fishing mortality for the Other Fish complex (Table D-68; 2,231 and 2,514 mt, respectively), which was calculated assuming 100% discard mortality rates for all species and gears, would not have exceeded the final preferred 2013-14 OFLs or ABCs, nor would these have exceeded the preliminary preferred Other Fish complex ACLs of 4,717 and 4,697 mt (Table D-73). Comparisons were not made for previous years because longnose skate was included in the Other Fish complex prior to 2009.

The 2013 and 2014 "component ABC" for spiny dogfish shark (2,044 and 2,024 mt, respectively; Table D-73) would have been exceeded by the 2008 dogfish total mortality (2,597 mt assuming 100% discard mortality for all gears; Table D-68) by 27% and 28%, respectively. These "component ABCs" also would be exceeded by the 2008 dogfish total mortality using 50% discard survival for fixed gear (= 2,393 mt; Table D-68) The remaining total fishing mortality for spiny dogfish (i.e., for the years 2006, 2007, 2009, and 2010; Table D-68) are far below the 2013 and 2014 "component ABCs" for this species (Table D-73). Note that reconstructed historical catch records indicated that the dogfish ABCs shown in Table D-73 also would have been exceeded by catches in 2002, 2004, and 2005 (Gertseva and Taylor 2011), assuming 100% discard mortality for all gears.

This demonstrates that some modifications to existing management measures or new management measures may be needed to keep total fishing mortality of spiny dogfish shark within its component ABC.

Total catch and discard of dogfish shark by sector

Dogfish shark catch and discard by sector can be found in Figure D-25 (for 2010) and Table D-74. During 2010, most dogfish were taken by the limited entry non-whiting trawl fishery (43%). Other sectors that caught substantial amounts of dogfish shark in 2010 were at-sea whiting (23%), non-nearshore fixed gear (21%) and shoreside whiting (10%). Small amounts were taken by other sectors (Figure D-25).

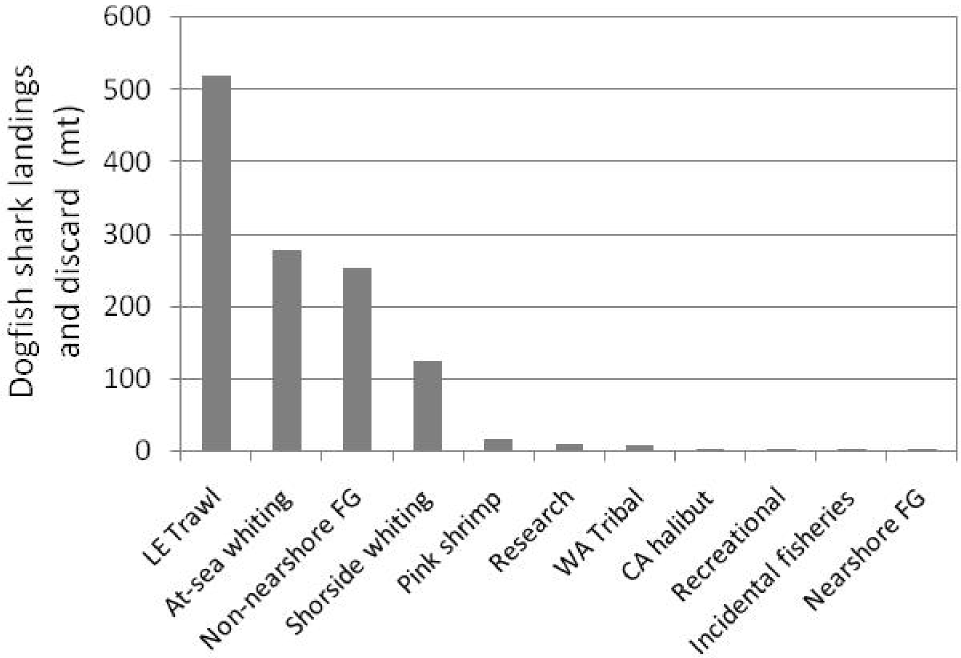


Figure D-25. Total landings and discard of spiny dogfish shark (mt) by sector during 2010. Data acquired from Bellman et al. (2011).

Sector-specific catches and total mortality of dogfish shark has been extremely variable over recent years (Table D-74). One large difference among years is apparent for the non-nearshore fixed gear fishery, where total mortality during 2006 and 2007 (509 and 563 mt, respectively) was noticeably higher than during 2008-2010 (total mortality ranged from 216 to 332 mt). This reduction in total mortality was due, in part, to the loss of a spiny dogfish processor in northern Washington after the 2007 season. The reduction in processing capability also is responsible for a reduction in dogfish targeting after the 2007 season (see below).

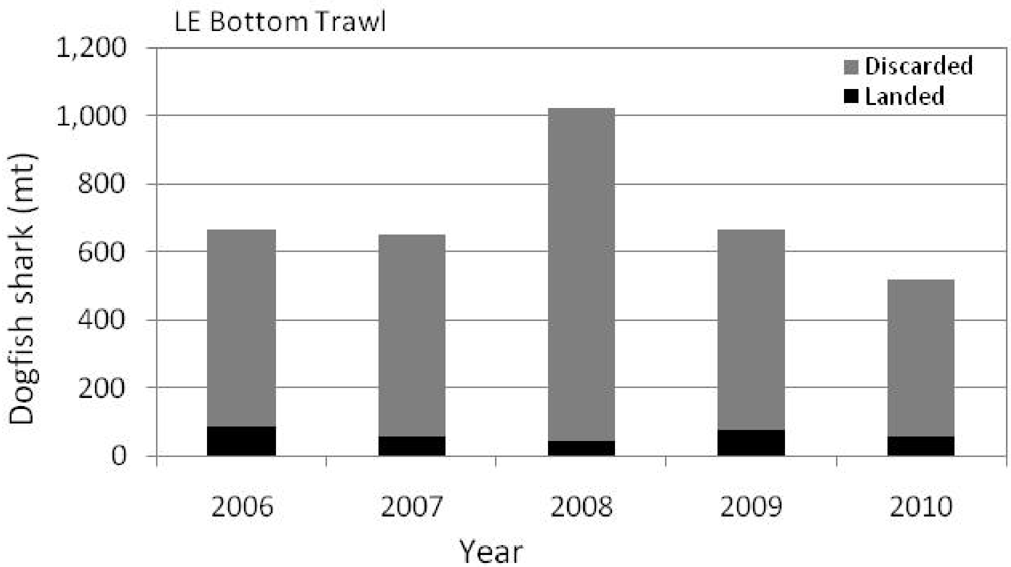
Most sectors showed noticeably higher catches in 2008 relative to other years shown in Table D-74. For example, total mortality of spiny dogfish for the non-tribal at-sea whiting sectors during 2008 was 673 mt, which was 2x – 11x higher than during the other years. This annual variability in catches should be considered if spiny dogfish set asides or formal allocations become adopted.

Table D-74. West coast groundfish total mortality estimates, by sector in metric tons, for dogfish shark from 2006-2010. Estimates assume 100% mortality for discarded dogfish shark. Data acquired from Hastie and Bellman (2007) and Bellman et al. (2008-2011).

	Shoreside commercial fisheries													
YEAR	LE bottom Trawl	CA halibut	Pink Shrimp	Non-nearshore fixed-gear	Nearshore fixed-gear	Shoreside hake mid-water trawl	WA tribal landings	All at-sea hake fisheries	Total recreational fishing mortality WA	OR	CA	Research	Remaining incidental OA fisheries landings	Estimated total fishing mortality
2006	666.0	--	--	563.0[a]	--	33.2	77.0	59.0	0.0	0.0	3.9	5.8	1.3	1,407.0
2007	652.0	3.0	1.0	509.0	0.0	51.0	113.0	155.0	0.0	0.0	5.0	13.0	1.0	1,504.0
2008	1,023.0	3.0	4.0	332.0	1.0	59.0	303.0	673.0	--	0.0	3.0	14.0	82.0	2,497.0
2009	665.5	3.2	0.4	216.2	0.0	16.0	125.4	163.4	--	0.1	4.9	10.9	1.0	1,206.9
2010	520.1	2.9	16.4	254.1	0.1	124.6	6.9	277.7	--	0.1	1.6	10.2	0.4	1,215.1

[a]Reported as "estimated non-trawl", which included non-nearshore fixed gear, nearshore fixed gear, and minor landings made with troll

It is important to point out that for the two fisheries that have characteristically targeted and sold dogfish shark in the past (e.g., non-whiting trawl and hook-and-line fisheries), that most of the total mortality is represented by discard mortality, rather than landed fish (Figure D-25). Landings by the non-whiting trawl fishery have been consistently low during 2006-2010, ranging from 43 – 85 mt. Landings for the non-nearshore fishery show a dramatic reduction from 191 mt in 2006 to 10 mt in 2010.



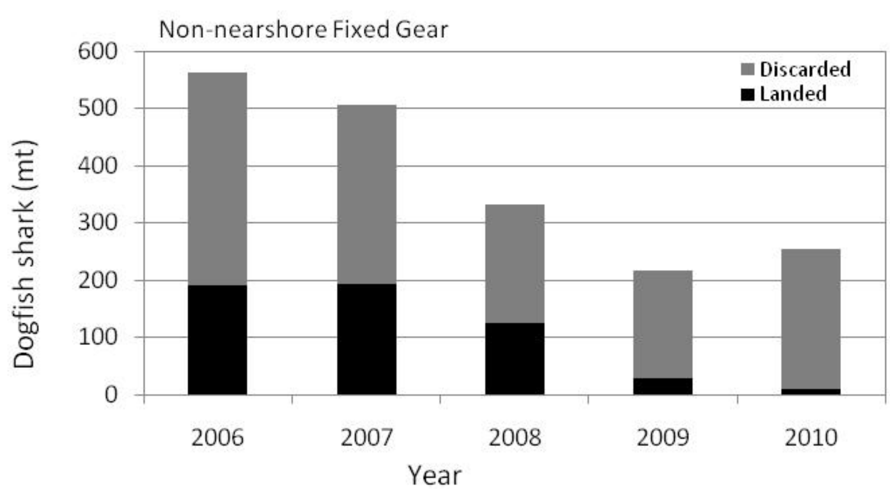


Figure D-26. Discarded and landed dogfish shark (mt) during 2006-2010 for the limited entry non-whiting trawl fishery(top) and the non-nearshore fixed gear fishery (bottom). Data acquired from Hastie and Bellman (2007) and Bellman et al. (2008-2011).

Distribution of dogfish shark along the U.S. West Coast
Approximately 92% of dogfish shark total mortality by the non-nearshore fixed gear fisheries and the limited entry non-whiting trawl fishery (landings + discards) occur north of 40°10' N latitude (Figure D-27; Bellman et al. 2011).

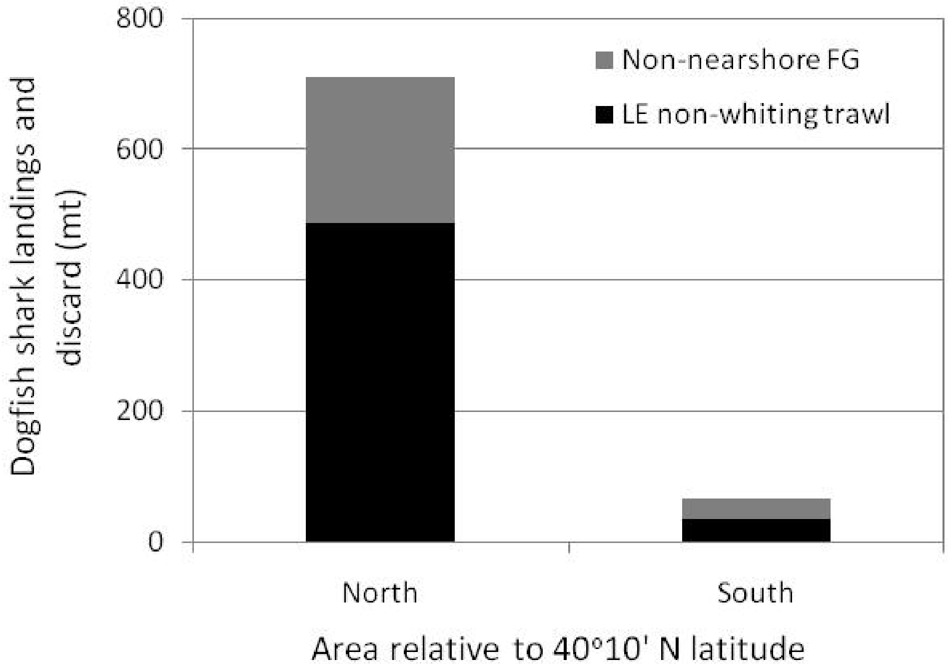


Figure D-27. Dogfish shark landings and discard off the U.S. west coast during 2010 by fishery north and south of 40°10' N latitude. Data acquired from Bellman et al. (2011).

The latitudinal distribution is provided in more detail by the 2005 west coast groundfish trawl survey (Table D-75; Keller et al. 2008), which shows highest dogfish shark concentrations north of 47°30' N. latitude in the U.S.-Vancouver INPFC area. Dogfish was estimated to be the most abundant of all species caught by the trawl survey within this northern area. The density of dogfish shark is considerably lower in Columbia and Eureka INPFC areas, but relatively high in the Monterey INPFC area, where it ranked #10 relative to all other species caught by the 2005 trawl survey (Table D-75). This bimodal trend of density was also displayed by the 2003 and 2004 trawl surveys (Keller et al. 2007a,b).

Table D-75. Mean catch per unit effort (CPUE; kg/ha) for dogfish shark caught during the 2005 west coast trawl survey by INPFC area. Data acquired from Keller et al. (2008).

INPFC Area	Southern boundary	CPUE (kg/ha)
U.S.-Vancouver	47^{o}30' N. latitude	43.6
Columbia	43^{o}00' N. latitude	< 0.5
Eureka	40^{o}30' N. latitude	2.6
Monterey	36^{o}00' N. latitude	10.1
Conception	Southern boundary of EEZ	< 0.5

The high density of spiny dogfish shark in northern Washington is also demonstrated by the International Pacific Halibut Commission (IPHC) hook-and-line surveys (Figure D-28). Catch rates of dogfish shark were consistently highest north of 46^{o} N latitude from 1995-2010.

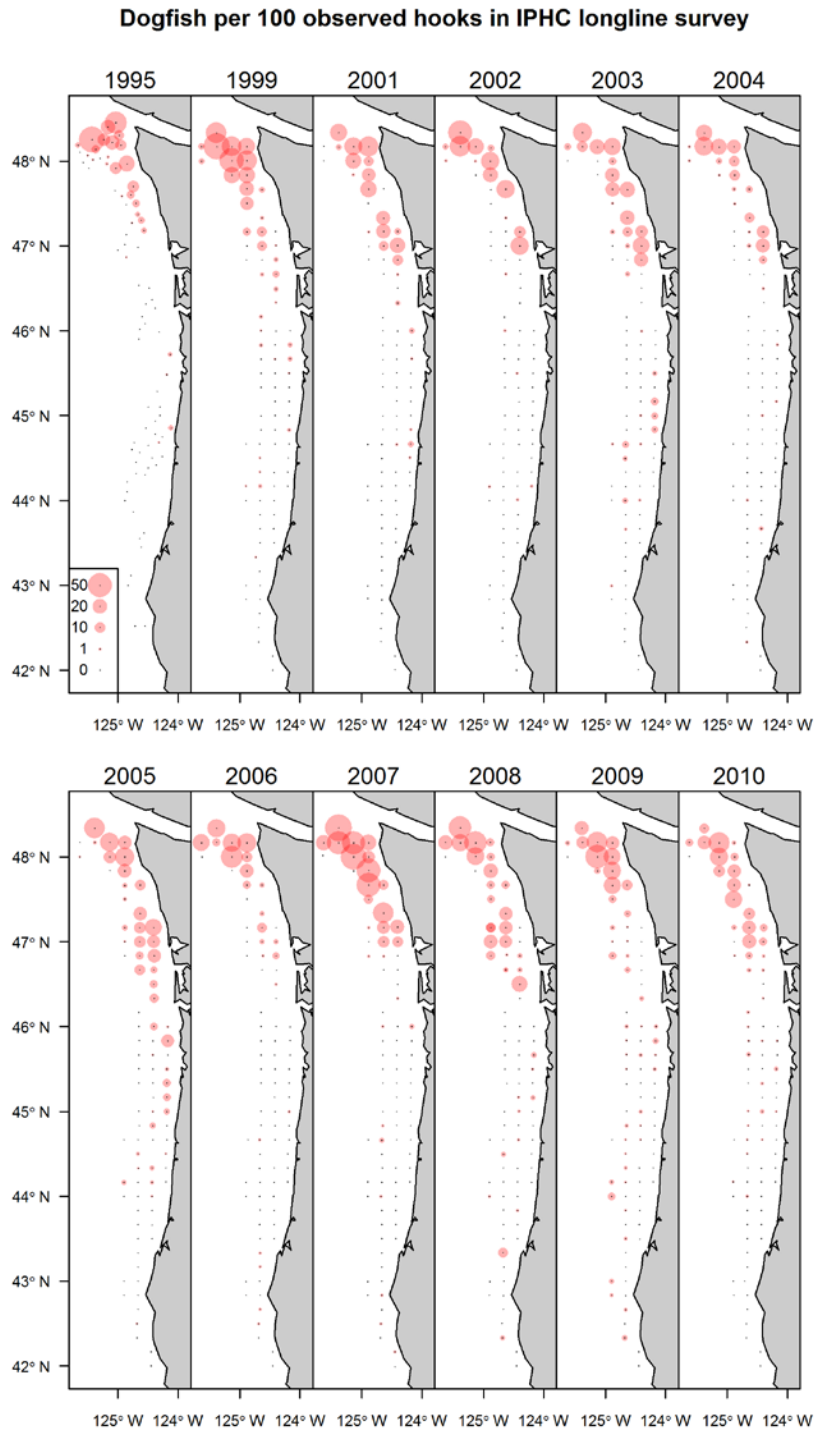


Figure D-28. Spatial distribution of spiny of spiny dogfish catches within the International Pacific Halibut Commission (IPHC) hook and line survey (expressed as the number of dogfish per 100 observed hooks). This figure was acquired from Gertseva and Taylor (2011).

Although dogfish shark were caught by trawl surveys from 20 to 470 fm (Keller et al., 2007a, 2007b, 2008), highest densities were found at the shallowest depths (shoreward of 100 fm) across all INPFC areas (Table D-76; 13.86 kg/ha). Densities declined to 4.7 kg/ha at moderate depths, and were lowest seaward of 301 fm (< 0.16 kg/ha) for all INPFC areas combined. Within the U.S.-Vancouver INPFC area, where densities were highest (Table D-75; Figure D-27), CPUEs were 126.9 kg/ha, 10.9 kg/ha, and < 0.1 kg/ha at the shallowest, moderate, and deepest depth strata (Table D-76).

Table D-76. Mean CPUE (kg/ha) of dogfish shark by depth strata in all INPFC areas combined and within the U.S.-Vancouver INPFC area during the 2005 West coast groundfish trawl survey. Data acquired from Keller et al. (2008).

INPFC Area	Depth (m)	Depth (fm)	CPUE (kg/ha)
All combined	55 – 183	30 – 100	13.9
	184 – 549	100 - 301	4.7
	550 – 1,280	302 - 702	< 0.2
U.S.-Vancouver	55 – 183	30 – 100	126.9
	184 – 549	100 - 301	10.9
	550 – 1,280	302 - 702	< 0.1

Trends in annual landings, discard and price per pound

Gertseva and Taylor (2011) provided a comprehensive catch history for dogfish shark. They showed highest catches in the 1940s, driven by the high demand for Vitamin A. During this period, catches (landings + discards) averaged 6,281 mt per year and peaked at 16,876 mt. The demand for dogfish livers (and therefore West Coast dogfish) waned in the 1950s when synthetic vitamins were developed, but increased again in the 1970s due to increased sales to Europe for fish and chips. Dogfish shark landings averaged approximately 450 mt until recent years (Gertseva and Taylor 2011). That demand for west coast dogfish shark decreased, and the subsequent loss of a processor in northern Washington after the 2007 season resulted in noticeably less landings (Figure D-26) and an increase in at-sea discarding for this species (Figure D-29).

Dogfish discard rates have averaged 90% for limited entry non-whiting trawl fisheries since 2006, (range 87% - 91%; Figure D-29). Discard rates were lower for the non-nearshore fixed gear fishery from 2006 – 2008 (62% – 66%) but increased to levels more similar to the recent trawl-discard rates in 2009 (86%) and 2010 (96%). These increased discard rates for the non-nearshore fixed gear fishery roughly coincides with the closing of the processor in northern Washington in 2007. Gertseva and Taylor (2011) showed much lower discarding for dogfish shark by limited entry non-whiting trawl and for hook-and-line fisheries during the 1990s and early 2000s when demand was higher (see above); discard rates during this period when targeting was likely prevalent may have been a as low as 25% (trawl) and 14% (hook-and line) during some years.

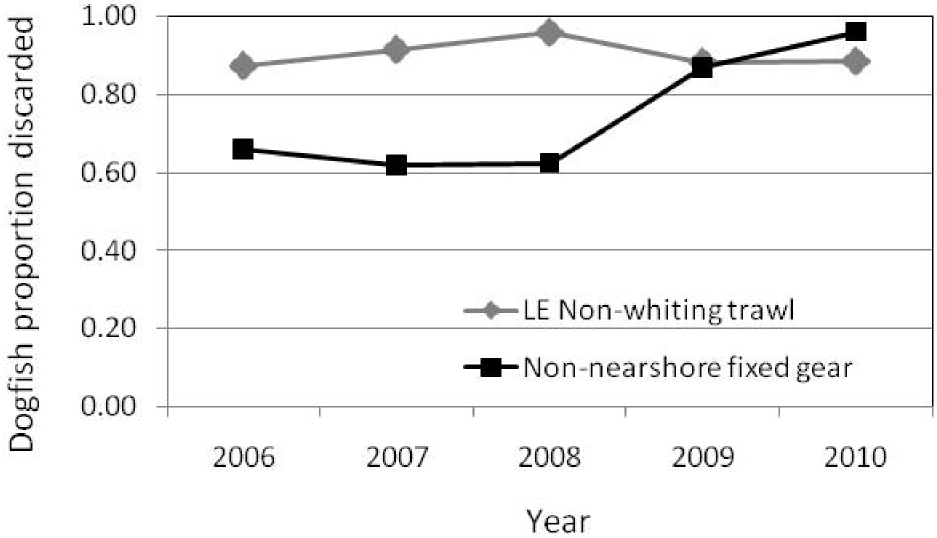


Figure D-29. Proportion of dogfish shark discarded by the limited entry non-whiting trawl and non-nearshore fixed gear fisheries. Data were acquired from Hastie and Bellman (2007) and Bellman et al. (2008-2011).

The ex-vessel prices paid for dogfish shark in recent years has fluctuated between \$0.17 and \$0.25 per pound for open access and limited entry fixed gear fisheries, and has shown a general decline from \$0.37 to \$0.28 per pound for trawl since 2008 (Figure D-30). Recent prices may reflect special niche markets, because landings have become small (Figure D-29) relative to earlier years (see Gertseva and Taylor 2011).

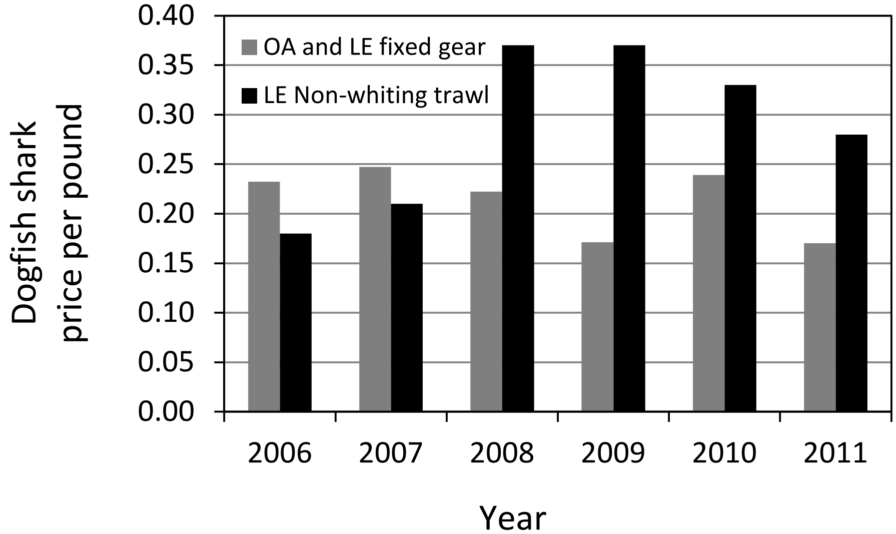


Figure D-30. Dogfish shark price per pound for limited entry (LE) and open access (OA) fixed gear (gray) and limited entry non-whiting trawl (black) by year. Data acquired from PacFIN.

<u>Landings by area and port</u>

Approximately 83% of the limited entry non-whiting trawl landings of dogfish shark occurred in the Vancouver and Columbia INPFC areas from 2006-2011, reaching 863,000 pounds over the 5-year period (Figure D-31a; PacFIN data). Noticeable landings were also made in the Monterey INPFC area during this period (140,000 lbs.). Almost no trawl landings of dogfish shark were recorded in the other INPFC areas (Figure D-31a). Port groups receiving most dogfish shark landings from limited entry non-whiting trawlers during 2006-2011 were North Puget Sound (280,000 lbs.), Columbia River Oregon (439,000 lbs.), Monterey (91,000), and Fort Bragg (49,000 lbs.; Figure D-32a. Each of the other port groups received less than 3,000 lbs. of dogfish during 2006-2011.

Landings of dogfish shark by fixed gear fisheries (Figure D-31b) were larger than shown for the trawl fisheries (Figure D-31a) over the 2006-2011 period, and were primarily concentrated in the Vancouver INPFC area (1,334,000 lbs.). Dogfish shark landings in the other INPFC areas over the 5-year period were low and ranged from 335 lbs. to 35,000 lbs. Most dogfish shark landings by limited entry and open access fixed gear fisheries occurred in the North Puget Sound port group (1,252,000 lbs.; Figure D-32b). Small dogfish landings were also recorded for Central Washington area (86,000 lbs.) and Brookings (35,512) area port groups during 2006-2011.

A

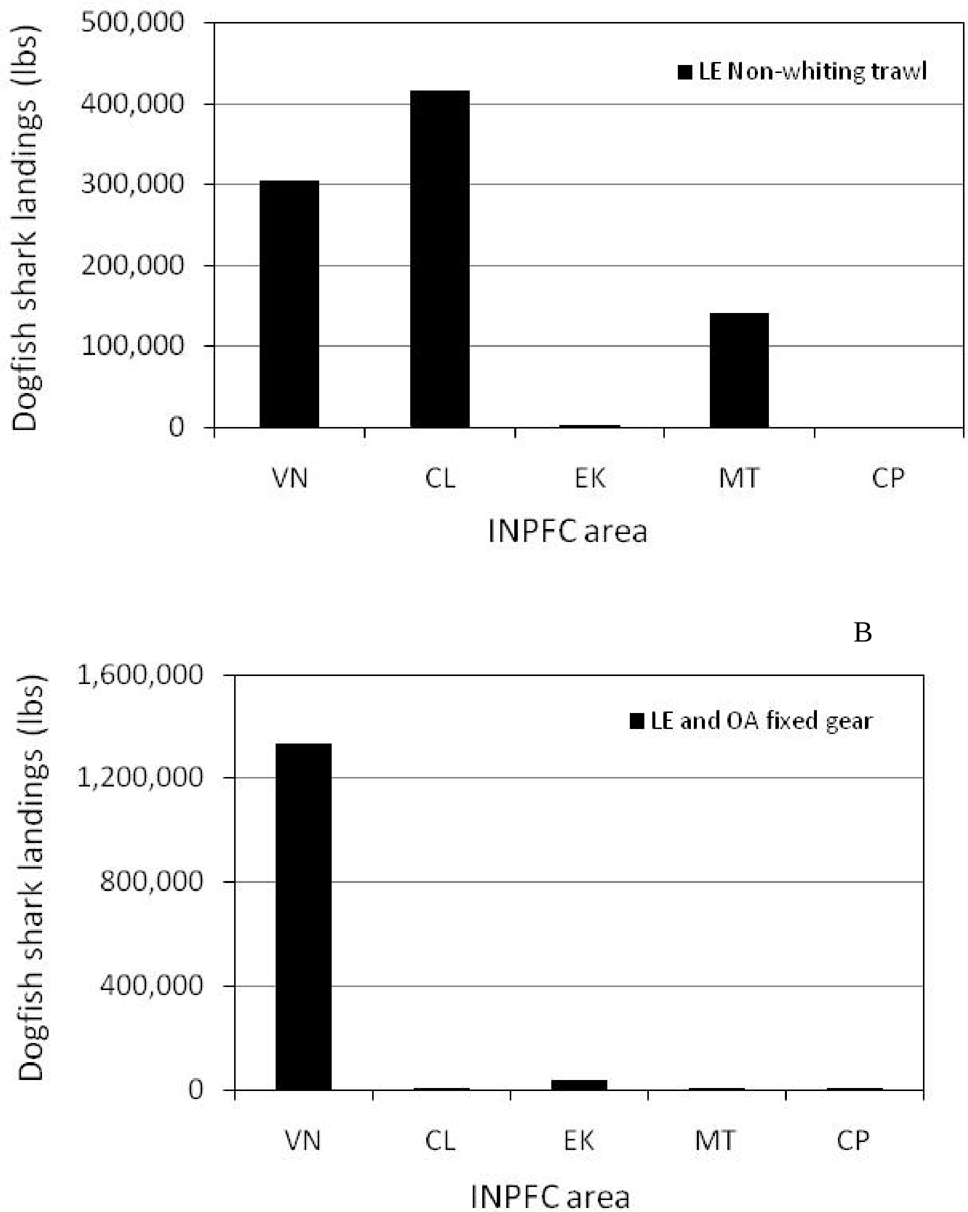
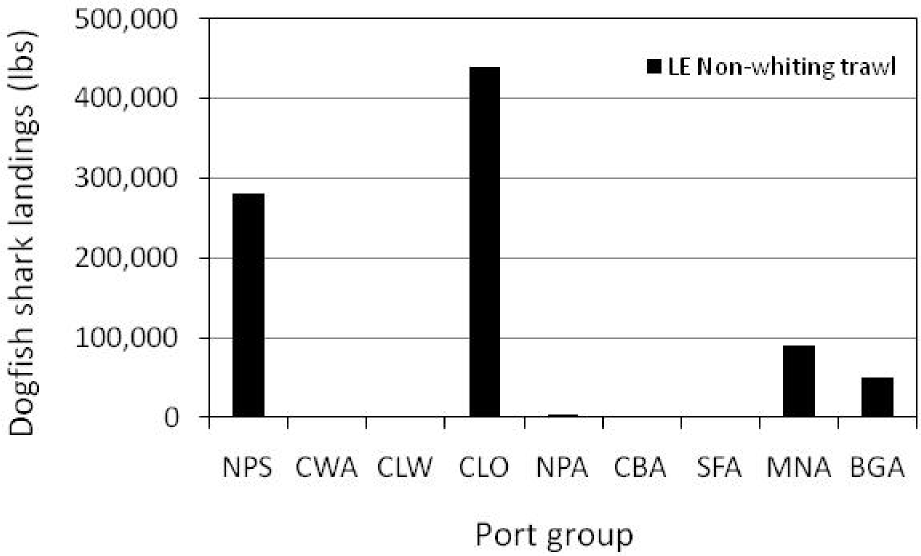


Figure D-31. Dogfish shark landings (lbs.) by International North Pacific Fishery Commission (INPFC) area during 2006-2011 for (A) limited entry non-whiting trawl and (B) limited entry and open access fixed gear fisheries. Data were acquired from PacFIN. INPFC areas are: VN = Vancouver, CL = Columbia, EK = Eureka, MT = Monterey, and CP = Conception.

A



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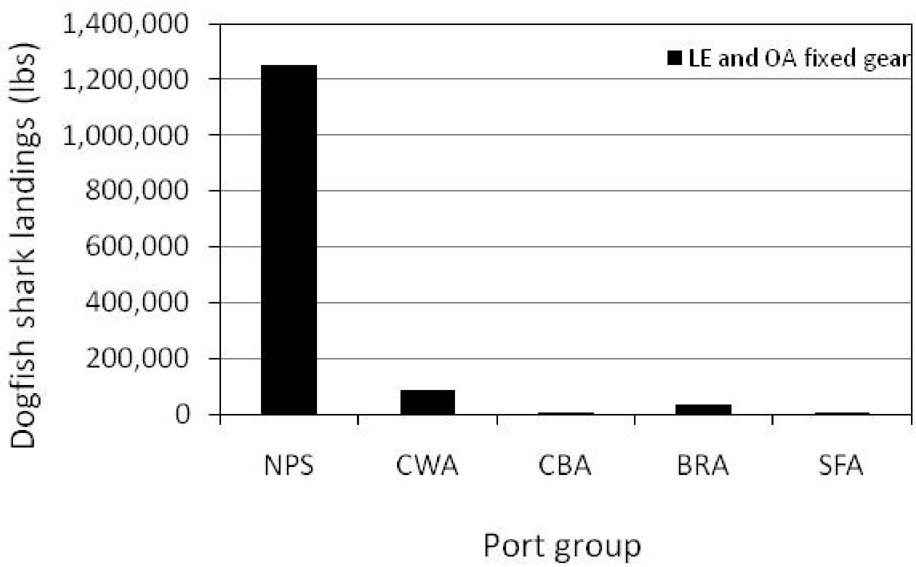

Figure D-32. Dogfish shark landings (lbs.) by port group during 2006-2011 for (A) limited entry non-whiting trawl and (B) open access and limited entry fixed gear. Data were acquired from PacFIN. Port group areas are: BGA = Fort Bragg; BRA = Brookings; CBA = Coos Bay; CLO = Columbia River Oregon Ports; CLW = Columbia River Washington Ports; CWA = Coastal Washington; MNA = Monterey; NPA = Newport; NPS = North Puget Sound; SFA = San Francisco. Port group areas with less than three vessels making landings were omitted for confidentiality.

Basis for and Development of Potential New Management Measures

Management measures already in effect are likely holding the total mortality of dogfish shark lower than would otherwise be observed in their absence. For example, the current RCA structure north of 46°16’ (0 – 100 fm for fixed gear; Table D-72) and north of 48°10’ (0 – 150 or

0-200 fm trawl; Table D-71) prevents fishing by these sectors in areas showing the highest concentrations of dogfish shark along the U.S. west coast (Figure D-28; Table D-75 and Table D-76). Regardless, dogfish shark may require even more restrictive management measures to keep fishing mortality below their 2013-2014 ABC contributions (see Table D-68 and Table D-73; also see Agenda Item E.9.b, GMT Report 2, November 2011). Although landings have been low during recent years (Figure D-29), recent WCGOP total mortality reports suggest that discard and landings of dogfish shark (Table D-68) would exceed the 2013-2014 ABC for the ABC-contribution for dogfish shark (Table D-73). The Other Fish complex ABCs would not be exceeded by recent historical catches.

The markets for dogfish shark have declined in recent years (Gertseva and Taylor 2011), resulting in decreased landings (Figure D-29) and increased discard rates (Figure D-29). Targeting has probably also decreased due to the decreased market for dogfish shark. If markets improve to levels seen in the late 90s and early 2000s (see Gertseva and Taylor 2011), then it is possible that total mortality may increase to even higher levels.

Highest 2010 total mortalities for dogfish shark are shown for limited entry non-whiting trawl, at-sea whiting, non-nearshore fixed gear, and shoreside-whiting trawl fisheries (Figure D-25; Table D-74). Catch (landings + discards) of dogfish shark in the at-sea whiting (277.7 mt) and shoreside whiting (124.6 mt) fisheries is incidental while targeting whiting and represents only 0.3% and 0.2% of the whiting catch, respectively (Bellman et al., 2011). "Trip" limits, even if feasible for these whiting fisheries, would therefore be ineffective for reducing the total mortality of dogfish shark. Trip limits are not feasible for whiting fisheries because (a) the at-sea sector processes their catch prior to landings and (b) the shoreside-whiting sector must immediately immerse their catch at low temperatures in the fish hold to prevent tissue degradation. Thus, most of the discussions and analyses that follow will primarily focus on limited entry non-whiting trawl and limited entry and open access fixed gear fisheries. These fisheries have demonstrated dogfish targeting in the past (see below). If markets develop to recent historic levels, then increased targeting may occur. Depth-area restrictions and other potential management measures may be considered for whiting sectors but are not included within this analysis.

The GMT previously suggested that dogfish shark may be managed using time-area tools, such as trip limits, area closures, and depth restrictions (Agenda Item E.9.b, GMT Report 2, November 2011). This section describes the development and basis for new (or additional) management measures beside (besides No Action). Data from WCGOP and PacFIN were used to develop and evaluate these potential measures and options. Other potential management measures are also discussed.

Trip Limits

Trip limits may effectively reduce total mortality if trip limits (a) discourage targeting, (b) encourage fishermen to move out of or avoid areas with high dogfish shark catch rates and (c) result in trip limit induced discards (instead of landings) if the mortality of discarded dogfish shark is low. It is clear that reducing targeting may reduce total mortality. It is also clear that fishing in areas with lower incidental catch rates may reduce total mortality. However, if trip limits result in discards (rather than landings) without affecting fishers behavior (e.g., selection of fishing location), and if the discard mortality is 100%, then trip limits may simply convert landed mortality into discard mortality at a 1:1 conversion. In this case, total mortality would be unaffected by trip limits. Although the WCGOP had previously assumed 100% discard mortality for dogfish shark (e.g., Bellman et al., 2011), catch monitoring will now assume 100% discard mortality for trawl fisheries and 50% discard mortality for fixed gear fisheries as described by

(Gertseva and Taylor 2011) and recommended by the SSC (Agenda Item F.2.b, REVISED Supplemental SSC Report, March 2012). Under these new discard mortality assumptions, trip limits may be effective for reducing total mortality even if catches are incidental and fishermen behavior does not change because of trip limits (e.g., they do not move from or avoid areas with high dogfish shark catch rates and continue targeting other species while discarding dogfish in excess of trip limits).

Are dogfish shark targeted? It is well known that dogfish shark may form very large and dense schools (see Gertseva and Taylor 2011), and may be targeted if markets exist. It is also common knowledge that large schools may be inadvertently encountered while targeting other groundfish species. The following is an examination of dogfish shark catches to provide insight on the potential level of targeting the level of incidental catches. We caution that this analysis uses historical data and thus may not accurately predict the future, especially if markets and RCAs change.

Catch per haul or set: West coast groundfish observer data show that most hauls where dogfish shark were present in the catch produced less than 500 pounds (trawl) and 250 lbs. (fixed gear) during 2009 and 2010 (Figure D-33). However, hauls frequently exceeded 1,000 lbs. of dogfish shark per haul for both trawl and fixed gear, and reached nearly 12,000 lbs. for both gear types. These data suggest that dogfish shark are most commonly encountered at relatively low volumes, but are occasionally caught in high volumes by both gear types.

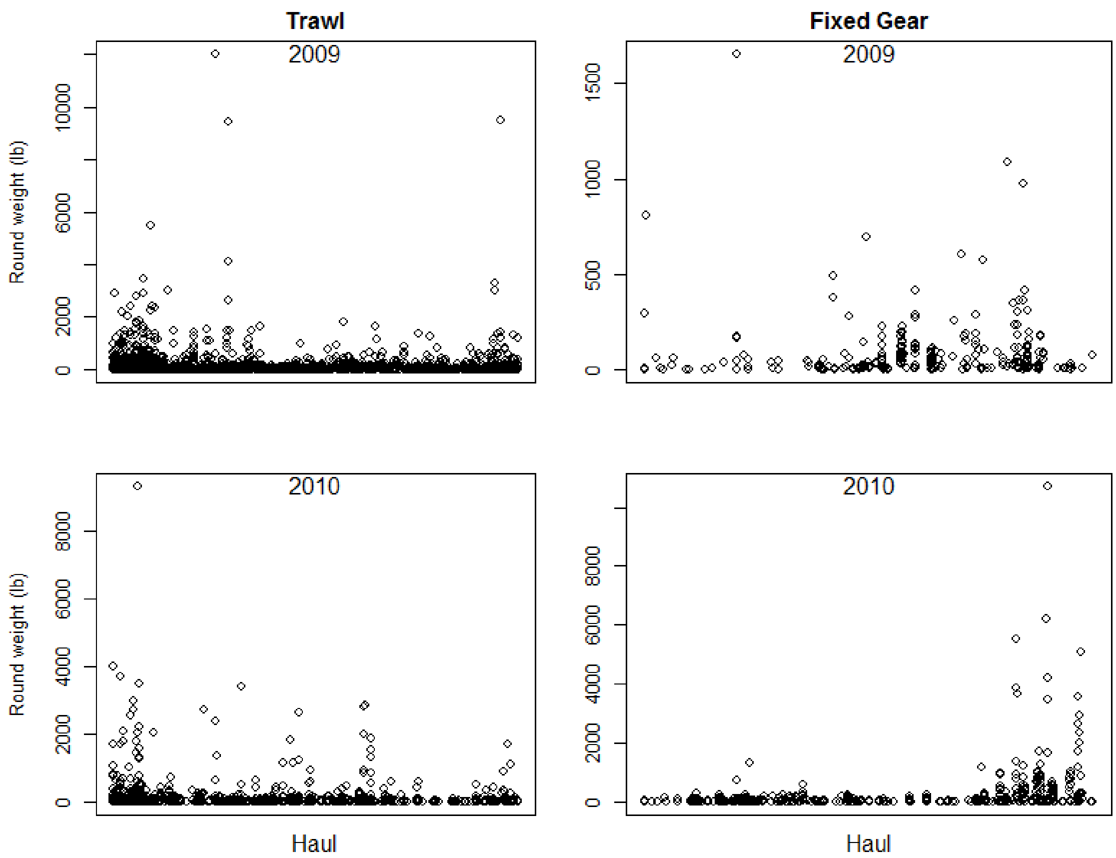

Figure D-33. Dogfish shark catch (lbs.) by haul or set by limited entry non-whiting trawl (Trawl) and limited entry and open access fixed gear (Fixed Gear) during 2009 and 2010. Only positive tows were included. Data were acquired from the WCGOP.

Discard and retention weight per trip: The maximum weight of retained dogfish shark per trip rarely exceeded the maximum weight of those discarded (Figure D-34). Dogfish shark were frequently discarded at levels between 10,000 and 40,000 pounds per trip for both trawl and fixed gear. More than 50,000 pounds of dogfish shark were incidentally caught and discarded on some trips.

The 75th and 50th percentiles (weight) for discarded dogfish per trip are consistently low (i.e., less than 100 – 300 lbs.), meaning that most trips encounter low concentrations of dogfish, and larger catches were relatively rare. The 75th and 50th percentiles (weight) for trips that retained dogfish shark were, in some cases, substantially higher than for trips that discarded dogfish shark during the same years, especially for trawl. These data, although inconsistent across years, suggest that when fishers intend to retain dogfish shark, they may select areas where high catch rates are likely and known.

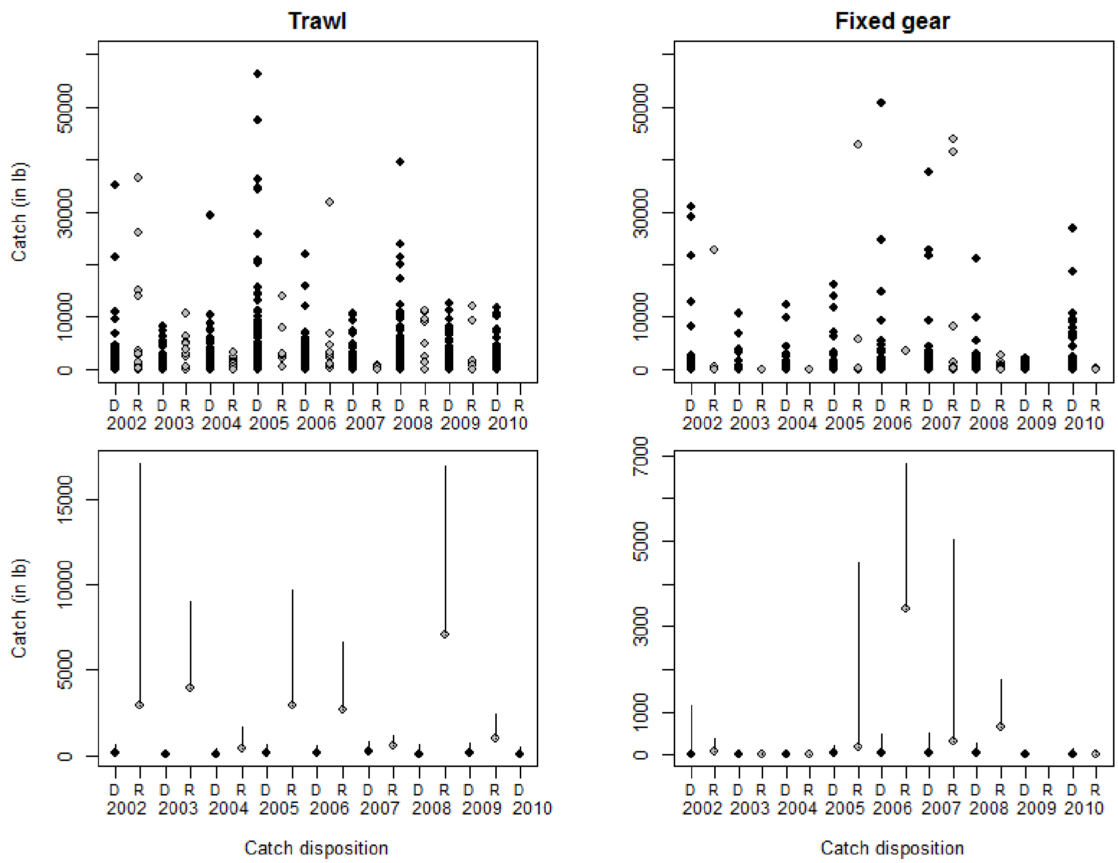

Figure D-34. Spiny dogfish catches by trips (top row) and median (point) and 75% quantile (upper end of vertical bars) catch values (bottom row) in observed trips that discarded (D; black points) or retained (R; gray points) dogfish shark for years 2002-2010 for two gear types (columns).

Although dogfish may be targeted, resulting in large catches, large unintentional catches of dogfish shark also occur. The level of discard shown in Figure D-34 would likely be avoided if possible. Setting longline gear in areas with high concentrations of dogfish shark, while targeting other species, results in bait loss due to dogfish taking the bait or the capture of dogfish shark on baited hooks before the gear reaches the bottom (or soon after). Towing a trawl through schools or high concentrations of dogfish shark would also be unintentional if retention was not planned for many reasons, including (a) the girth, rough skin, and spines of dogfish shark make them extremely susceptible to gilling (i.e., becoming wedged within 4.5" trawl meshes), and may become tightly stuck in almost every mesh of the codend, and (b) dogfish shark are difficult to clear from a deck because of their sandpaper-like skin. Shark are difficult to remove from the deck with a shovel, and therefore must be tossed overboard one at a time when discarding. The incidental capture by trawl and subsequent discard of large amounts shown in Figure D-34 would result in hours of down time due to picking gilled fish from the meshes and clearing the deck.

Figure D-34 indicates that maximum trip size may not be a good indicator dogfish shark retention, because this species is sometimes encountered in very high volumes when retention is not planned. Some targeting may occur, however, as is suggested by the difference between retained and discarded median percentiles (weights) during certain years.

Landing size of dogfish shark relative to other groundfish: Another way to evaluate the level of targeting for dogfish shark is to compare the landed weight of dogfish to the landed weight of all groundfish species by trip (Figure D-35). For limited entry non-whiting trawl (Figure D-35a), most landings of spiny dogfish shark were less than 300 lbs./trip and represented a small percentage of total groundfish landed by those trips. Even for cases where dogfish landings reached 5,000 lbs. per trip, the proportion of the total groundfish landed was often less than 25%, because groundfish landings reached more than 100,000 lbs./trip. In these cases, dogfish were most likely incidentally caught while targeting a suite of groundfish species, but were retained and sold. There were cases for trawl, however, where dogfish shark landings exceeded 20,000 lbs./trip (reaching 50,000 lbs./trip) and where the percent contribution of dogfish shark exceeded 50% of the total groundfish landings (Figure D-35). Approximately 5% of the trawl landings consisted of more than 50% dogfish shark. These infrequent cases may be representative of trips directed at dogfish shark (i.e., targeting).

The relationship between dogfish landings and total groundfish landings for fixed gear fisheries suggests numerous directed dogfish trips during the 2006-2011 period (Figure D-35b). Dogfish shark landings during these trips reached 45,000 pounds; numerous landings (7%) exceeded 10,000 lbs. of dogfish shark. Indeed, groundfish landings that exceeded 10,000 pounds by these fisheries typically consisted almost entirely dogfish shark (Figure D-35b). Approximately 10% of the landings consisted of more than 80% dogfish shark.

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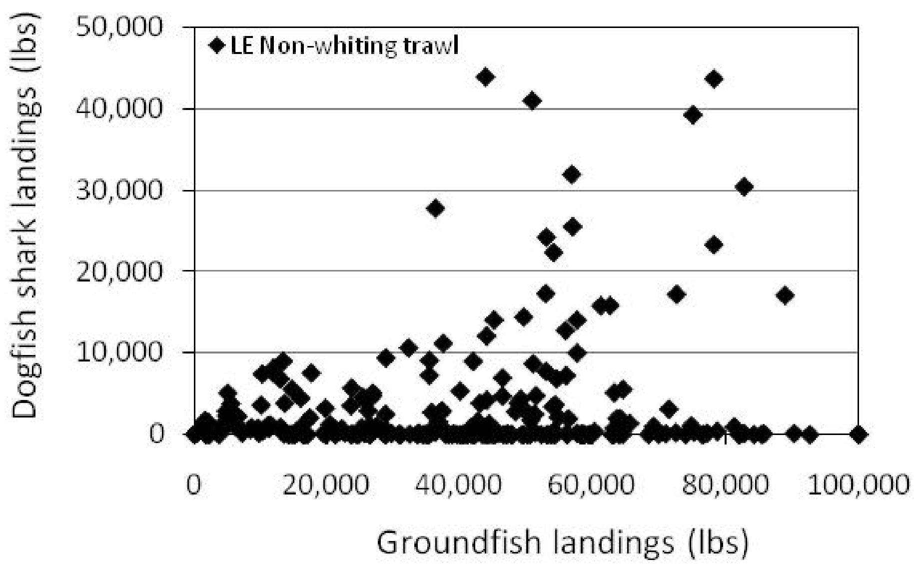

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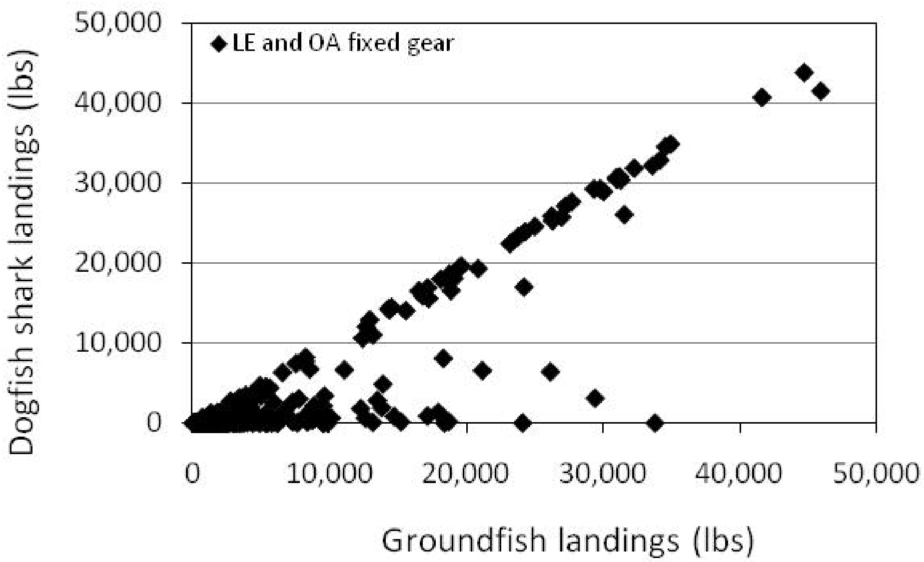


Figure D-35. Relationship between landed weight (pounds) of dogfish shark and the landed weight of all groundfish by trip during 2006-2011 for (A) limited entry non-whiting trawl and (B) limited entry and open access fixed gear. The x-axis for the limited entry non-whiting trawl was truncated at 100,000 lbs. for illustrative purposes, which caused the exclusion of fifteen groundfish landings (all exceeding 100,000 lbs.) and fifteen associated dogfish landings (ranging from 7 – 955 lbs.). Data were acquired from PacFIN.

Bimonthly Landings and Basis for the Selection of Alternative Trip Limits: Bimonthly landings of dogfish shark over nearly a 6-year period (2006 – October 2011) by limited entry non-whiting trawl vessels are shown in Figure D-36. Cumulative bimonthly landings of dogfish shark for limited entry non-whiting trawl ranged from only a few pounds to nearly 72,000 pounds per vessel per bimonthly period. The pattern of bimonthly landings is somewhat linear until approximately 5,000 – 7,000 pounds, where vessels began landing increasingly more dogfish shark relative to the rest of the fleet (i.e., approximate inflection point). Half of the bimonthly landings by limited entry non-whiting trawlers (50th percentile) were less than 588 pounds whereas the 75th percentile of bimonthly landings resulted in 4,752 pounds. The 90th percentile was 20,547 pounds. Three bimonthly trip limit options for the limited entry non-whiting trawl fishery were identified based on approximate 50, 75, and 90 percentiles: 600, 5,000, and 20,000 pounds per bimonthly period.

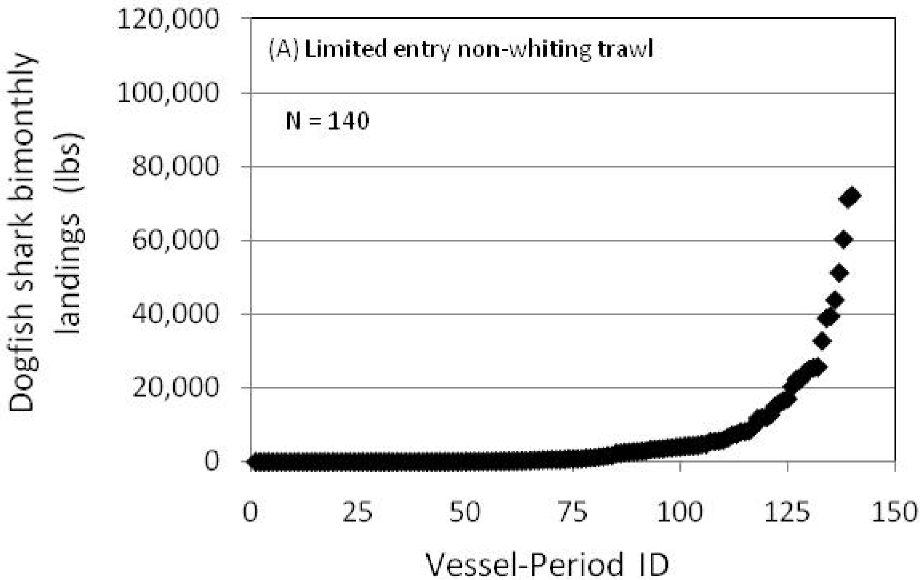


Figure D-36. Bimonthly landings (lbs.) of dogfish shark by vessel and period for 2006 – October 2011 (sorted by bimonthly-landing size) for limited entry non-whiting trawl. Each vessel and landing period (by year) were assigned individual identification numbers (ID) based on landing volume. Landings without dogfish shark were excluded.

Cumulative bimonthly landings of dogfish shark over nearly a 6-year period (2006 – October 2011) by limited entry and open access fixed gear fisheries are shown in Figure D-37. Most (85%) cumulative bimonthly landings were less than 1,000 pounds for the open access fishery, whereas 5% of the bimonthly landings ranged from 5,000 to 74,000 pounds. The 50th percentile for open access fixed gear was 50 lbs.

Cumulative bimonthly landings for the limited entry fixed gear fishery reached nearly 115,000 pounds; seven bimonthly cumulative landings (3%) exceeded 60,000 pounds. The pattern of bimonthly landings for limited entry fixed gear fisheries (primarily non-nearshore fishery) is somewhat linear until approximately 5,000 pounds, when vessels began landing increasingly more longnose skate relative to the rest of the fleet (i.e., approximate inflection point). Half of the bimonthly landings by limited fixed gear vessels (50th percentile) were less than 314 pounds, whereas the 75th percentile of bimonthly landings resulted in 2,245 pounds. The 90th percentile was 17,657 pounds. We therefore identified three bimonthly trip limit options for the open access and limited entry fixed gear sectors based on these approximate 50, 75, and 90 percentiles: 300, 2,500, and 18,000 pounds per bimonthly period.

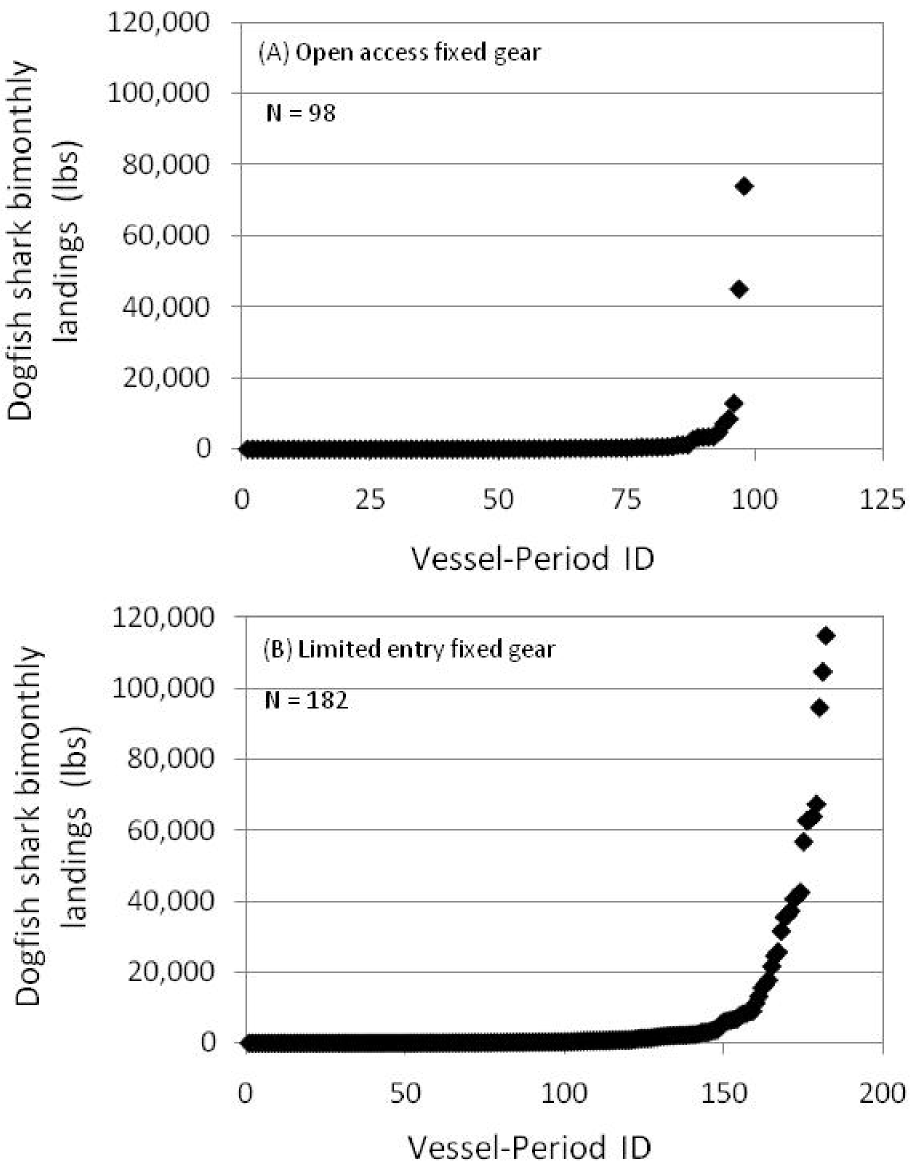


Figure D-37. Bimonthly landings (lbs.) of dogfish shark by vessel and period for 2006 – October 2011 (sorted by bimonthly-landing size) for (A) Open access fixed gear, and (B) limited entry fixed gear. Each vessel and landing period (by year) were assigned individual identification numbers (ID) based on landing volume. Landings without dogfish shark were excluded.

Can trip limits reduce dogfish shark mortality? It is uncertain how any reduction in landings may alter total mortality of dogfish shark, because catch size is not a good predictor of retention (Figure D-34). Even though some targeting occurs when markets are available (Figure D-35), targeting has likely decreased, discarding has increased (Figure D-29), and landings have decreased since 2008 (Figure D-26). If trip limits result in reduced targeting (or moving from areas with high concentrations of dogfish), then some reduction in total mortality may occur. In addition, if mortality of dogfish shark is something less than 100%, then total mortality may be reduced under trip limit management even if trip limits cause discards.

It is clear that current dogfish trip limits (60,000 lbs./month for trawl and 100,000-200,000 lb./2 months for fixed gear; Table D-70) would have had almost no impact on landings over the past 6 years (Figure D-36 and Figure D-37). Two fixed gear landings may have been impacted by the 100,000 lb./2 month limit for that fishery, and no trawl landings would have been affected by the trawl limit. Nonetheless, historical catch data demonstrates that dogfish shark can be targeted and caught with few other groundfish species at high volumes (Figure D-35). Appropriate trip limits may therefore prevent the potential for large-volume targeting, especially for fixed gear fisheries. On the other hand, large amounts of dogfish shark are incidentally caught and discarded (Figure D-34). Therefore, even under trip limits, incidental catch may remain high. In these cases, trip limits may have little effect on most potential encounters and may simply convert landings to discards. It is important to be aware that, at present, most dogfish encountered are discarded even in the absence of effective trip limits.

A reduction in total mortality may occur if some proportion of discarded dogfish shark survives, even if fishing behavior does not change (i.e., fishermen do not change their fishing location and strategy once reaching the trip limit). Although during previous years, catch accounting assumed discard mortality of 100% for dogfish shark (e.g., Bellman et al. 2011), it is likely that some of the fixed-gear caught dogfish survive the discard process. It is unlikely, however, that trawl-caught and discarded dogfish survive, especially when caught in large amounts. Gertseva and Taylor (2011) assumed 50% discard mortality for dogfish shark in the fixed gear fisheries, and 100% mortality for dogfish discarded by trawl fisheries. Effective March 2012, the assumed discard mortality rate for dogfish shark is equal to that assumed by Gertseva and Taylor (2011; Agenda Item F.2.b, REVISED Supplemental SSC Report, March 2012). Hence, trip limits applied to fixed gear fisheries (i.e., non-nearshore fixed gear) will likely reduce mortality even if fishermen behavior does not change.

Commercial catch rates by depth and identification of potential alternatives for depth-area based management

West coast groundfish trawl survey data showed highest densities of dogfish shark north of 47°30' N latitude (Vancouver INPFC Area; Table D-75) at depths less than 100 fm (Table D-76). This survey showed that dogfish shark were also present but less abundant between 100-300 fm, and almost nonexistent at depths > 300 fm (Table D-76). High catch rates have also been shown by IPHC hook and line surveys north of 46° N latitude (Figure D-28). We provide additional information in Table D-77 and Table D-78 from the WCGOP to further elucidate potential depth-area management measures that may reduce dogfish total mortality. Table D-77and Table D-78 suggest that dogfish shark catch rates (CPUE) may be high at much deeper depths than 300 fm, and in some cases, to at least 400 fm. The commercial catch data from WCGOP (Table D-77 and Table D-78) support remaining conclusions drawn from other data sources (e.g., trawl survey and the IPHC hook-and-line survey) - largest catches and CPUEs were generally north of 45°46' N latitude (Table D-76).

Interpretations of Table D-77 and Table D-78 should be made with caution. These represent dogfish shark catches only during observed hauls, therefore, sample sizes are small and may not be representative of the fleet. In addition, RCA structures (current and past) affected catches and may affect interpretations. For example, low catches at some depth strata are reflective of RCA impacts rather than dogfish shark density. This can be seen for trawl where catch may appear bi-modal and low at moderate depths (e.g., 100-200 fm; Table D-77) where RCAs have typically been in regulation throughout much of the 2002-2010 period (see Table D-71). Low catches of dogfish shark due to RCAs are also apparent for fixed gear at depths less than 100 fm (north of 40°10’ N latitude) and depths less than 150 fm (south of 40°10’ N latitude). This demonstrates that the current RCA structure already prevents the capture of dogfish shark over many areas and depths where densities are high. Depths with the least restrictive 2012 RCAs are displayed by gray cells in Table D-77 and Table D-78.

Table D-77. Observed catch (lbs.) of dogfish shark by depth north of 45°46’ N latitude by depth (fm) for fixed gear and trawl sets (or hauls) for 2002-2010. CPUE (lbs./hour) and % of total catch by area are also provided. Some depth bins were collapsed due to confidentiality concerns. Gray shading represents the most liberal 2012 RCA throughout the year for trawl (shoreward and seaward) and fixed gear (seaward). Data were acquired from WCGOP.

	Fixed gear				Trawl			
Area 1	Depth (fm)	Catch (lb.)	%	CPUE	Depth (fm)	Catch (lb.)	%	CPUE
North of 48°10'	0-100	0	0.0	0.00	0-100	279,868	53.6	40.32
	100-150	46,066	25.1	60.49	100-150	191,974	36.8	50.80
	150-200	28,240	15.4	49.19	150-200	49,013	9.4	118.03
	200-250	22,257	12.1	31.42	200-250	220	0.0	3.23
	250-300	32,376	17.6	46.77	250-300	709	0.1	4.45
	300-350	18,070	9.8	55.57	300-350	12	0.0	0.95
	350+	36,557	19.9	113.30	350+	5	0.0	0.77
	Total	183,566				521,800		

Area 2	Depth (fm)	Catch (lb.)	%	CPUE	Depth (fm)	Catch (lb.)	%	CPUE
48°10' - 45°46'	0-50	0	0.0	0.00	0-50	14,692	1.0	6.13
	50-100	6,358	0.9	343.66	50-100	678,475	45.4	20.72
	100-150	264,741	38.5	44.43	100-150	239,244	16.0	43.41
	150-200	200,465	29.2	31.26	150-200	62,063	4.2	33.91
	200-250	110,152	16.0	30.16	200-250	311,495	20.8	28.76
	250-300	67,221	9.8	42.41	250-300	122,284	8.2	14.90
	300-350	6,928	1.0	12.91	300-350	55,518	3.7	9.65
	350-400	4,836	0.7	49.90	350-400	10,319	0.7	5.57
	400+	26,735	3.9	81.95	400-450	621	0.0	1.54
					450-500	178	0.0	1.67
					500+	188	0.0	1.73
	Total	687,436				1,495,075		

Table D-78. Observed catch (lbs.) of dogfish shark by depth south of 45°46’ N latitude by depth (fm) for fixed gear and trawl sets (or hauls) for 2002-2010. CPUE (lbs./hour) and % of total catch by area are also provided. Some depth bins were collapsed due to confidentiality concerns. Gray shading represents the most liberal 2012 RCA throughout the year for trawl (shoreward and seaward) and fixed gear (seaward). Data were acquired from WCGOP.

	Fixed gear				Trawl			
Area 3	Depth (fm)	Catch (lb.)	%	CPUE	Depth (fm)	Catch (lb.)	%	CPUE
45°46 - 40°10	0-150	19,035	20.9	9.59	0-100	46,327	9.2	4.68
	150-200	44,160	48.6	7.29	100-150	41,547	8.2	8.66
	200-250	23,028	25.3	5.26	150-200	25,418	5.0	22.39
	250-300	3,985	4.4	4.27	200-250	295,398	58.5	19.18
	300+	661	0.7	1.92	250-300	76,364	15.1	6.97
					300-350	18,155	3.6	3.64
					350-400	944	0.2	1.27
					400-450	350	0.1	1.10
					450-500	158	0.0	1.14
					500-550	88	0.0	1.06
					550-500	32	0.0	0.83
					600+	26	0.0	1.27
	Total	90,870				504,807		

Area 4	Depth (fm)	Catch (lb.)	%	CPUE	Depth (fm)	Catch (lb.)	%	CPUE
South of 40°10'	0-100	963	7.3	2.26	0-50	15,356	4.0	2.45
	100-150	0	0.0	0.00	50-100	49,910	13.0	5.37
	150-200	382	2.9	6.12	100-150	133,889	34.8	38.67
	200-250	6,132	46.7	7.89	150-200	40,335	10.5	20.78
	250-300	2,456	18.7	3.43	200-250	118,243	30.8	34.07
	300-350	1,441	11.0	1.13	250-300	22,564	5.9	8.55
	350-400	1,255	9.6	2.93	300-350	3,396	0.9	3.25
	400-450	126	1.0	1.05	350-400	459	0.1	1.33
	450-500	102	0.8	1.59	400+	88	0.0	0.59
	500-550	72	0.5	0.52				
	550-600	52	0.4	1.09				
	600+	142	1.1	0.79				
	Total	13,123				384,239		

Depth restrictions in addition to current No Action RCAs (see Table D-71 and Table D-72) may reduce the catch (or catch rates) of dogfish shark relative to No Action. For trawl, 21-59% of the observed dogfish shark catch occurred between 200 and 250 fm south of 48^{o}10' N latitude (Table D-77 and Table D-78) during 2002-2010. These depths also exhibited relatively high CPUEs (20-34 lbs./hour). Extending the seaward trawl RCA from 150/200 fm to 250 fm would likely reduce dogfish shark encounters. Actions could also be taken shoreward of the RCA to reduce catches (or catch rates) of dogfish shark; 45% of the dogfish shark caught between 45^{o}46' and 48^{o}10' N latitude was at 50-100 fm during 2002-2010 (Table D-77); CPUE in this area was (21 lbs./hour) and ranked third among currently open depth strata. The shoreward trawl RCA was typically 75 fm in this area (Table D-71), which suggests that moving the trawl RCA from 75 to 50 fm may reduce catch (or catch rates) of dogfish shark considerably.

As shown for trawl, depth-area restrictions may also result in reduced encounters of dogfish shark by fixed gear sectors. Fixed gear RCAs have typically extended to 100 fm north of 40^{o}10 N latitude since 2002 (Table D-71). Extending the seaward RCA from 100 fm to 150 fm north of 45^{o}46' N latitude may result in substantial reductions of dogfish shark encounters. For example, the 2002-2010 observed catches of dogfish shark were high (25-39% of the total catch) in this 100-150 fm depth range in the areas north of 45^{o}46' N latitude; Table D-77). Implementation of a 150 fm RCA (northern areas) may therefore reduce catches of dogfish shark for these sectors.

There is uncertainty regarding the level of savings (i.e., reduction in total mortality) that may occur by extending the seaward RCAs (i.e., trawl to 250 fm and fixed gear to 150 fm). Dogfish shark are incidentally caught while fishers target other species (Figure D-35). Moving the RCA deeper may require fishers to target the other groundfish species (e.g., sablefish for fixed gear) at more restrictive depths and potentially less productive grounds, while continuing to catch dogfish shark incidentally. Dogfish shark are still abundant seaward of 150 and 250 fm (Table D-77 and Table D-78). Because catch rates for target species may decrease if the most productive fishing grounds are closed, fishing effort (towing hours) may increase in order to attain the quota pounds of target species (under the IFQ fishery), tier limits (for the limited entry sablefish fishery), and bimonthly trip limits for "daily trip limit" sablefish fisheries. This increased fishing effort could ultimately eliminate any potential savings of dogfish shark by moving the seaward RCA to 200 or 250 fm.

The WCGOP observer data demonstrates that, in some cases, the catch and CPUE for dogfish shark may be high at depths exceeding 300 fm. Extending RCAs beyond 300 is not analyzed herein, because the impacts to communities would likely be severe relative to No Action. Hence, only three relatively moderate RCA change will be analyzed herein: (a) move the shoreward trawl RCA from 75 fm to 50 fm between 45^{o}46 to 48^{o}10' N latitude, (b) move the seaward trawl RCAs from 150 fathoms to 200 fathoms north of 48^{o}10' and from 150/200 fathoms to 250 fathoms south of 48^{o}10' N latitude, and (c) move the seaward fixed gear RCA from 100 to 150 fm north of 45^{o}46' N latitude.

Note that there are numerous potential RCA alternatives that could be analyzed, depending on objectives and need. For example, another viable alternative may be to move the seaward trawl RCA to 200 fathoms coastwide, or 200 fathoms during all periods north of 45^{o}46' where dogfish concentrations are highest. The impacts would be less severe than shown for the analyzed alternatives, but may provide the reduction in total mortality that is desired. The alternatives analyzed here are illustrative to promote discussion that may narrow the focus and improve the applicability of these analyses.

Comparison of Management Options

No Action

No Action management measures are shown for dogfish shark in Table D-70, Table D-71, and Table D-72. Trip limits would remain high (60,000 lbs. / month for shoreside trawl and 150,000-200,000 /2 months for fixed gear), and RCAs shown for 2012 would remain in place for non-whiting trawl and fixed gear sectors. No Action for at-sea whiting fisheries include no trip limits and no RCA restrictions. The No Action dogfish shark management measures would remain in place and could be modified inseason through routine management measures to slow landings if necessary.

Under No Action, dogfish shark would continue to be sorted and reported to species on state landing reports and federal fish tickets. Historical discard rates would be used inseason for catch projections and the basis for trip limit adjustments. Catch estimates would be revised post season using landed catch as reported to PacFIN combined with observer based discard rates provided by WCGOP and specific to the fishing year. The determination of total fishing mortality relative to the harvest specifications would be evaluated post season for all fisheries.

Biological Impacts: Under No Action, one can assume that total catch and discards of dogfish would be similar to recent historical levels. Assuming 50% discard mortality for fixed gear and 100% discard mortality for trawl, total fishing mortality from 2006 – 2010 ranged from 1,032 – 2,393 mt; Table D-68). The total mortality observed in 2008 would exceed the 2013 and 2014 preferred component ABC (2,044 and 2,024 mt respectively; Table D-73), whereas the total mortalities observed during the other 4 of 5 years would be less than the preferred component ABC for dogfish shark. Hence, biological impacts may be significant under No Action if maximum recent historical catch rates occur.

Socio-economic Impacts:

Affected Fisheries: The primary fisheries affected by No Action trip limits and RCAs are limited entry non-whiting trawl, limited entry non-nearshore fixed gear, and open access non-nearshore fixed gear. These fisheries accounted for approximately 63% of the dogfish shark total mortality in 2010 (Figure D-25; Table D-74). Although most total mortality of dogfish shark is caused by the limited entry bottom trawl fishery (43% in 2010), management measures applied to the non-nearshore fixed gear, which accounted for 21% of the total mortality in 2010), may help reduce total mortality. Area closures, if deemed necessary, may be considered for at-sea and shore-side whiting fisheries, which accounted for 23% and 10% of the dogfish total mortality in 2010 (Figure D-25; Table D-74). Even though these fisheries may fish within RCAs, area restrictions may be applied if deemed necessary to reduce bycatch. Other sectors showed relatively little impact on dogfish total mortality during 2010. It should be pointed out, however, that Washington Tribal fisheries have encounter substantial amounts of dogfish shark during certain years; set asides for Tribal fisheries should be high enough to take into account recent catches (e.g., 303 mt was taken by Tribal fisheries in 2008; Table D-74).

Sector-specific allocations (**Tables 2-11 and 2-12)**, and the potential for exceeding those allocations under No Action management measures are shown in Table D-79. Expected total mortalities shown in Table Y1 were the minimum and maximum total mortalities between 2006 – 2010 (Hastie and Bellman 2007; Bellman et al. 2008, 2009, 2010, and 2011) adjusted assuming 50% discard mortality for the non-trawl sector. If allocations are projected to be exceeded, then sector-specific trip limits or other management measures may be needed (see options below). In this case, the shore-side trawl sector may exceed its allocation under No Action management measures, whereas recent catches suggest that the non-trawl and at-sea whiting sectors may not exceed allocations or set-asides. Hence, additional management measures may be needed to reduce total mortality for shoreside trawl fisheries under No Action.

Table D-79. 2013 and 2014 dogfish shark preliminary preferred allocations for shoreside trawl, non-trawl, and non-tribal at-sea whiting sectors (also see Tables 2-11 and 2-12, DEIS). Expected range of total mortality by sector is shown for comparison (minimum and maximum). Expected mortality was calculated using historical total mortality data 2006 – 2010) presented by 2009 and 2010 by Hastie and Bellman (2007) and Bellman et al. (2008-2011) and adjusted assuming 50% discard mortality for non-trawl sectors.

Year	Sector	PPA Allocation (mt)	No Action sector total mortality
2013	Shoreside trawl[a]	770	645 – 1,082
	Non-trawl	434.5	132 - 377
	Non-tribal at-sea whiting	534	23 - 513
2014	Shoreside trawl	755	645 – 1,082
	Non-trawl	429.5	132 - 377
	Non-tribal at-sea whiting	534	23 - 513

[a]Total mortality ranged from 520 – 1,023 mt for non-whiting trawl and 16 - 125 mt for shoreside whiting.

Distribution of Fishery Effort: Approximately 92% of dogfish shark total mortality by limited entry non-whiting trawl and non-nearshore fixed gear fisheries occur north of 40°10' N latitude (Figure D-27); most dogfish shark landings occur in the Vancouver INPFC area (97%) for fixed gear fisheries and the Vancouver (35%) and Columbia (48%) INPFC areas for limited entry non-whiting trawl. Some non-whiting trawl landings of dogfish shark also occurred in the Monterey INPFC area (16%).

Importance to port groups/communities: Dogfish shark may be delivered almost exclusively by directed-dogfish trips or as a portion of mixed groundfish landings (see Figure D-35). Dogfish typically represents a small fraction of the total groundfish landings when delivered with other groundfish. Because most dogfish shark encountered are discarded, the total annual landings by non-nearshore and by limited entry non-whiting trawl fisheries have been relatively small, especially during recent years (107 mt and 70 mt during 2009 and 2010, respectively; Figure D-29).

Fixed gear deliveries of dogfish shark during 2006-2011 were almost exclusively made in Washington at Northern Puget Sound area ports (90%; Figure D-32, Table D-80). Trace fixed gear landings were also made in Coos Bay, Brookings, San Francisco, and other area ports. Dogfish shark caught by limited entry non-whiting trawl were primarily landed at North Puget

Sound (32%) and Columbia River Oregon (51%) area ports (Figure D-32; Table D-70). Fort Bragg and Monterey area ports received 6% and 11% of the trawl landings during the 2006-2011 period.

The ex-vessel value of dogfish shark by port group are shown in Table D-80. Landings from January 2006 – October 2011 (= 5.83 years) were averaged as annual landings (i.e., by dividing the total landed weight by 5.83). Landings were then converted to value by multiplying by the average sector-specific landed weight (pounds; Table D-80) by the annual average price per pound shown in Figure D-30. The average revenue, calculated using this method, was $42,964 for limited entry non-nearshore trawl and $49,932 for limited entry and open access fixed gear (Table D-80). Top two average annual revenues by gear/sector ranged from $13,920 (North Puget Sound area ports) to $21,827 (Columbia River Oregon area ports) for trawl and $3,094 (Coos Bay area ports) to $45,083 (Northern Puget Sound area ports) for fixed gear (Table D-80).

Table D-80. Revenue and percent contribution of dogfish shark landings by port group area. Annual-landed weights were calculated by averaging the 2006 – October 2011 landings. Gear/sectors are: LE Trawl = limited entry non-whiting trawl; Fixed Gear = limited entry and open access groundfish fixed gear. Port group areas are: BGA = Fort Bragg; BRA = Brookings; CBA = Coos Bay; CLO – Columbia River Oregon; MNA = Monterey; NPS = North Puget Sound;. Other port groups were combined into "Remaining". The number of remaining port groups were 7 for LE trawl and 10 for fixed gear.

Gear/sector	Port-area group	2006-2011 Weight landed (lbs.)	2006-2011 Average Percent by area	Annual weight landed (Average; lbs.)	2006-2011 Average price per pound ($)	Average annual revenue ($)
LE Trawl	NPS	279,835	32.4%	47,999	0.29	$13,920
	CLO	438,789	50.8%	75,264	0.29	$21,827
	MNA	90,581	10.5%	15,537	0.29	$4,506
	BGA	49,215	5.7%	8,442	0.29	$2,448
	Remaining	5,302	0.6%	909	0.29	$264
	TOTAL	863,722	100.0%	148,151	0.29	$42,964
Fixed gear	NPS	1,251,593	90.3%	214,681	0.21	$45,083
	CBA	85,909	6.2%	14,736	0.21	$3,094
	BRA	35,512	2.6%	6,091	0.21	$1,279
	Remaining	13,201	1.0%	2,264	0.21	$476
	TOTAL	1,386,215	100.0%	237,773	0.21	$49,932

Options 1 - 7

Under all non-whiting management options, dogfish shark would continue to be sorted and reported to species on state landing reports and federal fish tickets. Inseason catch accounting and basis for trip limit and/or RCA adjustments will be made using: (a) historical discard rates with near real-time bycatch updates from the WCGOP observer program for the IFQ fishery to improve precision as the year proceeds and/or (b) historical discard amounts (e.g., average annual discard beginning 2006) added to landings data provided by PacFIN. Catch estimates would be revised post season using landed catch as reported to PacFIN combined with observer based discard amounts provided by WCGOP and specific to the fishing year. The determination of total fishing mortality relative to the harvest specifications would be evaluated post season for all fisheries.

Option 1 – High Trip Limit: Reduce the dogfish shark trip limit (a) from 60,000 lbs./month to 20,000 lbs./2 months for non-whiting trawl and (b) from 100,000-200,000 lbs./2 months to 18,000 lbs./2 months for limited entry and open access fixed gear.

Landings and lost revenue under Option 1 (high-trip limit) relative to No Action are shown in Table D-81 for dogfish shark (trawl and fixed gear) . In this case, trip limits were 20,000 pounds/2 months for limited entry non-whiting trawl and 18,000 pounds/2 months for fixed gear sectors. These trip limits represent the 90th percentile for landings by the limited entry non-whiting trawl fishery and the limited entry fixed gear fishery.

Table D-81. Option 1 "high" trip limits for dogfish shark and potential landings and lost revenue relative to No Action. Trip limits were selected based on the 90th percentile of landings over the period 2006 – October 2011 (see Figure D-36Figure D-37). Annual-landed weights were calculated by averaging the 2006 – October 2011 landings (see above). Average price per pound (2006-2011) used to estimate value was $0.29 for trawl and $0.21 for fixed gear. Gear/sectors are: LE Trawl = limited entry non-whiting trawl; OA FG = open access fixed gear (groundfish); LE FG = limited entry fixed gear (groundfish).

Gear/sector & Option	Trip limit (lbs.)	2006-2011 bimonthly trip limits exceeded (%)	2006-2011 pounds in excess of trip limit (%)	No Action average annual landings (lbs.)	Option 1 average annual landings (lbs.)	Option 1 average amount discarded or avoided due to trip limits (lbs.)	Option 1 average annual revenue lost ($)
No Action							
OA FG	100,000 /2 mos	0%	0%	31,643			
LE FG	100,000 /2 mos	0%	0%	206,677			
LE Trawl	60,000 /mo	0%	0%	148,371			
TOTAL				386,691			
Option 1							
OA FG	18,000 /2mo	2.0%	45%		17,418	14,225	$2,987
LE FG	18,000 /2mos	9.9%	53%		96,663	110,014	$23,103
LE Trawl	20,000 /2 mos	10.7%	32%		101,200	47,171	$13,680
TOTAL					215,281	171,410	$39,770

Biological Impacts: Overall, this alternative may reduce landings by 171,410 pounds (78 mt), or 44% for limited entry non-whiting trawl and limited entry and open access fixed gear fisheries landings. If fishers behavior remained unchanged, and assuming discard mortality were 100% for trawl and 50% for non-trawl, then total mortality would be reduced by 62,195 pounds (28 mt). Total mortality would be reduced even more (to 171,410 pounds or 78 mt) if this trip limit caused fishermen to reduce targeting or avoid fishing in areas with high concentrations of dogfish shark (i.e., so that no additional discarding were caused by trip limits. The biological significance of this trip limit relative to No Action is of little to no biological significance.

The maximum expected mortality under Option 1 would exceed the 2013 and 2014 ABC (2,044 and 2,024 mt, respectively).

Socio-economic Impacts: Approximately 10% of the limited entry fixed gear and limited entry non-whiting trawl bimonthly landings (by number) may be affected by Option 1 trip limits (18,000 and 20,000 lbs./2 mos, respectively), whereas only 2% of the bimonthly landings by the open access fishery would be affected by 18,000 lb./2 month cumulative trip limits (Figure

D-36and Figure D-37; Table D-81). Reducing trip limits from 60,000 lbs./month 20,000 lbs./2 months for the limited entry non-whiting trawl sector may reduce landed pounds for that sector by 32% (= 47,171 pounds or 21 mt) relative to No Action. Reducing trip limits from 100,000-200,000 lbs./2 months to 18,000 pounds/2 months for fixed gear sectors could reduce landed pounds by 53% for the limited entry fixed gear sector (= 110,014 pounds or 50 mt reduction relative to No Action) and 45% for the open access fixed gear sector (14,225 pounds or 7 mt relative to No Action).

The estimated value of dogfish shark revenue forgone under this Option 1 relative to No Action is $39,770. Washington port groups (Northern Puget Sound) and Oregon port groups (Columbia River Oregon) would be most impacted by dogfish shark trip limits (Table D-80).

The only sector that may require trip limits to keep its mortality below its allocation is the shoreside fishery (Table D-82). Trip limits described under Option 1 may not keep the total mortality by this sector (expected range = 624 – 1,082 mt) below its preliminary preferred allocation; expected mortality was reduced 0 – 21 mt relative to No Action. Note that the maximum expected mortality represents (a) the largest encounter rate during a five year period (2006-2010) and (b) assumes that fishermen behavior does not change and all forgone landings are converted to 100% discard mortality. The maximum mortality shown for the non-whiting trawl may also be reduced by 21 mt (to 1,062 mt) if all of the forgone landings were avoided rather than discarded. The expected mortality for the non-trawl sector, reduced 25 – 50 mt relative to No Action, remains below the sector allocation (as it was under No Action). Finally, the expected mortality for at-sea whiting remains the same as shown for No Action, because trip limits were not analyzed for that sector.

Table D-82. Expected range of total mortality by sector under Option 1, along with 2013 and 2014 preliminary preferred allocations and set-asides shoreside trawl, non-trawl, and at-sea whiting sectors (also see Tables 2-11 and 2-12) for comparison. Expected mortality was initially calculated by using historical catch and discard presented for 2006 – 2010 by Hastie and Bellman (2007) and Bellman et al. (2008, 2009, 2010, and 2011), but adjusted assuming 100% discard mortality for trawl and 50% discard mortality non-trawl gear (see **Table D-81**). Additional savings due to trip limits were subtracted from these total mortality estimates as minimum savings (all lost landings due to trip limits were assumed to be caught and discarded, with 50 – 100% discard mortality rates) or maximum savings (all lost landings due to trip limits were assumed to be avoided, resulting in 0% mortality of the forgone landings). The range of sector-specific mortalities under Option 1 were calculated as: Minimum Expected Mortality = (Minimum No Action Total Mortality) – (Maximum Savings); Maximum Expected Mortality = (Maximum No Action Mortality) – (Minimum Savings).

Year	Sector	PPA Allocation (mt)	Option 1 sector total mortality
2013	Shoreside trawl[a]	770	624 – 1,082
	Non-trawl	434.5	75 - 349
	Non-tribal at-sea whiting	534	23 - 513
2014	Shoreside trawl	755	624 – 1,082
	Non-trawl	429.5	75 - 349
	Non-tribal at-sea whiting	534	23 - 513

Option 2 – Moderate-to-Low Trip Limit: Reduce the dogfish shark trip limit (a) from 60,000 lbs./month to 5,000 lbs./2 months for non-whiting trawl and (b) from 100,000-200,000 lbs./2 months to 2,500 lbs./2 months for limited entry and open access fixed gear.

Landings and lost revenue under Option 2 relative to No Action(moderate-to-low trip) are shown in Table D-83 for dogfish shark (trawl and fixed gear). In this case, trip limits were 5,000 pounds/2 months for limited entry non-whiting trawl and 2,500 pounds/2 months for fixed gear sectors. These trip limits represent the 75th percentile for landings by the limited entry non-whiting trawl fishery and the limited entry fixed gear fishery.

Table D-83. Option 2 "moderate-to-low" trip limits for dogfish shark and potential landings and lost revenue relative to No Action. Trip limits were selected based on the 75th percentile of landings over the period 2006 – October 2011 (see Figure D-36Figure D-37). Annual-landed weights were calculated by averaging the 2006 – October 2011 landings (see above). Average price per pound (2006-2011) used to estimate value was $0.29 for trawl and $0.21 for fixed gear. Gear/sectors are: LE Trawl = limited entry non-whiting trawl; OA FG = open access fixed gear (groundfish); LE FG = limited entry fixed gear (groundfish).

Gear/sector & Option	Trip limit (lbs.)	2006-2011 bimonthly trip limits exceeded (%)	2006-2011 pounds in excess of trip limit (%)	No Action average annual landings (lbs.)	Option 2 average annual landings (lbs.)	Option 2 average amount discarded or avoided due to trip limits (lbs.)	Option 2 verage annual revenue lost ($)
No Action							
OA FG	100,000 /2 mos	0%	0%	31,643			$
LE FG	100,000 /2 mos	0%	0%	206,677			
LE Trawl	60,000 /mo	0%	0%	148,371			
TOTAL				386,691			
Option 2							
OA FG	2,500 /2mo	11.2%	77%		7,365	24,278	$5,098
LE FG	2,500 /2mos	22.5%	86%		28,386	178,292	$37,441
LE Trawl	5,000 /2 mos	24.2%	69%		46,032	102,339	$29,678
TOTAL					81,783	304,909	$72,217

Biological Impacts: Overall, this alternative may reduce landings by 304,909 pounds (138 mt), or 79% for limited entry non-whiting trawl and limited entry and open access fixed gear fisheries landings. If fishers behavior remained unchanged, and assuming discard mortality were 100%, for trawl and 50% for non-trawl, then total mortality may be reduced by 102,275 pounds (47 mt). Total mortality would be reduced even more (to 304,909 pounds or 138 mt) if this trip limit caused fishermen to reduce targeting or avoid fishing in areas with high concentrations of dogfish shark (i.e., so that no additional discarding were caused by trip limits). The biological significance of this trip limit relative to No Action may have some biological significance if conditions remain the same.

The maximum expected mortality under Option 2 would exceed the 2013 and 2014 ABC (2,044 and 2,024 mt, respectively).

Socio-economic Impacts: Approximately 23-24% of the limited entry fixed gear and limited entry non-whiting trawl bimonthly landings (by number) may be affected by the Option 2 trip limits (2,500 and 5,000 lbs./2 mos, respectively), whereas 11% of the open access bimonthly landings may be affected by 2,500 lb./2 month cumulative trip limits (Table D-83; Figure D-36 and Figure D-37). Reducing trip limits from 60,000 lbs./month to 5,000 lbs./2 months for the limited entry non-whiting trawl sector may reduce landed pounds for that sector by 69% (= 102,339 pounds or 46 mt) relative to No Action. Reducing trip limits from 100,000-200,000 lbs./2 months to 2,500 pounds/2 months for fixed gear sectors could reduce landed pounds by 86% for the limited entry fixed gear sector (178,292 pounds or 81 mt reduction relative to No Action) and 77% for the open access fixed gear sector (24,278 pounds or 11 mt reduction relative to No Action).

The estimated value of dogfish shark revenue forgone under this Option 2 relative to No Action is $72,217. Washington port groups (Northern Puget Sound) and Oregon Port Groups (Columbia River Oregon) would be most impacted by dogfish shark trip limits (Table D-80).

The only sector that may require trip limits to keep its mortality below its allocation is the shoreside fishery (Table D-84). Trip limits described under Option 2 may not keep the total mortality by this sector (expected range = 599 – 1,082 mt) below its preliminary preferred allocation; expected mortality was reduced 0 – 46 mt relative to No Action. Note that the maximum expected mortality represents (a) the largest encounter rate during a five year period (2006-2010) and (b) assumes that fishermen behavior does not change and all forgone landings are converted to 100% discard mortality. The maximum mortality shown for the shoreside trawl may also be reduced by 46 mt (to 1,036 mt) if all of the forgone landings were avoided rather than discarded. The expected mortality for the non-trawl sector, reduced 46 – 92 mt relative to No Action, remains below the sector allocation (as it was under No Action). Finally, the expected mortality for at-sea whiting remains the same as shown for No Action, because trip limits were not analyzed for that sector.

Table D-84. Expected range of total mortality by sector under Option 2, along with 2013 and 2014 preliminary preferred allocations and set-asides shoreside trawl, non-trawl, and at-sea whiting sectors (also see Tables 2-11 and 2-12) for comparison. Expected mortality was initially calculated by using historical catch and discard presented for 2006 – 2010 by Hastie and Bellman (2007) and Bellman et al. (2008, 2009, 2010, and 2011), but adjusted assuming 100% discard mortality for trawl and 50% discard mortality non-trawl gear (see **Table D-81**). Additional savings due to trip limits were subtracted from these total mortality estimates as minimum savings (all lost landings due to trip limits were assumed to be caught and discarded, with 50 – 100% discard mortality rates) or maximum savings (all lost landings due to trip limits were assumed to be avoided, resulting in 0% mortality of the forgone landings). The range of sector-specific mortalities under Option 1 were calculated as: Minimum Expected Mortality = (Minimum No Action Total Mortality) – (Maximum Savings); Maximum Expected Mortality = (Maximum No Action Mortality) – (Minimum Savings).

Year	Sector	PPA Allocation (mt)	Option 2 sector total mortality
2013	Shoreside trawl	770	599 – 1,082
	Non-trawl	434.5	40 - 331
	Non-tribal at-sea whiting	534	23 - 513
2014	Shoreside trawl	755	599 – 1,082
	Non-trawl	429.5	40 - 331
	Non-tribal at-sea whiting	534	23 - 513

Option 3 – Low Trip Limit: Reduce the dogfish shark trip limit (a) from 60,000 lbs./month to 600 lbs./2 months for trawl and (b) from 100,000-200,000 lbs./2 months to 300 lbs./2 months for limited entry and open access fixed gear.

Landings and lost revenue under Option 3 (low trip limit) relative to No Action are shown in Table D-85 for dogfish shark (trawl and fixed gear) . In this case, trip limits were 600 pounds/2 months for limited entry non-whiting trawl and 300 pounds/2 months for fixed gear sectors. These trip limits represent the 50^{th} percentile for landings by the limited entry non-whiting trawl fishery and the limited entry fixed gear fishery.

Table D-85. Option 3 “low” trip limits for dogfish shark and potential landings and lost revenue relative to No Action. Trip limits were selected based on the 50th percentile of landings over the period 2006 – October 2011 (see Figure D-36Figure D-37). Annual-landed weights were calculated by averaging the 2006 – October 2011 landings (see above). Average price per pound (2006-2011) used to estimate value was $0.29 for trawl and $0.21 for fixed gear. Gear/sectors are: LE Trawl = limited entry non-whiting trawl; OA FG = open access fixed gear (groundfish); LE FG = limited entry fixed gear (groundfish).

Gear/sector & Option	Trip limit (lbs.)	2006-2011 bimonthly trip limits exceeded (%)	2006-2011 pounds in excess of trip limit (%)	No Action average annual landings (lbs.)	Option 3 average annual landings (lbs.)	Option 3 average amount discarded or avoided due to trip limits (lbs.)	`Option 3 average annual revenue lost ($)
No Action							
OA FG	100,000 /2 mos	0%	0%	31,643			
LE FG	100,000 /2mos	0%	0%	206,677			
LE Trawl	60,000 /mo	0%	0%	148,371			
TOTAL				386,691			
Option 3							
OA FG	300 /2mo	29.6%	90%		3,214	28,429	$5,970
LE FG	300 /2mos	50.5%	97%		6,050	200,627	$42,132
LE Trawl	600 /2 mos	49.3%	94%		8,255	140,116	$40,634
TOTAL					17,519	369,172	$88,736

Biological Impacts: Overall, this alternative may reduce landings by 369,172 pounds (167 mt), or 95% for limited entry non-whiting trawl and limited entry and open access fixed gear fisheries landings. If fishers behavior remained unchanged, and assuming discard mortality were 100% for trawl and 50% for non-trawl, then total mortality may be reduced by 114,528 pounds (52 mt). Total mortality would be reduced even more (to 369,172 pounds or 167 mt) if this trip limit caused fishermen to reduce targeting or avoid fishing in areas with high concentrations of dogfish shark. The biological significance of this trip limit relative to No Action may have some biological significance if conditions remain the same.

The maximum expected mortality under Option 3 would exceed the 2013 and 2014 ABC (2,044 and 2,024 mt, respectively).

Socio-economic Impacts: Approximately 50% of the limited entry fixed gear and limited entry non-whiting trawl bimonthly landings (by number) may be affected by Option 3 trip limits (300 and 600 lbs./2 mos, respectively), whereas 30% of the open access bimonthly landings may be affected by 300 lb./2 month cumulative trip limits (Table D-85; Figure D-36 and Figure D-37). Reducing trip limits from 60,000 lbs./month to 600 lbs./2 months for the limited entry non-whiting trawl sector may reduce landed pounds for that sector by 94% (= 140,116 pounds or 63.5 mt) relative to No Action. Reducing trip limits from 100,000-200,000 lbs./2 months to 300 pounds/2 months for fixed gear sectors could reduce landed pounds by 97% for the limited entry fixed gear sector (200,627 pounds or 91 mt reduction relative to No Action) and 90% for the open access fixed gear sector (28,429 pounds or 11 mt reduction relative to No Action).

The estimated value of dogfish shark revenue forgone under Option 3 relative to No Action is $88,736. Washington port groups (Northern Puget Sound) and Oregon Port Groups (Columbia River Oregon) would be most impacted by dogfish shark trip limits (Table D-80).

The only sector that may require trip limits to keep its mortality below its allocation is the shoreside fishery (Table D-86). Trip limits described under Option 3 may not keep the total mortality by this sector (expected range = 582 – 1,082 mt) below its preliminary preferred allocation; expected mortality was reduced 0 – 63.5 mt relative to No Action. Note that the maximum expected mortality represents (a) the largest encounter rate during a five year period (2006-2010) and (b) assumes that fishermen behavior does not change and all forgone landings are converted to 100% discard mortality. The maximum mortality shown for the shoreside trawl may also be reduced by 63.5 mt (to 1,018.5 mt) if all of the forgone landings were avoided rather than discarded. The expected mortality for the non-trawl sector, reduced 52 – 104 mt relative to No Action, remains below the sector allocation (as it was under No Action). Finally, the expected mortality for at-sea whiting remains the same as shown for No Action, because trip limits were not analyzed for that sector.

Table D-86. Expected range of total mortality by sector under Option 3, along with 2013 and 2014 preliminary preferred allocations and set-asides shoreside trawl, non-trawl, and at-sea whiting sectors (also see Tables 2-11 and 2-12) for comparison. Expected mortality was initially calculated by using historical catch and discard presented for 2006 – 2010 by Hastie and Bellman (2007) and Bellman et al. (2008, 2009, 2010, and 2011), but adjusted assuming 100% discard mortality for trawl and 50% discard mortality non-trawl gear (see **Table D-81**). Additional savings due to trip limits were subtracted from these total mortality estimates as minimum savings (all lost landings due to trip limits were assumed to be caught and discarded, with 50 – 100% discard mortality rates) or maximum savings (all lost landings due to trip limits were assumed to be avoided, resulting in 0% mortality of the forgone landings). The range of sector-specific mortalities under Option 1 were calculated as: Minimum Expected Mortality = (Minimum No Action Total Mortality) – (Maximum Savings); Maximum Expected Mortality = (Maximum No Action Mortality) – (Minimum Savings).

Year	Sector	PPA Allocation (mt)	Option 3 sector total mortality
2013	Shoreside trawl	770	582 – 1,082
	Non-trawl	434.5	29 - 325
	Non-tribal at-sea whiting	534	23 - 513
2014	Shoreside trawl	755	582 – 1,082
	Non-trawl	429.5	29 - 325
	Non-tribal at-sea whiting	534	23 - 513

Option 4 – Extend Shoreward Trawl RCA Shallower: Extend shoreward trawl RCAs to 50 fm (from 75 fm) between 45°46’- 48°10’ N latitude.

Biological Impacts: Extending the shoreward trawl RCA to 50 fm between 45°46’ and 48°10’ N latitude may decrease encounters with dogfish shark relative to No Action (Table D-77). No action would be taken north of 48°10’ N latitude, where the shoreward RCA is 0 fm. The CPUEs south of 45°46’ in the shallow areas are generally low (Table D-78), so no action in the south is proposed within this alternative. The actual savings in total catch cannot be estimated using the data obtained from the WCGOP; additional data is required to provide a reasonable estimate of impacts to the resource. Although it is expected that the biological impact may be significant relative to No Action, the level of savings is uncertain. Additional analyses with more data is required to estimate the savings.

Socio-economic Impacts: It is difficult to estimate revenue loss (in ex-vessel value) that may be caused by this RCA change because additional data are required from WCGOP to estimate potential reduced encounters (total catch) by moving the RCA shallower. However, it should be pointed out that most dogfish are discarded because few markets exist, resulting in ex-vessel value that is very small (Table D-80) relative to the remaining groundfish landed by this fishery. That could change if markets strengthened.. Nonetheless, other economic and safety impacts associated with moving the shoreward trawl RCA to 50 fm may be severe and significant relative to No Action. This measure would (a) force fishers off some of their most productive fishing grounds in the nearshore area and onto less productive areas, (b) require more fishing effort to catch targeted species at levels similar to status quo, (c) concentrate fishers into a smaller area, resulting in likelihood of increased gear conflicts, (d) reduce or eliminate the catch of nearshore flatfish species that are primarily found between 50 and 100 fm, and (e) create gear conflicts and potential competition with nearshore fixed gear fisheries. These socio-economic impacts would be significantly greater than those expected No Action and Options 1 – 3.

<u>Option 5 – Extend Seaward Trawl RCA Deeper</u>: Extend trawl seaward RCA to 150 fathoms to 200 fathoms north of 48°10' and from 150/200 fathoms to 250 fathoms south of 48°10' N latitude; Extend depth closures to, or create separate depth closure specific to, whiting trips under the IFQ program.

Biological Impacts: Extending the trawl RCA from 150 fathoms to 200 fathoms north of 48°10' N latitude and from 150/200 fathoms to 250 fathoms south of 48°10' N latitude may decrease encounters with dogfish shark significantly relative to No Action. North of 48°10' N latitude, the CPUE drops from 118 lbs./hr. at depths of 150-200 fm to less than 5 lbs./hr. at deeper depths. A reduction of encounters may also occur south 48°10' N latitude by moving the seaward RCA to 250 fm (from 150/200 fm). A reduction in encounters may even be substantial south of 40°10 N latitude relative to No Action (Table D-78). However, it must be stressed that relatively small amounts of dogfish are caught south of 40°10 N latitude relative to the area north (Figure D-27). CPUE by depth was not available for directed whiting trips in the shoreside sector at the time of writing. These trips use mid-water trawl gear to target whiting and have been exempted from the RCA. Given the different gears, CPUE would differ from CPUE by depth for bottom trawl gear. Nonetheless, the general depth pattern in CPUE by depth from the bottom trawl sector is expected to apply to whiting trips.

Although it is expected that the biological impact of Option 5 may be significant relative to No Action, the actual savings in total mortality cannot be estimated using the data obtained from the WCGOP; additional data is required to provide a reasonable estimate of impacts to the resource.

Socio-economic Impacts: It is difficult to estimate revenue loss (in ex-vessel value) that may be caused by this RCA change because additional data are required from WCGOP to estimate potential reduced encounters (total catch) caused by this measure. However, it should be pointed out that most dogfish are discarded because few markets exist, resulting in current ex-vessel values that are small (Table D-80) relative to the remaining groundfish landed by these fisheries. That could change if markets strengthened. Nonetheless, any revenue loss due to a reduction in dogfish landings may be inconsequential relative to other associated economic and safety impacts of a seaward RCA change. Other economic and safety impacts associated with moving the seaward RCA deeper may be severe. This measure would (a) force fishers off some of their most productive fishing grounds and on to less productive areas, (b) require more fishing effort to catch targeted species at levels similar to status quo, (c) require fishers to travel greater distances and spend more time on the water to catch targeted species at levels similar to status quo, and (d) concentrate fishers into a smaller fishing area, resulting in likelihood of increased gear impacts. These impacts will either reduce landings of target species (e.g., sablefish, Dover sole, thornyheads), or increase time and expense (e.g., fuel, number of trips, and days at sea) to maintain status quo landings of target species. The same dynamic would be expected in directed whiting trips. Whiting tend to be available deeper later in the year and so a depth closure to mitigate dogfish bycatch may not have a large cost if put into place at that time. Participants in the shoreside whiting sector have different abilities to fish deep based on the location of their homeport, size of vessel, and other factors. In general, closed areas can lead to additional time at sea, running distance, and potential gear conflicts may result in increased accidents at sea. Finally, the anticipated savings in dogfish shark encounters under this measure may be offset by the need to increase fishing effort to levels necessary for attaining quota pounds of target species.

The socio-economic impacts under Option 5 are expected to be significantly greater than those expected under Options 1 – 4.

<u>Option 6 – Extend Seaward Fixed Gear RCA Deeper:</u> Extend seaward fixed gear RCA from 100 to 150 fm north of 45°46’ N latitude.

Biological Impacts; Extending the seaward fixed gear RCA from 100 fathoms to 150 fathoms north of 45°46’ N latitude may decrease encounters with dogfish shark substantially. The percent of the total catch and the CPUEs were highest in this depth strata and these areas during the 2002-2010 (Table D-77). Although the biological impacts are expected to be significant relative to Status Quo, the actual savings in total catch cannot be estimated using the data obtained from the WCGOP. Additional data is required to provide a reasonable estimate of impacts to the resource.

Socio-economic Impacts: It is difficult to estimate revenue loss (in ex-vessel value) that may be caused by this RCA change because additional data are required from WCGOP to estimate potential reduced encounters (total catch) caused by this measure. However, it should be pointed out that most dogfish are discarded because few markets exist, resulting in current ex-vessel values that are small (Table D-80) relative to the remaining groundfish landed by this fishery. That could change if markets strengthened. Nonetheless, any revenue loss caused by a reduction in dogfish landings may be inconsequential relative to other associated economic and safety impacts of this alternative seaward RCA. Other economic and safety impacts associated with moving the seaward RCA deeper may be severe. This measure would (a) force fishers off some of their most productive fishing grounds and on to less productive areas, (b) require more fishing effort to catch targeted species at levels similar to status quo, (c) require fishers to travel greater distances and spend more time on the water to catch targeted species at levels similar to status quo, and (d) concentrate fishers into a smaller fishing area, resulting in likelihood of increased gear impacts. These impacts will either reduce landings of target species (e.g., sablefish), or increase time and expense (e.g., fuel, number of trips, and days at sea) to maintain status quo landings of target species. The additional time at sea, running distance, and potential gear conflicts may result in increased accidents at sea. Finally, the anticipated savings in dogfish shark encounters under this measure may be offset by the need to increase fishing effort to levels necessary for attaining quota pounds, tier limits, and trip limits of target species.

The socio-economic impacts under Option 6 are expected to be significantly greater than those expected under Options 1 – 4, but less than under Option 5.

<u>Option 7. Consideration of set asides, formal allocations, or depth closures for the at-sea sectors:</u>

Spiny dogfish catch for the non-tribal at-sea sectors has averaged nearly 150 mt per year combined over the period 2005-2010 (Table D-87). Catch was highly variable over this time period, ranging from 7 mt to 45 mt in the mothership sector; and, from 6 mt to 489 mt in the catcher processor sector—nearly three times that sector’s average. This indicates that the annual dogfish catch in the at sea sectors has the potential to be large relative to the stock’s ABC (see Table D-73)

To manage dogfish under the Amendment 20 at sea whiting harvest cooperative ("coop") programs, the Council could establish either: (1) a formal allocation, or, (2) a set aside. The Council has made formal allocations to the at sea sectors for the key bycatch stocks where the combined catch across sectors has the potential to reach or exceed an ACL (e.g., canary rockfish). Stocks with formal allocations to coops, or the non-coop fishery when active, are distributed to fishery participants on a permit basis, typically pro rata to the whiting allocated to each permit . A formal allocation can trigger a fishery closure, or if available, a mitigating management measure like a depth or area closure if catch is projected to exceed the allocation amount.

Set asides, in contrast, "are not formal allocations but they are amounts which are not available to the other fisheries during the fishing year." (50 C.F.R. § 660.55(j)). The Council has established set asides for stocks where bycatch is non-negligible yet also unlikely to raise the need for inseason management. The set asides facilitate active management in other sectors and gives the sector for which the set aside is created some assurances that management measures will not be adjusted inseason as long as the set aside is not exceed. Inseason management of set aside stocks is possible where "there is a risk of a harvest specification being exceeded, unforeseen impact on another fisheries, or conservation concerns in which case inseason action may be taken" (50 C.F.R. 660.150(c)(i)(B)(2) and 660.160(c)(3)(ii)).

Unlike formal allocations, set asides are not permit based and are instead assigned to a sector or both sectors as whole. Another key difference between set asides and formal allocations is that set asides are not available for inseason reapportionment between the at sea sectors (50 C.F.R. 660.150 (c)(4)(iii)).

The Council and NMFS would have authority to take inseason management action of dogfish bycatch in the at sea whiting sectors even without a formal allocation or set aside designation. The regulations allow for inseason action for a non-whiting bycatch in the at sea sectors where the same risk factors named above for set asides stocks arise (50 C.F.R. 660.150(c)(i)(B)(3) and 660.160(c)(3)(ii)).

Dogfish catch is likely truly incidental in the at sea sectors. Even the high catch seen in the catcher processor sector in 2008 amounted to only 0.4 percent of the whiting harvested by that sector by volume (Bellman et al., 2009). Depth closures would therefore be the most effective management measure for mitigating dogfish bycatch in this sector. The at sea sectors use midwater trawl gear, yet are likely to encounter dogfish across the same depths as seen in the bottom trawl data (Bellman et al., 2009). The whiting sectors are not held to the RCA and so can currently operate in prime dogfish habitat. The biological and socioeconomic impacts relating to such depth closures under Option 5 apply generally to the at sea sectors as well.

Table D-87. Annual catch (mt) and discard percentage of dogfish in the two at sea whiting sectors, 2005-2010 (source: Hastie and Bellman (2006-2007); Bellman et al. (2008-2011)).

	2005	2006	2007	2008	2009	2010	2005-10 avg.
Catcher Processor							
Total catch (mt)	42	6	64	489	28	110	123
Discard (%)	93%	74%	55%	67%	93%	93%	--
+/- (%) from avg. catch	-66%	-95%	-48%	297%	-77%	-11%	--
Mothership							
Total catch (mt)	28	17	23	24	7	45	24
% discard	39%	76%	87%	83%	78%	97%	--
+/- (%) from avg. catch	17%	-29%	-4%	0%	-71%	88%	--

Other Potential Management Measures and Considerations

Other management measures or considerations are available to reduce fishing mortality for dogfish shark. The alternatives provided above may reduce dogfish shark landings and possibly encounters, but may result in a high cost to communities and fishers (especially RCA changes). The following considerations may reduce mortality of dogfish shark with lower associated impacts to communities than those described in alternatives the alternatives above.

- Gear modifications may reduce fishing mortality of dogfish shark. For example grates and raised footropes have recently been tested to reduce bycatch of spiny dogfish shark from silver hake trawls (Chosid et al., 2012). Articial baits were shown to significantly reduce the catch of dogfish shark relative to longlines baited with herring, while showing no significant reduction in catch of target species (e.g., Pacific halibut and sablefish; Erickson and Berkeley 2008). These types of potential management measures could be further explored and considered as a regulatory or a voluntary measure if it is anticipated that dogfish catch might exceed the component ABC under No Action management measures.

- Voluntary avoidance of areas with highest dogfish shark catch rates may be considered to keep dogfish shark catch below its contributing ABC level.

<u>Summary of Management Options and Comparison of Impacts</u>

A summary of management measures and associated impacts are provided in Table D-88. Under No Action, expected total mortality ranged from a minimum of 1,032 mt to a maximum of 2,393 mt. Hence, total mortality of dogfish shark may be higher than the preferred ABC (i.e., greater than 2,046 and 2,024 mt for 2013 and 2014, respectively), suggesting potential significant biological impacts under the No Action management measure option. The ABCs would be exceeded only under the worst-case scenario (i.e., assuming highest catch and discard observed during 2006 – 2007 and assuming that fishermen behavior remains similar). The expected mortality was lower than the 2013-2014 preferred ABCs in 4 of 5 years.

Under No Action, the shoreside trawl allocation may be exceeded under the worst-case scenario. The 2013 allocation for this sector is 770 mt, and the range of expected mortalities is 645 – 1,082 mt. Allocations for non-trawl and at-sea whiting would not be expected to be exceeded under the No Action option.

Trip limit options (Options 1 – 3) are largely ineffective for significantly reducing No Action fishing mortality because most dogfish are already discarded; options 2 and 3 may moderately reduce fishing mortality relative to No Action. The effectiveness of trip limits depends on whether trip limits cause fishermen to avoid catching dogfish altogether (i.e., through area avoidance or gear modifications) or if trip limits create more discarding. It is important to note that 50% of the non-trawl discarded dogfish may survive, whereas 0% of the trawl-discarded dogfish may survive (i.e., 100% mortality).

Socio-economic impacts of Options 1 – 3 are low (fleet-wide and coast-wide) relative to No Action (because more than 90% are discarded under No Action), but may be significant for certain individuals, processing plants, and distinct areas. Impacts increase with increasing option number.

Moving the shoreward trawl RCA shallower (Option 4) or the seaward RCA deeper (Option 5) may result in a significant biological impacts relative to No Action, however, additional data is required to estimate the extent of that impact. Regardless, expanding the trawl RCAs to reduce mortality will have most significant impacts on communities relative to No Action and relative to Options 1 – 3 (trip limits). Options 4 and 5 will have no impacts on non-trawl and at-sea whiting sectors (i.e., no difference from No Action)

Under Option 6, the seaward fixed gear RCA would be moved from 100 fm to 150 fm north of 45°46’ N latitude. This depth closure could also be applied to directed whiting trips in the IFQ sector. Although the biological impacts would likely be significant relative to No Action, the extent of the savings is uncertain. The biological impacts would likely be significantly higher under Option 6 than under No Action and Options 1 – 3. Socio-economic impacts would be severe and significant relative to No Action and Options 1 – 3 for non-trawl sectors.

Dogfish shark set-asides or allocations would be provided to at-sea whiting sectors under Option 7. The biological and socio-economic impacts may be significant; area closures may be implemented under this Option 7 if at-sea whiting fisheries approach the maximum set-aside or allocation.

Voluntary avoidance or use of selective fishing gear (grates and escape panels for trawls and selective baits for hook-and-line) may provide significant biological impacts (i.e., may be most effective at reducing mortality) while having the least impact on communities.

Table D-88. Comparison and summary of management options.

Option	Management Measure	Biological Impacts	Socio-Economic Impacts
No Action	Non-whiting trawl trip limit = 60,000 pounds / month Non-trawl trip limit = 150,000 to 200,000 pounds /2 months RCA: Same as 2012	*Biological impacts may be significant if maximum recent historical catch rates occur*. Dogfish preferred component ABC = 2,044 mt (2013) and 2,024 mt (2014) Expected total mortality (all fisheries and set asides) = 1,032 – 2,393 mt (minimum and maximum)	**<u>Shoreside Trawl Allocation</u>:** Expected total mortality = 645 – 1,082 mt - Preliminary Preferred Allocation (770 mt and 755 mt for 2013 and 2014) - ***Shoreside trawl allocation may be exceeded under No Action.*** **<u>Non-trawl Allocation</u>** Expected total mortality = 132 – 377 mt - Preliminary Preferred Allocation (434.5 mt and 429 mt for 2013 and 2014) - Expected non-trawl mortality under No Action is expected to be less than its allocation. **Non-tribal At-sea Whiting Allocation** - Expected total mortality = 25 – 513 mt - Preliminary Preferred Set-Aside (534 mt for 2013 and 2014) **Affected Area:** 92% of dogfish shark total mortality by non-whiting trawl and non-nearshore

Option	Management Measure	Biological Impacts	Socio-Economic Impacts
			fixed gear fisheries occurs north of 40^o 10' N latitude. **Revenue:** Average annual ex-vessel value was $42,964 (trawl) and $49,932 (LE and OA fixed gear). **Fisheries Most Affected**: Limited entry bottom trawl and non-nearshore fixed gear. At-sea whiting fisheries may also be affected. **Discard and mortality rates:** Recent discard rates exceed 90% for both trawl and fixed gear. Assumed discard mortality is 100% for trawl and 50% for fixed gear. **Areas Most Affected**: 92% of dogfish shark total mortality by non-whiting trawl and non-nearshore fixed gear fisheries occurs north of 40^o 10' N latitude. Fixed-gear deliveries were made almost exclusively in Washington and Northern Puget Sound area ports (90%) Non-whiting trawl deliveries were predominately in North Puget Sound (32%) and Columbia River Oregon (51% area ports.
Option	Management Measure	Biological Impacts	Socio-Economic Impacts
Option 1	Trawl trip limit = 20,000 lbs. / 2 months Non-trawl trip limit = 18,000 lbs. / 2 months	*Little to no significant biological impact relative to No Action* *ABC may be exceeded if maximum recent historical catch and discard rates occur.*	**Shoreside Trawl Allocation:** Expected Savings (reduction in mortality) relative to No Action = 0 – 21 mt Expected Total Mortality = 624 – 1,082 mt - Preliminary Preferred

Option	Management Measure	Biological Impacts	Socio-Economic Impacts
		Option 1 trip limits reduces total mortality (all sectors and set asides) by 28 – 78 mt relative to No Action Expected total mortality (all fisheries and set asides) = 954 – 2,365 mt Preferred ABC = 2044 and 2,024 mt for 2013 and 2014	Allocation (770 and 775 mt for 2013 and 2014) - ***Shoreside trawl allocation may be exceeded under Option 1.*** **<u>Non-trawl Allocation</u>** Expected savings (reduction in mortality) relative to No Action = 25 – 50 mt Expected Total mortality = 75 – 349 mt - Preliminary Preferred Allocation (434.5 – 429.5 mt) **<u>Revenue:</u>** Average annual ex-vessel value was reduced by $13,680 (trawl) and $26,090 (LE and OA fixed gear) relative to No Action. **<u>Landings:</u>** Average annual landings reduced by 47,171 pounds or 21 mt (trawl) and 124,239 pounds or 56 mt (LE and OA fixed gear) relative to No Action. *Impacts relative to No Action are not significant (fleet-wide), because most dogfish are discarded; impacts may be significant to certain individuals.*
Option	Management Measure	Biological Impacts	Socio-Economic Impacts
Option 2	Trawl trip limit = 5,000 lbs. / 2 months Non-trawl trip limit = 2,500 lbs. /	*Little to somewhat significant biological impact relative to No Action* *ABC may be exceeded*	**<u>Shoreside Trawl Allocation</u>:** Expected Savings (reduction in mortality) relative to No Action = 0 –46 mt

Option	Management Measure	Biological Impacts	Socio-Economic Impacts
	2 months	*if maximum recent historical catch and discard rates occur.* Option 2 trip limits reduces total mortality (all sectors and set asides) by 46 – 138 mt relative to No Action Expected total mortality (all fisheries and set asides) = 894 – 2,347 mt Preferred ABC = 2044 and 2,024 mt for 2013 and 2014	Expected Total Mortality = 599 – 1,082 mt - Preliminary Preferred Allocation (770 and 775 mt for 2013 and 2014) - ***Shoreside trawl allocation may be exceeded under Option 2.*** **Non-trawl Allocation** Expected savings (reduction in mortality) relative to No Action = 46 – 92 mt Expected Total mortality = 40 – 331 mt - Preliminary Preferred Allocation (434.5 – 429.5 mt) **Revenue:** Average annual ex-vessel value was reduced by $29,678 (trawl) and $42,539 (LE and OA fixed gear) relative to No Action. **Landings:** Average annual landings reduced by 102,339 pounds or 46 mt (trawl) and 202,570 pounds or 92 mt (LE and OA fixed gear) relative to No Action. *Impacts relative to No Action are not significant (fleet-wide), because most dogfish are discarded; impacts may be significant to certain individuals.* *Impacts are greater for Option 2 than for Option 1.*
Option	Management Measure	Biological Impacts	Socio-Economic Impacts

Option	Management Measure	Biological Impacts	Socio-Economic Impacts
Option 3	Trawl trip limit = 600 lbs. / 2 months Non-trawl trip limit = 300 lbs. / 2 months	*Little to somewhat significant biological impact relative to No Action* *ABC may be exceeded if maximum recent historical catch and discard rates occur.* Option 3 trip limits reduces total mortality (all sectors and set asides) by 52 – 167 mt relative to No Action Expected total mortality (all fisheries and set asides) = 865 – 2,341 mt Preferred ABC = 2044 and 2,024 mt for 2013 and 2014	**<u>Shoreside Trawl Allocation</u>:** Expected Savings (reduction in mortality) relative to No Action = 0 –64 mt Expected Total Mortality = 582 – 1,082 mt - Preliminary Preferred Allocation (770 and 775 mt for 2013 and 2014) - ***Shoreside trawl allocation may be exceeded under Option 3.*** **<u>Non-trawl Allocation</u>** Expected savings (reduction in mortality) relative to No Action = 52 – 104 mt Expected Total mortality = 29 – 325 mt - Preliminary Preferred Allocation (434.5 – 429.5 mt) **<u>Revenue:</u>** Average annual ex-vessel value was reduced by $40,634 (trawl) and $48,102 (LE and OA fixed gear) relative to No Action. **<u>Landings:</u>** Average annual landings reduced by 140,116 pounds or 64 mt (trawl) and 229,056 pounds or 104 mt (LE and OA fixed gear) relative to No Action. *Impacts relative to No Action are not significant (fleet-wide), because most dogfish are discarded; impacts may be*

Option	Management Measure	Biological Impacts	Socio-Economic Impacts
			significant to certain individuals. *Impacts are greater for Option 3 than for Options 1 and 2.*
Option 4	Extend shoreward trawl RCAs to 50 fm (from 75 fm) between 45°46'-48°10' N latitude	*Significant biological impact relative to No Action, but the level of impact is uncertain.*	**<u>Shoreside Trawl</u>:** *The socio-economic impact of Option 4 would be severe for certain individuals and processors and significantly higher than expected impacts of No Action and of Options 1 – 3.* **<u>Non-trawl:</u>** *No Significant Impact*
Option 5	Extend trawl seaward RCA to from 150 fathoms to 200 fathoms north of 48°10' and from 150/200 fathoms to 250 fathoms south of 48°10' N latitude; Extend depth closure to directed whiting trips in the IFQ sector.	*Significant biological impact relative to No Action, but the level of impact is uncertain.*	**<u>Shoreside Trawl</u>:** *The socio-economic impact of Option 5 would be severe and significantly higher than expected impacts of No Action and of Options 1 – 4* **<u>Non-trawl:</u>** *No Significant Impact*
Option 6	Extend seaward fixed gear RCA from 100 to 150 fm north of 45°46' N latitude.	*Significant biological impact relative to No Action, but the level of impact is uncertain.*	**<u>Shoreside Trawl</u>:** *No Significant Impact* **<u>Non-trawl:</u>** *The socio-economic impact of Option 6 would be severe and significantly higher than expected impacts of No Action and of Options 1 – 3. The impacts are significantly greater than Options 4 and 5 for non-trawl.*

Option	Management Measure	Biological Impacts	Socio-Economic Impacts
Option 7	Set-asides, formal allocations, or depth closures for at-sea whiting fisheries	Biological impacts may be significant relative to No Action. Area closures may be implemented if these levels are approached.	**<u>Shoreside Trawl</u>:** *No Significant Impact* **<u>Non-trawl:</u>** *No Significant Impact* **At-sea whiting:** *Impacts significant relative to No Action and Options 1 – 6.*

D.16 Increase the California Recreational Bocaccio Bag Limit

<u>Overview</u>

The recreational fishery has been managed to a recreational harvest guideline (HG) since the early 2000s, which is 131 mt in 2012; the presumptive harvest guidelines are expected to increase to 168 mt (2013) and 174 mt (2014; Table D-89). For 2012 recreational groundfish fisheries in California, anglers are allowed two bocaccio within a ten fish Rockfish, Cabezon, Greenling (RCG) complex bag limit. In addition, bocaccio are the only rockfish subject to a recreational size limit, which is a ten inch minimum size limit to protect recruiting juvenile fish (Table D-90). The majority of the bocaccio catch comes from the southern part of the state (south of Point Conception - 34°27’ N. latitude) where recreational anglers are allowed to access the shelf 10 months of the year to depths of 60 fm (360 feet).

Because bocaccio have a high susceptibility to barotrauma[22] the statewide two fish sub-bag limit results in discarding (and subsequent mortalities) of bocaccio caught in excess of the bag limit. Rather than adding the extra bocaccio to their bag, anglers are required to discard and therefore fish longer to achieve their 10 fish bag limit, increasing the likelihood of encounters with overfished species.

[22] Bocaccio has a discard mortality rate of 100% in depths of 40 fm or greater (XXX reference for 2009-2010 EIS).

Table D-89. 2012 Harvest specifications for bocaccio south of 40°10' N. latitude in metric tons, implemented in regulation.

Species	OFL	ABC	ACL	HG
Bocaccio	732	700	263	131

Table D-90. Recreational statewide management measures for bocaccio in California in 2012.

Bag Limit –2 fish w/in the 10 fish RCG complex bag limit
Size limit – 10 inch minimum size
Seasons and Depth Restrictions—Same as those for other rockfish and lingcod by Management Area

<u>Management Issue</u>
Due to the need to protect overfished rockfish and the lack of access to deeper water on the shelf, California's recreational fishery has been unable to attain the bocaccio HG in recent years (Table 3). Bocaccio has shown steady progress toward rebuilding under the current rebuilding plan. Application of the constant harvest rate in the current rebuilding plan corresponds with an ACL for 2013-2014 that is larger than the ACL in recent years. CDFG proposes to increase the bag limit for bocaccio and the additional projected mortality can be accommodated within the higher 2013-2014 ACLs and HGs.

Table D-91. West Coast Groundfish total mortality estimates of bocaccio south of 40°10' N. latitude (in metric tons) for the California recreational fishery compared to the harvest guideline from 2006-2010

Year	Total Mortality	HG	% of HG
2006	420	43.0	98%
2007	53.6	66.3	81%
2008	35.0	66.3	53%
2009	46.4	66.3	70%
2010	57.2	66.3	86%

<u>Management Options</u>

<u>**Option 1- No Action: Maintain the two fish sub-bag limit for bocaccio within the 10 fish RCG bag limit**</u>
Under Option 1, the sub-bag limit for bocaccio would continue to be two fish within the 10 fish RCG bag limit. It is expected that anglers will discard bocaccio in excess of the sub-bag limit while in pursuit of other fish, increasing the likelihood of encounters with other overfished species. Under Option 1, bocaccio encounters and associated total catch mortality are anticipated to increase throughout southern California in 2013 due to a strong 2010 year class. If this year class is as strong as projected some increased encounter rate (and discarding) would be expected.

<u>Biological Impacts under Alternative 1</u>
Projected Impacts
Table D-92 summarizes projected mortality of overfished species under Alternative 1. Bocaccio encounters are anticipated to increase throughout southern California in 2013 due to a strong 2010 year class. If this year class is as strong as projected, under Alternative 1 some increased encounter rate (and discarding) would be expected, although the amount cannot be quantified. In its report under Agenda Item E.4.b (November 2011), the Groundfish Management Team

concluded that any increase in bocaccio mortality in 2013, as a result of the 2010 year class, is not expected to exceed the 2011 California recreational HG (131 mt). If the 2010 year class is not as strong as projected, mortality under Alternative 1 would likely be similar to previous years.

Table D-92. Projected mortality to overfished species under Alternative 1

Species	Projected Mortality (mt)
Bocaccio	50.7
Canary Rockfish	11.1
Cowcod	0.3
Yelloweye Rockfish	3.2

Stock Status
Results of the current assessment indicate that bocaccio are rebuilding quickly. Under Alternative 1, no changes to stock status or rebuilding progress are expected since total mortality will be within the ACL.

Socio-Economic Impacts
Alternative 2: Increase the bocaccio sub-bag limit from two to three fish within the RCG complex
Under Alternative 2, the sub-bag limit on bocaccio would be increased statewide from two to three fish within the RCG complex.

RecFIN data from 2004 to 2009 was used to analyze impacts to bocaccio as a result of increasing the sub-bag limit. Using the RecFIN Hypothetical Bag Limit Analysis tool, estimates of increased mortality of bocaccio was calculated using A+B1+B2 fish. For the purpose of this analysis, A fish include sampled dead fish, B1 fish includes both bocaccio fillets and fish thrown back dead due to low survival rates in deep water, and B2 fish includes mainly live fish in excess of bag limits or undersized fish. Since RecFIN cannot estimate the proportion of fish that were undersized, this analysis assumes that no sub-legal fish were discarded (thus overestimating impacts). The analysis also assumes that all B2 fish would be retained if the bag limit were increased, as the most conservative estimate. All bags over the existing limit were then set to the hypothetical limit to calculate increased take.

Biological Impacts under Alternative 2
Projected Impacts
Under Alternative 2, bocaccio mortality is expected to increase by 11.5 percent (5.8 mt) as a result of the increase in the sub-bag limit (Table D-93). The HG is not expected to be exceeded under Alternative 2, given the magnitude of the buffer between projected mortality and the recreational allocation. Similar to Alternative 1, bocaccio encounters are anticipated to increase throughout southern California in 2013 due to a strong 2010 year class. The increased mortality (if they materialize) could also be accommodated under Alternative 2 without exceeding the HG, let alone the entire bocaccio ACL.

CDFG is also proposing two additional changes to management measures in the recreational fishery related to bocaccio – removing the 10 inch minimum size limit and allowing retention of shelf rockfish (including bocaccio) inside the Cowcod Conservation Area. The cumulative mortality of all of these proposed changes are not expected to exceed the harvest guideline or ACL therefore the measures will be unlikely to affect rebuilding.

Table D-93. **Projected mortality (in metric tons) of increasing the bocaccio bag limit from two to three fish compared to the No Action harvest guideline**

	Alternative 1	Alternative 2
Projected Impact	50.7	56.5
% HG	38.7%	43.1%

Impacts on Overfished Species
Table 6 summarizes mortality of all overfished species under Alternative 2. No additional mortality of other overfished species are expected to occur by increasing the sub-bag limit on bocaccio. Because the majority of the bocaccio encountered in the recreational fishery comes from southern California, mortality of canary and yelloweye rockfish should not increase because they are not commonly found in that part of the state. No additional mortality of cowcod are expected because bocaccio are commonly encountered in different areas inside the CCA than cowcod.

Table D-94. **California recreational projected mortality of overfished species for 2013-2014 under Alternative 2.**

Species	Projected Mortality (mt)
Bocaccio	56.5
Canary Rockfish	11.1
Cowcod	0.3
Yelloweye Rockfish	3.2

Stock status
Under Alternative 2, no changes to stock status or rebuilding progress are expected compared to Alternative 1.

Socio-Economic Impacts
Increasing the bocaccio bag limit could also reduce operating costs compared to No Action. Individuals could reach their bag limits faster and with less regulatory discarding which could result in less time on the water, lower fuel costs, and increased opportunities for more trips.

D.17 Increase the California Recreational Greenling Bag Limit

For 2011-12 groundfish fisheries, kelp greenling in California have been managed as part of the Other Fish complex and its harvest specifications contribute to the complex as a whole. The ACL contribution for kelp greenling was substantially increased in 2011-2012 based on new methods for estimating harvest specifications for data limited species (Table D-95). However, more conservative state regulations including a total allowable catch (TAC) [23] of 17 mt currently govern the catch of kelp greenling in California. Recreational management measures include the same season and depth restrictions as rockfish, lingcod, and many other groundfish, as well as a two fish sub-bag limit within the 10 fish RCG complex (Table D-96). Kelp Greenling are also subject to a 12 inch minimum size limit. The state is in the process of increasing the kelp greenling TAC to conform to the higher federal ACL contribution and implementing a higher recreational sub-bag limit of 10 fish.

[23] A state total allowable catch (TAC) is equivalent to an annual catch limit (ACL)

The majority of California's recreational kelp greenling catch comes from the area between San Francisco and the Oregon Border. Depth is restricted to 30 fm (180 ft) in the San Francisco area and 20 fm (120 ft) from Point Arena north. Kelp greenling inhabit kelp beds and rocky reefs but have also been found to frequent sandy bottom areas. They are solitary fish commonly found at depths between 10 and 60 feet.

Table D-95. 2012 Harvest Specifications for Kelp Greenling in Metric Tons, within the Other Fish Complex Implemented in Regulation.

Species	OFL	ABC	ACL
Kelp Greenling (contribution to Other Fish)	111	55.3	55.3

Table D-96. Recreational Management Measures for Kelp Greenling in California in 2012

Bag Limit	Two fish sub-bag limit within the RCG complex
Size limit	12 inch minimum size
Seasons and Depth Restrictions	Same as those for rockfish and lingcod by Management Area

Management Considerations:
A revised kelp greenling contribution to the other fish complex was analyzed and adopted for use in management in 2011-12 (2011-12 FEIS). As a result, the state is requesting federal conformance to state rulemaking by increasing the recreational kelp greenling bag limit. The kelp greenling contribution to the other fish complex is also expected to further increase for 2013-14; therefore increased mortality as a result of this action could be accommodated with low risk of exceeding a harvest guideline, let alone the kelp greenling ABC contribution to the complex. Between 2006 and 2010, total mortality of kelp greenling in the California recreational fishery has ranged from 8.2 mt to 15.2 mt (Table D-97).

Table D-97. Estimates of kelp greenling total mortality in the California recreational fishery from 2006 to 2010, in metric tons (source: West Coast Groundfish Total Mortality Reports)

Year	Total Mortality (mt)
2006	8.2
2007	9.5
2008	9.4
2009	15.2
2010	10.5

Range of Options for Consideration

Option 1 - No Action: Maintain the kelp greenling sub-bag limit at 2 fish

Under Option 1, the kelp greenling sub-bag limit will be two fish in federal waters within the 10 fish RCG complex. Anglers will have less opportunity and be required to discard kelp greenling in excess of the sub-bag limit; the recreational allocation will also not be attained. In addition, when new state regulations increasing the kelp greenling sub-bag limit to ten fish become effective, state and federal regulations will be inconsistent and state regulations will be more liberal.

Biological Impacts under Option 1

Projected Mortality

Under Option 1, the projected impact to kelp greenling based on a two fish sub-limit is 14.6 mt; Table D-98 summarizes projected mortality of all overfished species. Due to the shallow distribution of kelp greenling, and the fact that over half of the catch comes from shore anglers, encounters with overfished species are expected to be minimal.

Table D-98. Projected mortality of overfished species under Alternative 1

Species	Projected Mortality (mt)
Bocaccio	50.7
Canary Rockfish	11.1
Cowcod	0.3
Yelloweye Rockfish	3.2

Stock Status
A formal stock assessment was conducted in 2005 for kelp greenling in California but it was not adopted for use in management; therefore, stock status is unknown.

Option 2: Increase the kelp greenling sub-bag limit to 5 fish
Under Option 2, the kelp greenling bag limit would be increased from two to five fish within the 10 fish RCG complex; no change to the minimum size limit is proposed. Under this alternative, anglers would be able to keep more of their catch—reaching their 10 fish RCG bag limit sooner reducing the possibility of encountering canary or yelloweye rockfish (which is unlikely given the depths where greenlings are caught.)

RecFIN data from 1995-2001 and 2009-2010 were used to analyze mortality of greenlings under a five-fish and 10-fish.bag limit. Due to differences in management measures, two time periods were investigated. The first time period (1995-2001) includes years when the fishery was much less regulated and there was a 10-fish bag limit per angler per day; whereas the second period (2009-2010) includes more recent years when the bag limit was two fish per angler per day. The sample data from both time periods was ultimately combined for this analysis. Only catch estimates from north of Point Conception (34º27' N latitude) were used since very few greenlings are taken in southern California.

Since this analysis estimates the amount of fish that potentially would be taken, estimates of increased mortality of greenling were calculated using A+B1+B2 fish. For the purpose of this analysis, A fish include sampled dead fish, B1 fish includes both greenling fillets and fish thrown back dead, and B2 fish includes mainly live fish in excess of bag limits or undersized fish. Since RecFIN cannot estimate the proportion of fish that were undersized, this analysis also assumes that no sub-legal fish were discarded. The analysis also assumes that all B2 fish would be available if the bag limit were increased, as the most conservative estimate. All bags over the existing limit were then set to the hypothetical limit to calculate increased take. For a full description of the sub-bag limit analysis refer to Appendix A.

Socio-Economic Impacts
Increasing the greenling bag limit could also reduce operating costs compared to No Action. Individuals could reach their bag limits faster and with less regulatory discarding which could result in less time on the water, lower fuel costs, and increased opportunities for more trips.

Biological Impacts under Option 2
Projected Impacts
Under Option 2, the projected mortality of greenlings is expected to increase by 6.6 percent (1.0 mt) compared to Option 1. This increase is not expected to exceed the kelp greenling harvest

guideline or ACL. No additional impacts are expected on overfished species compared to Option 1 (Table D-98) because kelp greenling are commonly encountered in shallower depths and more than 50 percent of the catch comes from shore anglers.

Stock Status
Under Option 2, no changes to stock status are expected compared to Option 1.

Option 3 (CDFG Preferred Option): Increase the kelp greenling bag limit to 10 fish
Under Alternative 3, CDFG is proposing to increase the sub-bag limit from two fish to 10 fish to provide more opportunity for anglers to achieve their allocation of kelp greenling; no changes to the minimum size limit are proposed. This measure would maintain consistency with state regulations, which are being modified to reflect the greenling contribution to the “Other Fish” complex.

Socio-Economic Impact
Increasing the greenling bag limit could also reduce operating costs compared to No Action. Individuals could reach their bag limits faster and with less regulatory discarding which could result in less time on the water, lower fuel costs, and increased opportunities for more trips.

Biological Impacts under Option 3
Projected Impacts
Under Option 3, the projected impact to greenlings is expected to increase by 7.4 percent (1.1 mt) compared to Option 1. The projected impacts of increasing the sub-bag limit on kelp greenling is not expected to exceed the harvest guideline or ACL. No additional impacts are expected on overfished species compared to Option 1 (Table D-98) because kelp greenling are commonly encountered in shallower depths and more than 50 percent of the catch comes from shore anglers

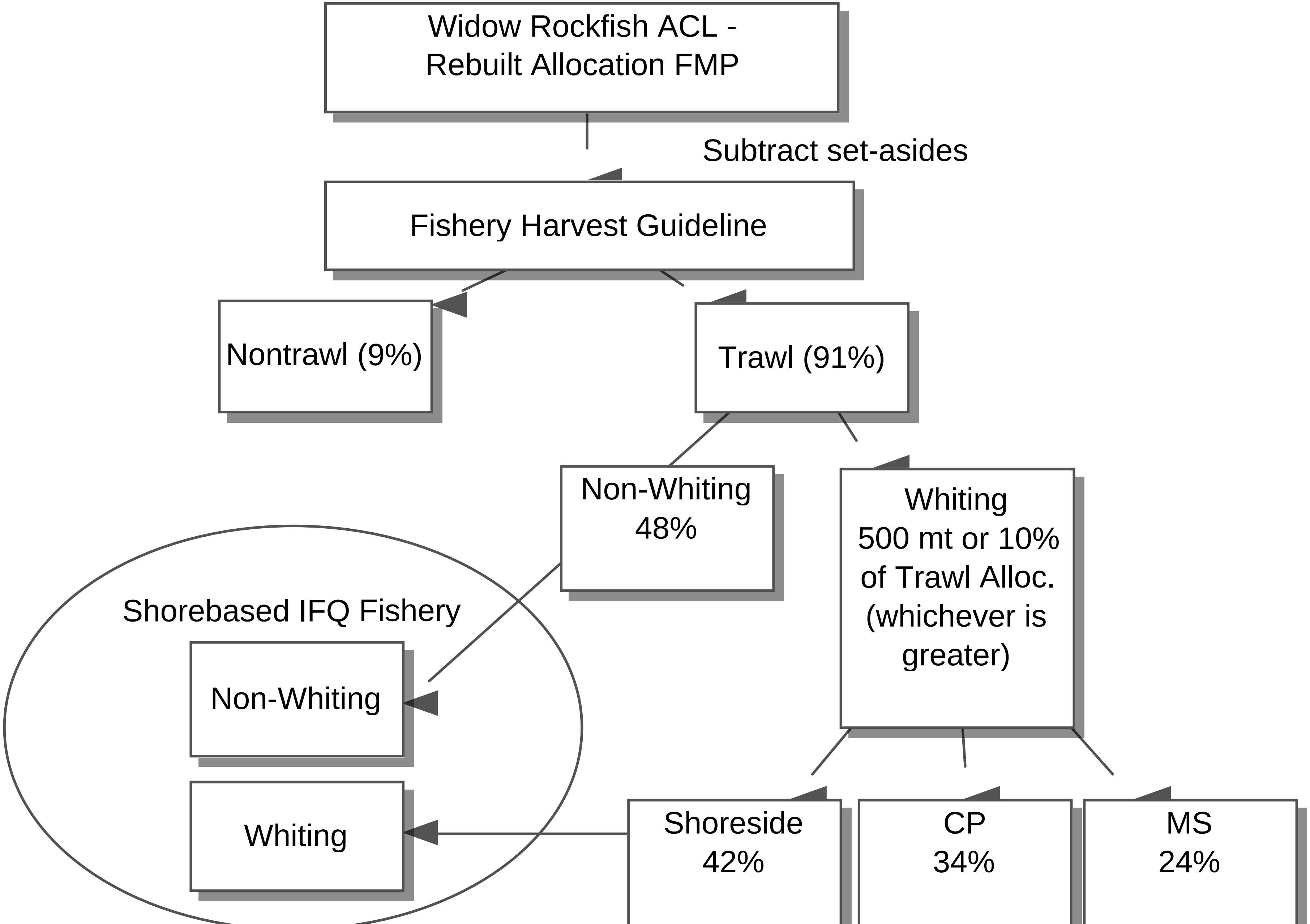
Stock Status
Under Option 3, no changes to stock status are expected compared to Option 1.

Socio-Economic Impact
Increasing the greenling bag limit could also reduce operating costs compared to No Action. Individuals could reach their bag limits faster and with less regulatory discarding which could result in less time on the water, lower fuel costs, and increased opportunities for more trips.

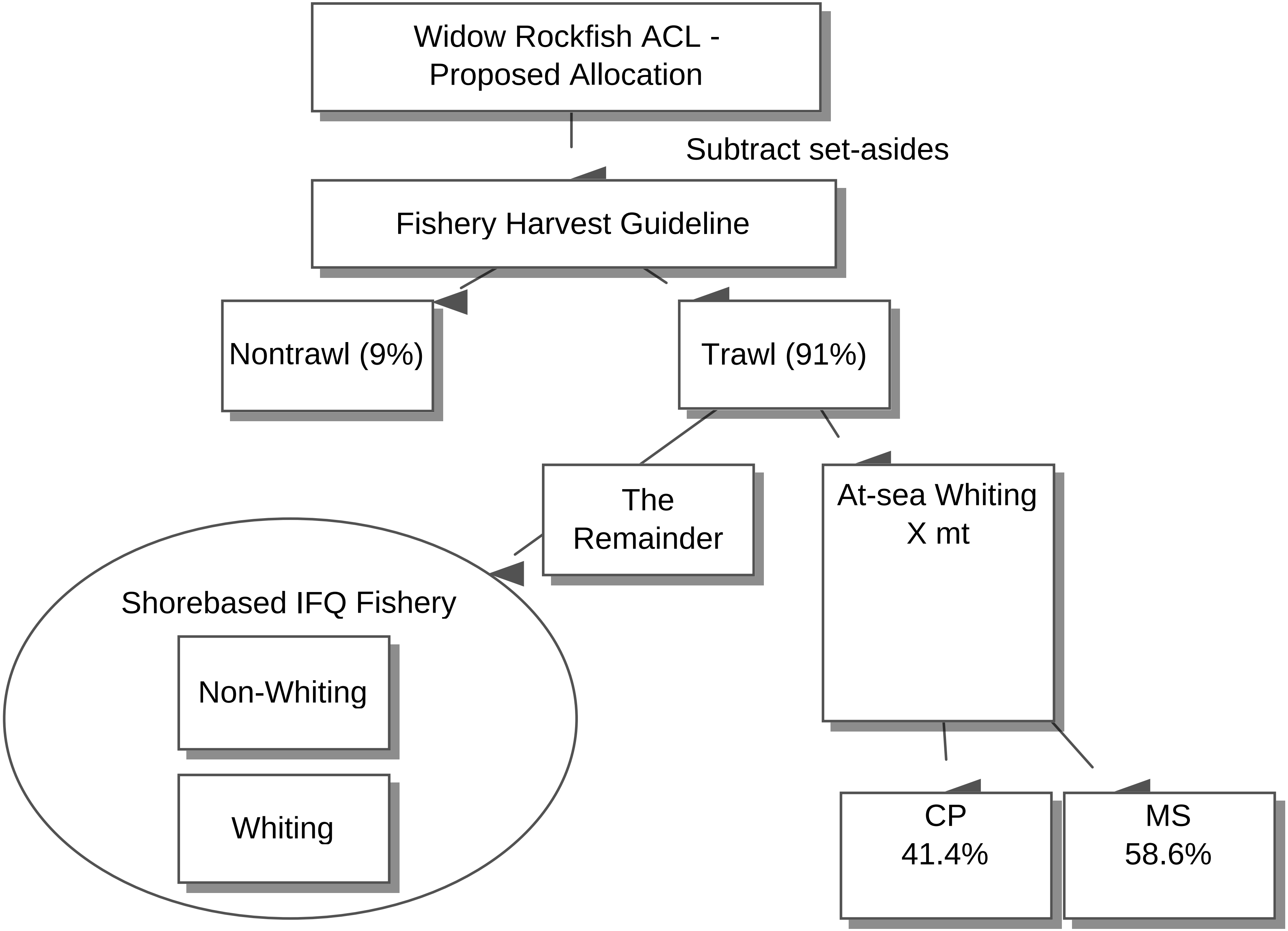
Agenda Item I.3.a
Supplemental PowerPoint
April 2012

Widow Rockfish Within Trawl Allocation

Item 3.b

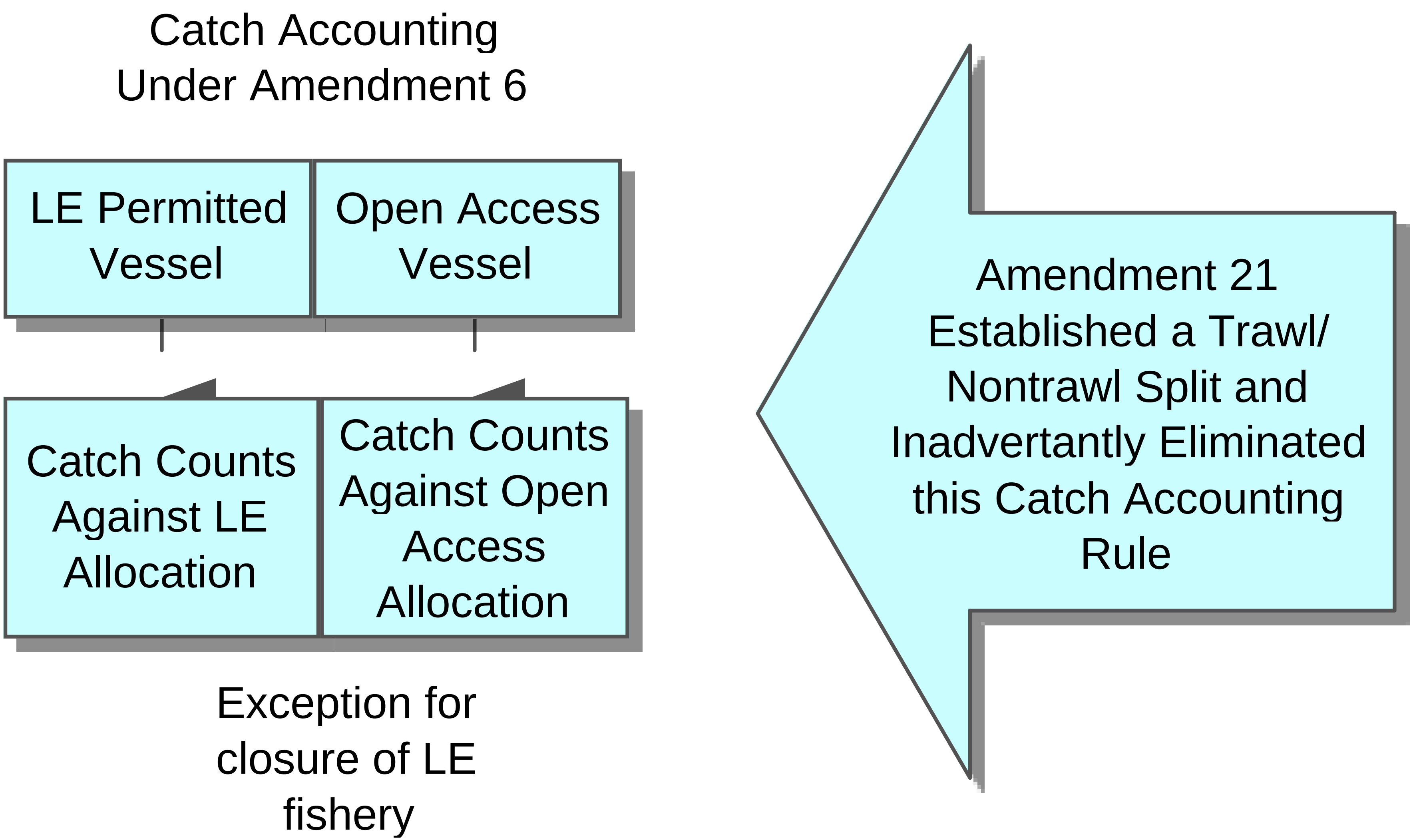


Widow Rockfish ACL -
Rebuilt Allocation FMP
Subtract set-asides
Fishery Harvest Guideline
Nontrawl (9%)
Trawl (91%)
Non-Whiting
48%
Whiting
500 mt or 10%
of Trawl Alloc.
(whichever is
greater)
Shorebased IFQ Fishery
Non-Whiting
Whiting
Shoreside
42%
CP
34%
MS
24%


Widow Rockfish ACL -
Proposed Allocation
Subtract set-asides
Fishery Harvest Guideline
Nontrawl (9%)
Trawl (91%)
The
Remainder
At-sea Whiting
X mt
Shorebased IFQ Fishery
Non-Whiting
Whiting
CP
41.4%
MS
58.6%

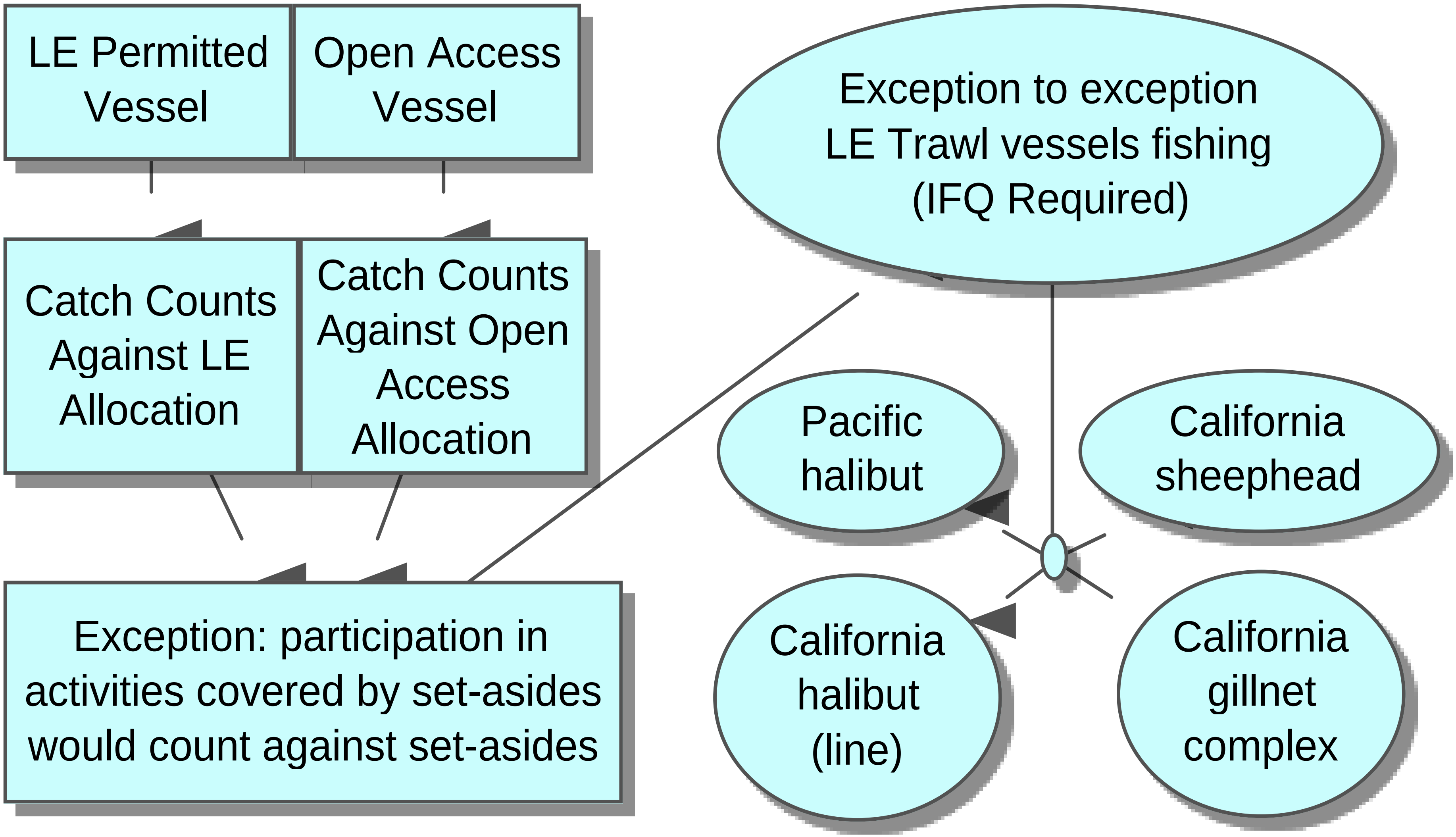
Catch Accounting Between Limited Entry and Open Access

(Item 5.c)



Catch Accounting
Under Amendment 6
LE Permitted Vessel
Open Access Vessel
Catch Counts Against LE Allocation
Catch Counts Against Open Access Allocation
Exception for closure of LE fishery
Amendment 21 Established a Trawl/ Nontrawl Split and Inadvertantly Eliminated this Catch Accounting Rule

Option 1: Proposed Reinstatement



Shorebased IFQ Accumulation Limits

Item 5.e

Lingcod

Adjusting the Vessel Limit for the N/S Spit

Vessel Max's in 2011

North
58.9 mt

South
3.4 mt

Coastwide Trawl Allocation

2011

X

Vessel Use Limit

3.8%

QP Equivalent

70.8 mt

North South Split

.

2013

X

3.8%

46.6 mt north

18.8 mt south

Possible Adjustments to Lingcod Vessel Limits

Reference Points

Current Limit 3.8%, Max Harvest in 2011 = 58.9 mt

Comparison Year	2011	2013
Vessel Limit (mt)	70.8	46.6(N) + 18.8 (S) = 65.4
Percent to Accommodate		
North	5.78%	5.33%
South	14.38%	13.23%

Possible Adjustments to QS Control Limits

- Control Limit is 2.5% (46.6 mt in 2011)
- With split someone at limit will have
  - 2.5% north (30.7 mt in 2013) and
  - 2.5% south (12.4 mt in 2013).
  - Combined North and South = 43 mt
- Control limit would need to be increased if control of enough QS to cover 43 mt is to be accommodated in a single area.
- 3.51% in north and 8.70% in the south

Agenda Item I.3.b
Supplemental CDFG Report
April 2012

CALIFORNIA DEPARTMENT OF FISH AND GAME REPORT ON 2013-14 BIENNIAL HARVEST SPECIFICATIONS AND MANAGEMENT MEASURES

The California Department of Fish and Game (CDFG) offers the following comments for Council consideration in deciding preliminary preferred season structures and management measures for 2013-14.

Season Structures

California Nearshore Fishery

CDFG supports maintaining the status quo RCA boundaries analyzed under Alternative 1 (20 fm[1] between 42° N and 40° 10' N latitude; 30 fm between 40° 10' N latitude and 34° 27' N. latitude; 60 fm south 34° 27' N. latitude) as the Preliminary Preferred Alternative (PPA).

California Recreational Fishery

CDFG supports the recreational RCA configuration and season structures under the PPA (Alternative 1) for all areas except for the Southern Management Area (SMA) (Figures 1 and 2). For the SMA, CDFG requests that a 40 fm, 50 fm, and 60 fm depth restriction be included within the range of alternatives, with the 50 fm identified as the preliminary preferred depth restriction in the SMA. Note that the PPA (Alternative 1) already includes CDFG's recommendation to slightly lengthen the season in the Mendocino Management Area to accommodate fishing through Labor Day weekend in 2013 and 2014.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed				May 15 – Oct 31 <20fm						Closed	
Mendocino	Closed				May 15 – Sept 2 <20fm				Closed			
San Francisco	Closed					Jun 1 – Dec 31 <30fm						
Central	Closed				May 1 – Dec 31 <40fm							
Southern	Closed		Mar 1 – Dec 31 <**50 fm**									

Figure 1. California recreational groundfish season structure for 2013.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed				May 15 – Oct 31 <20fm						Closed	
Mendocino	Closed				May 15 – Sept 1 <20fm				Closed			
San Francisco	Closed					Jun 1 – Dec 31 <30fm						
Central	Closed				May 1 – Dec 31 <40fm							
Southern	Closed		Mar 1 – Dec 31 <**50 fm**									

Figure 2. California recreational groundfish season structure for 2014.

[1] The 20 fm RCA is defined by depth, not waypoints.

Since a considerable increase in the number of cowcod encounters has been recorded since 2010, CDFG would like to provide notice of its intention to consider use of either the 40 fm or 50 fm depth restrictions in the SMA to reduce encounters, and to specify a preliminary preferred alternative of 50 fm. Implementing a shallower depth restriction of 50 fm is expected to provide a significant reduction in cowcod encounters. Cowcod encounters are extremely uncommon in depths less than 40 fm and implementing a depth restriction shallower than that would not provide any increased savings (Table 1).

Table 1. Number and percentage of cowcod by 10 fm depth bins encountered in CRFS Commercial Passenger Fishing Vessel (CPFV) and Private/Rental Boat sampling from 2004-2011. The data represents all the cowcod catch data from Point Conception (34° 27' N latitude) to the U.S./Mexico border for which depths of capture were available.

	Depth Bins (fm)						
	0-10	10-20	21-30	31-40	41-50	51-60	60<
Number of Fish	1	1	0	3	21	27	0
Percent of Fish	2%	2%	0%	6%	40%	51%	0%

Management Measures

In addition to the management measures discussed under No Action (i.e., groundfish bag limits and size limits), CDFG supports including the following management measures within the PPA:

- Retention of shelf rockfish within 20 fm or less inside the Cowcod Conservation Area when the recreational season for groundfish is open.
- Increase the recreational sub-bag limit of bocaccio to three fish
- Removal of the recreational ten inch size limit for bocaccio
- Increase the recreational sub-bag limit of greenling to ten fish

The analyses detailed under this agenda item in Attachment 5 indicate that the impacts resulting from the proposed recreational management measures are not expected to exceed any harvest guidelines, let alone any ACLs or OFLs.

Allowing shelf rockfish retention in the CCA

The analysis on allowing recreational retention of shelf rockfish in the CCA indicates that the biological impacts to shelf rockfish are expected to be minimal as a result of this action. A small increase in shelf rockfish is expected from converting discards into landed catch, but total mortality is still expected to be well within the complex ACL. No increase to bocaccio or cowcod total mortality is expected as a result of this action and no changes to the stock status or rebuilding progress are expected.

Retention of shelf rockfish would likely result in increased profits to industry and could result in reduced operating costs compared to No Action. Individuals could reach their bag limits faster and with less regulatory discarding which could result in less time on the water, lower fuel costs, and increased opportunities for more trips. See Appendix D in the DEIS and Agenda Item E.9.b, Supplemental CDFG Report 2, November 2011 for more information.

Increase bocaccio sub-bag limit
Increasing the bocaccio sub-bag limit is expected to keep total mortality well within the recreational harvest guideline (HG), given the magnitude of the buffer between projected mortality and the HG. Bocaccio encounters are anticipated to increase throughout southern California in 2013 due to a strong 2010 year class. An increase in mortality as a result of this incoming year class could also be accommodated without exceeding the HG, let alone the entire bocaccio ACL.

Allowing this action could reduce operating costs compared to No Action. Individuals could reach their bag limits faster and with less regulatory discarding which could result in less time on the water, lower fuel costs, and increased opportunities for more trips

Remove bocaccio size limit
Removing the ten inch minimum size limit is expected to keep total mortality well within the recreational HG. Recreational anglers would be allowed to retain all bocaccio regardless of size under this alternative, while abiding by current depth and season restrictions. The CDFG does not anticipate targeting of bocaccio less than 10 inches. This purpose of this action is to reduce regulatory complexity, and the overall mortality of bocaccio is expected to be minimal. No additional mortality of other overfished species is expected.

Cumulative impacts of bocaccio management measures
CDFG is proposing three changes to management measures in the recreational fishery related to bocaccio – allowing retention of shelf rockfish (including bocaccio) inside the CCA, increasing the sub-bag limit, and removing the 10 inch minimum size limit. The cumulative mortality of all of these proposed changes are expected to be small – 11 percent (6.0 mt) higher than No Action. Since the cumulative impacts of these proposed changes are not expected to exceed the HG or ACL, it is very unlikely that rebuilding will be affected.

CDFG did discuss the tradeoffs between implementing the proposed management measures and rebuilding the stock more quickly. Under any of the bocaccio ACL alternatives, the small increase in total mortality (6.0 mt) resulting from the proposed changes to the recreational fishery is not expected to change the overall total mortality. The bocaccio PPA ACL is expected to rebuild the stock one year sooner than the T_{Target} and is two years later than the No Fishing option.

Choosing a lower ACL alternative in the attempt to rebuild one year sooner may be overly restrictive to the fleets. Evidence of the strong 2010 year class is already starting to materialize and the choice of a lower ACL may require large modifications to the fisheries and could be overly punitive to the fleets. A lower ACL alternative will only save one year of rebuilding compared to the PPA alternative. As such, a one year savings in the time to rebuild may not justify the impacts to the fleet. Depending upon the strength of the 2010 year class, the stock could be rebuilt as soon as 2013 regardless of the management measures.

Increase greenling sub-bag limit
Increasing the greenling sub-bag limit from two fish to ten fish within a 10-fish RCG limit is intended to provide more opportunity for anglers to achieve their allocation of kelp greenling. No changes to the minimum size limit are proposed. This measure would maintain consistency with state regulations, which are being modified to reflect the greenling contribution to the “Other Fish” complex.

CALIFORNIA DEPARTMENT OF FISH AND GAME REPORT ON ALLOCATIONS FOR BLACKGILL ROCKFISH AND COWCOD SOUTH OF 40°10' N LATITUDE

Based on public testimony received at the March 2012 Council meeting, public comment received under this agenda item (Agenda Item I.3.c), and the most recent fishery information, the California Department of Fish and Game (CDFG) requests additional allocations be analyzed for both blackgill rockfish and cowcod south of 40°10' N latitude and included in the 2013-14 DEIS.

Blackgill Rockfish south of 40°10' N latitude

Under status quo, blackgill rockfish are managed as part of the slope rockfish complex, meaning that in establishing harvest guidelines (HG) or ACLs, the Amendment-21 allocation for slope rockfish (63% trawl: 37% non-trawl) is applied. This allocation was based on the years 2003-2005 and included all slope rockfish south of 40°10' N latitude. Alternatively, if a HG or ACL is established for blackgill, an allocation based exclusively on blackgill catch history south of 40°10' N latitude should be considered. When catch history for blackgill rockfish is examined separately from the slope complex during those same years (2003-2005), the resulting allocation would be 47% trawl and 53% non-trawl.

Public comment submitted on this subject (Agenda Item I.3.c, Public Comment) indicates that the low blackgill rockfish sub-limits would be very constraining to the fleets and could actually restrict access to other target stocks (e.g., sablefish). Since blackgill rockfish can be encountered while targeting sablefish, some amount of blackgill rockfish is necessary in order to prosecute the sablefish fishery. If the sub-trip limits are set too low, discarding will occur when blackgill rockfish are encountered.

Based on the public comments and the fact that blackgill rockfish has not historically been a trawl dominant species, CDFG requests an allocation of 47% trawl: 53% non-trawl be analyzed and included in the DEIS. This allocation would align the needs of the current fishery and historic fishing practices.

Cowcod south of 40°10' N latitude

The preliminary preferred allocation for cowcod south of 40°10' N latitude is 66% trawl and 34% non-trawl, which is the 2011-12 status quo allocation. The 2011-12 allocation was originally set to align the needs of the trawl fishery with historic catches and accommodate the fleet as it transitioned into a rationalized fishery. Projected impacts in the non-trawl sectors had historically been estimated at lower levels, and it was thought that the current allocation to this sector would be sufficient to cover the needs of all non-trawl fisheries.

Recent fishery information reveals that cowcod encounters have increased in the recreational fishery south of 34° 27' N latitude, while impacts post IFQ implementation suggest that needs of the trawl fleet may be lower than previously thought since most of the fishing activity has occurred well north of 34° 27' N latitude where cowcod interactions are less of a concern. Additionally, the current needs of the fixed gear fisheries are largely unknown because few data are available from the West Coast Groundfish Observer Program to adequately characterize the needs of this sector.

Based on the transition of the trawl fisheries to more northerly areas and the changing needs of the non-trawl fisheries, alternatives to status-quo should be considered for use in 2013-14. CDFG requests development of alternative allocation schemes which more closely reflects the current needs of the sectors. The intent would be to create a "buffer" in the non-trawl allocation, not increased opportunities for non-trawl fisheries. Cowcod allocations are only two year allocations and there will be the opportunity to revisit allocation decisions in 2015-16 as more information becomes available.

Proposed Seabird Conservation Measures to Mitigate and Track Expected Impacts on Short-tailed Albatross

The U.S. Fish and Wildlife Service (USFWS) proposes a need for changing the voluntary streamer program on long line fishing vessels of the Pacific Coast Groundfish Fisheries. We propose a strategy that focuses on reducing risk of interaction versus covering the greatest number of vessels, producing a smooth transition, and reducing or eliminating safety concerns. Additionally, use of streamer lines should benefit fishers due to the reduced loss of bait. It is our goal that the Pacific Fishery Management Council (Council) will support these changes and they can be reflected in the 2013-2014 Biennial Harvest Specification process.

The short-tailed albatross is expanding its population and is in the process of recovering from extremely low numbers. This expansion will result in more conflict with the Pacific Coast Groundfish Fisheries. As demonstrated in the Alaska fisheries, there is reasonable mitigation that can reduce conflict. The Endangered Species Act directs all Federal agencies to participate in conserving these species. Specifically, section 7 (a) (1) of the ESA charges Federal agencies to aid in the conservation of listed species. As take of short-tailed albatross is expected, there is a need for mitigation with the goal of reducing the negative impact to the recovery process.

We propose mandatory streamer line use for long line vessels over 60 feet in length. Regulations for compliance should follow the Alaska streamer line regulations for Federal waters. At this time, application for streamer lines to smaller vessels is still being developed that would meet the need for reduced interaction between birds/bait, while providing a safe working environment for vessel operators. Additional mandatory regulations for the Pacific Coast Groundfish Fisheries would occur once a small boat streamer line program or other mitigation program was developed that produced an efficient and safe program to reduce take of short-tailed albatross. It is anticipated that a two-year period with training workshops and on-vessel instruction may be an appropriate time frame to facilitate a smooth transition for smaller vessel conservation measure planning and implementation.

There is also a need to gather information on the interactions of short-tailed albatross and the Pacific Coast Groundfish Fisheries. There is already an observation program in place for these fisheries, but we would like to have assurances that these programs collect data on seabirds and that they will continue. Additionally, there is a need for mandatory notification when take of a short-tailed albatross occurs, including collecting and turning the carcass over to FWS or a designated representative.

We appreciate the opportunity to provide these initial seabird avoidance measure considerations at this stage in the Pacific Coast Groundfish Fisheries consultation process so that they can be considered by the Council in your 2013-2014 Biennial Specifications deliberations.

If you have any further questions regarding these comments, please contact me at (503) 231-6281 or Bridgette Tuerler at (503) 231-6179.

Daniel Brown
USFWS, Pacific Region Section 7 ESA Coordinator
03/26/12

GROUNDFISH ADVISORY SUBPANEL REPORT ON TENTATIVE ADOPTION OF 2013-2014 BIENNIAL HARVEST SPECIFICATIONS AND MANAGEMENT MEASURES

The Groundfish Advisory Subpanel (GAP) was briefed by Mr. John DeVore and Ms. Kelly Ames on the actions and issues pertaining to 2013-2014 groundfish harvest specifications and management measures. For reference, we followed the same format as Attachment 1, Anticipated Council Actions and References Relevant to Decision-making in providing the following recommendations.

1. Preferred Non-Overfished Species Harvest Specifications

1a. Modify lingcod ABC, based on corrections from March 2012

The GAP has no recommendation on the revised lingcod ABC and defers to the SSC's recommendation on this specification.

1b. Adopt preferred ACLs, including modifications to lingcod based on the revised ABC

The GAP recommends the lingcod ACLs be set equal to the ABCs as in the Council's preliminary preferred ACL decision.

The GAP offers the following recommendations for the other non-overfished species ACLs where a range of alternative ACLs were analyzed.

Longnose skate

The GAP supports the Council's PPA of 2,000 mt ACL for 2013 and 2014. There has been increased market demand for longnose skate and harvest of this species in trawl and fixed gear fisheries has brought increased economic benefit for these sectors. Further, a constant annual catch of 2,000 mt is projected to maintain spawning biomass above the B_{MSY} target of $B_{40\%}$ through 2018, the limit of the ten-year projection provided in the 2007 assessment.

Widow Rockfish

The GAP recommends a 2013 and 2014 widow rockfish ACL of 1,650 mt, which is within the range of widow ACLs analyzed. As detailed below under item 3.b, the GAP did not reach consensus on a within-trawl allocation alternative for widow, with the exception of requesting a 1,650 mt ACL that would provide some extra yield above the PPA of 1,500 mt to all trawl sectors at little cost to the stock. The GAP notes from the EIS analysis and the decision table in the 2011 widow assessment that constant catches well above 1,650 mt are projected to maintain spawning biomass above the biomass target through the next 10 years.

2. Preferred Overfished Species Harvest Specifications

2a. Confirm or modify the rebuilding plan parameters and preferred ACLs

The GAP recommends the preferred ACLs for the overfished species except those for canary rockfish and POP as explained below. The GAP notes that no sectors target any of the overfished species except for petrale sole in the IFQ fishery. The petrale sole rebuilding analysis predicts the stock will be rebuilt by next year, so targeting petrale in the IFQ fishery to the extent allowed under the PPA should not result in negative biological impacts.

Canary rockfish

In November, the GAP recommended a 2013 ACL of 147 mt and a 2014 ACL of 151 mt (ACL alternative "e" in Attachment 3). The GAP continues to recommend this ACL alternative since it provides additional harvestable surplus at no cost in rebuilding duration relative to the preferred ACL since the SPR harvest rate under this alternative is predicted to rebuild by 2030, the same year as the preferred SPR harvest rate. The canary rockfish ACL limits fishing opportunities to target healthy species for all groundfish sectors and ACL alternative "e" would increase the viability and economic efficiencies of all groundfish sectors and groundfish-dependent fishing communities as follows:

1. A higher canary ACL would provide direct benefits to the trawl sector and fishing communities dependent on the trawl fishery. While the trawl IFQ fleet caught only 14 percent of its canary allocation in 2011, a higher ACL will help trawlers design a targeted midwater widow/yellowtail rockfish fishery. Ample yellowtail quota is available north of 40°10' N latitude but remains inaccessible due to canary constraints. The expected increase in the widow allocation also increases the ability to resume midwater targeting of this stock which will require a larger canary allocation;
2. The low amount of canary caught in the 2011 IFQ fishery is a poor indication of the needs of the fleet since many fishermen avoided shelf targeting for fear of exceeding their canary quotas. This resulted in a significant under-attainment of available target shelf species quota. A higher canary allocation should reduce this risk and allow more targeting of healthy shelf species;
3. A higher canary allocation could be used as a buffer to accommodate the surplus carryover provision, if needed, should the canary quota come close to being attained;
4. Offshore fixed gear fishermen using IFQ could access more productive areas on the shelf/slope break, which reduces costs and increases efficiency in targeting sablefish and other target stocks;
5. Whiting fisheries could more efficiently access whiting with a larger canary bycatch cap;

6. Nearshore fishermen could fish in deeper waters with a higher allocation of canary. The current depth restrictions limit fishing opportunities for the nearshore sector; and
7. Recreational fishermen might benefit by relaxation of depth and season restrictions. Benefits to the recreational fishery could include potential fishing opportunities using selective gears.

Pacific Ocean Perch

The GAP continues to recommend 2013 and 2014 ACLs of 182 mt and 186 mt, respectively. While this alternative was not analyzed specifically, it is within the range of ACLs analyzed. The arguments we made in November remain pertinent and we've added some more items for consideration:

1. POP is a fringe stock on the West Coast and it is extremely difficult to manage just the West Coast portion of the stock without taking into consideration fishery effects on the stock's main biomass in waters off Canada and Alaska. The low West Coast harvest rates are unlikely to affect stock production and biomass given the significant fishing effort on the main biomass to the north of the West Coast EEZ;
2. Higher ACLs for this species would enable the northern IFQ and whiting trawl fleets greater flexibility and efficiency in targeting deepwater species, petrale, and whiting on the slope and shelf/slope break. As petrale rebuilds, a higher POP allocation is needed to access petrale;
3. The low attainment of the POP allocation in the 2011 IFQ fishery is a poor indication of the needs of the IFQ sector since many fishermen avoided targeting deepwater species and petrale on the slope and shelf/slope break for fear of exceeding their POP quotas. This resulted in a significant under-attainment of available quota for some target species. A higher POP allocation should reduce this risk and allow more targeting of healthy species; and
4. A higher POP allocation could be used as a buffer to be used to accommodate the surplus carryover provision, if needed, should the POP quota come close to being attained. However, trawlers avoid POP at all costs; it's simply too risky to harvest as bycatch, let alone target.

3. Preliminary Preferred Management of Flexible Set-Asides and Allocations

3a. Adopt preliminary preferred option for flexible management of set-asides

The GAP will address this issue under Agenda Item I.8.

3b. Confirm or modify the FMP within trawl allocation for widow rockfish

The GAP spent a lot of time considering the rebuilt nature of widow rockfish and proposed allocations and discussed both thoroughly. The GAP requested guidance from staff on whether an FMP amendment is required to change an Amendment 21 allocation. Staff informed the GAP that an FMP amendment is required.

We recognize there is significant uncertainty – as other advisory bodies have noted – in the latest widow rockfish stock assessment and considered this in our deliberations.

Much of the debate centered around costs vs. benefits. Under some of the options and allocations, the at-sea whiting fishery may not have enough widow quota to use as bycatch to fully prosecute its fishery (a cost) vs. enough quota to afford an opportunity to fully harvest shoreside whiting as well as provide for a midwater widow/yellowtail fishery.

The GAP is providing three options for Council consideration as follows.

<u>GAP Option A</u>

Specify an ACL of 1,650 mt in 2013 and 2014.

This amount would provide 290 mt to the at-sea whiting fishery and also afford the shoreside sector increased opportunity to pursue alternative fisheries in light of a reduction in the ACLs for other species.

The maximum widow bycatch in the at-sea whiting sector between 1998 and 2011 was 311 mt; a 290 mt allocation should be sufficient to allow this fishery to be fully prosecuted. It would almost assure the fleet that the fishery would not be shut down due to early attainment of widow.

<u>GAP Option B (Option "3" from Agenda Item 1.3.a, Attachment 4, Table 1 on page 3)</u>

An ACL of 1,500 mt would provide the shorebased IFQ trawl sector with 1,086.2 mt and 200 mt for the at-sea sectors. This amount would be sufficient to cover the highest bycatch in the at-sea sectors in the 2005-2011 period. Per staff guidance, this option would require an FMP amendment.

<u>GAP Option C (Option "1" from Agenda Item 1.3.a, Attachment 4, Table 1 on page 3)</u>

An ACL of 1,500 mt, with a shorebased IFQ allocation of 996.2 mt, and an at-sea whiting allocation of 290.0 mt, would provide the at-sea whiting sectors with the same level of widow as under GAP Option A. Per staff guidance, this option would not require an FMP amendment.

The GAP notes that all three of these options could be considered and requests the Council provide further guidance. We can revisit this item under Agenda Item I.8 at this meeting.

3c. Two-year trawl and non-trawl allocations for bocaccio, canary, cowcod, petrale, and yelloweye

The GAP agrees with the preferred allocations for bocaccio, canary, cowcod, and yelloweye. However, the GAP recommends it may be time to revisit the allocation of petrale sole and cowcod and the GAP requests Council direction on this issue. We may be able to work with the GMT on this issue under I.8.

3d. HGs for black rockfish (OR and CA), blackgill (south of 40°10), blue rockfish (CA), spiny dogfish

Black rockfish

The GAP agrees with status quo.

Blackgill

The GAP agrees with the GMT statement on this issue.

Blue rockfish

The GAP recommends the blue rockfish HG calculated in the DEIS for the stock occurring in waters off California. It is based on the 40-10 adjusted ACLs projected in the assessment for the portion of the stock north of Pt. Conception and DBSRA with the ABC adjustment for the portion of the stock south of Pt. Conception. This HG is adequately precautionary for the blue rockfish stock and will likely meet the needs of California fishing communities dependent on nearshore and recreational fisheries.

Spiny dogfish

The GAP spent considerable time discussing spiny dogfish harvest guidelines and is working with the GMT on this issue, to be addressed under Agenda Item I.8. However, the GAP does recommend that it remains in the "other fish" complex. Furthermore, we recommend making available any tools necessary for management. We also will be making recommendations under management measures for this species.

4. Adopt Preliminary Preferred Season Structures

4a. IFQ

-- *Trawl RCAs configurations*

The GAP agrees with the staff recommendations. The proposed changes better approximate depths and contours.

4b. Non-Nearshore (offshore)

--*Non-trawl RCA seaward configurations*

The GAP agrees with staff recommendations.

4c. Nearshore

--Non-trawl RCA shoreward configurations

The GAP agrees that Option B is the best option. Option B would minimize local depletion in some areas in southern Oregon and spread the fleet out more.

4d. Washington Recreational

--Season dates

--Bag limits

--Area closures

The GAP agrees that Option A for the above (status quo) is best.

4e. Oregon Recreational

--Season dates

--Bag limits

--Area closures

The GAP agrees that Option A for the above (status quo) is best.

4f. California Recreational

--Season dates

--Bag limits

--Area closures

The GAP requests an analysis of the use of a 50 fathom line for the recreational fisheries south of Point Conception as a management tool. The GAP agrees with the rest of the California measures.

5. Adopt Preliminary Preferred Management Measures

5a. RCA boundary modifications

--Washington and Oregon 150 and 200 fm lines

--Oregon 200 fm lines

--California Usal and Noyo Canyons 150 fm line

The GAP agrees that these modifications should be made.

5b. Sorting requirements for aurora (north 40°10), shortraker (north 40°10), rougheye (north 40°10), blackgill (south of 40°10)

The GAP agreed that sorting for these species should be done according to current regulations (that sorting should occur before the first weighing of the fish) in order to obtain better data.

5c. Catch accounting between limited entry and open access

The GAP agrees with the staff recommendation.

5d. Remove or reduce to 20 inches the lingcod minimum length limit in the shorebased IFQ fisheries (all legal gears)

The GAP understands there is likely to be few biological consequences of removing the size limit and that the market will to dictate the minimum size for lingcod. The GAP supports removing the minimum size for lingcod only in the trawl fishery at this time. This can always be changed using inseason adjustments in the future, if needed.

5e. Modifications to the shorebased IFQ accumulation limits

The GAP has discussed this with the GMT and would like to revisit this under Agenda Item I.8 later this week.

5f. Modifications to the shorebased IFQ surplus carry-over

The GAP realizes there are problems with the surplus carry-over provisions of the TIQ program yet looks to the Council and NMFS to rectify the situation. This is an integral part of the program and the industry was assured at the start of the program that this would be one of the provisions that would allow flexibility to the industry. Furthermore, if there are changes to this carry-over, fleet behavior may change. This is of utmost importance and needs to be addressed.

5g. Regulatory correction for moving between the sablefish primary fishery to the non-trawl LE daily trip limit fishery

The GAP agrees with the staff recommendation, as listed in Attachment 4, and that a 300-pound proxy for the daily trip limit would suffice.

5h. Proposed changes to sablefish limited entry and open access bi-monthly cumulative landing limits

The GAP recommends rounding the numbers to simplify the trip limits, according the following table. We recognize these may be changed during in-season management.

North of 36 N lat

Table Error! No text of specified style in document.**-1 (GAP-modified). 2013 Proposed trip limits for 2013 in sablefish DTL fisheries under the PPA, and alternatives other than No Action.**

Area	Fishery	Jan-Feb	Mar-Apr	May-Jun	July-Aug	Sept-Oct	Nov-Dec
North of 36° N. lat. (U.S./Canada Border to 36° N. lat.)	LE N.	1,100 lb. per week, not to exceed 4,200 lb. per 2 mo.					
	OA N.	300 lb. per day, or 1 landing per week of up to 600 lb., not to exceed 1,200 lb. per 2 mo.					
South of 36° N. lat.	LE S.	1,900 lb. per week					
	OA S.	300 lb. per day, or 1 landing per week of up to 1,500 lb., not to exceed 3,000 lb. per 2 mo.					

5i. Modifications to blackgill rockfish (south of 40°10 N. latitude) bi-monthly cumulative landing limits for limited entry and open access fixed gear

The GAP recommends going with the highest range here for both fixed gear sectors.

LE South: 1,375 lb/2 months
OA South: 480 lb/2 months

The potential problem we see here is on the OA directed sablefish fishery which may catch this limit of blackgill just as bycatch, thus potentially shutting it down or mandating an RCA line adjustment. Again very diligent catch monitoring of the OA sector will be needed here.

Finally on blackgill, the GAP may want to discuss a reallocation between trawl and fixed gear that more closely resembles historical catch, such as a 53 percent fixed gear/47 percent trawl, which is what the 2000 to 2010 catch averaged

5j. Modifications to longnose skate bi-monthly cumulative landing limits and RCAs

The GAP discussed this and came to the conclusion that since the longnose skate harvest guideline has not been exceeded and that since bimonthly trip limits can be introduced during subsequent inseason management, there is no need to set bimonthly limits or RCA lines for this species at this time.

5k. Modifications to spiny dogfish bi-monthly cumulative landing limits and RCAs

Modifications to spiny dogfish are similar to the situation with longnose skate, but with a couple subtle differences and the GAP is working with the GMT to address some of those issues and will revisit this item under I.8. The GAP recommends the fleet maintain voluntary behavior and handling modifications – such as those we and the GMT mentioned in November – to reduce spiny dogfish impacts, should premature attainment of the Other Fish ACL be projected.

Also, as the GAP stated in November:

> "Reducing trip limits for spiny dogfish will help reduce impacts in any directed fishery that targets spiny dogfish. However, as the GMT stated, … changing trip limits will have little effect and will only lead to increased discards in fisheries that do not target spiny dogfish but do have an incidental bycatch of the species. Furthermore, decreasing trip limits could put unnecessary constraints on target fisheries."

5l. Recreational shelf rockfish retention in the CCA

The GAP agrees with staff recommendations

5m. Remove the California recreational bocaccio size limit

The GAP agrees with staff recommendations.

5o. Increase the California recreational bocaccio bag limit

The GAP agrees with staff recommendations.

5p. Increase the California recreational greenling bag limit

The GAP agrees with staff recommendations.

PFMC
04/03/12

GROUNDFISH MANAGEMET TEAM REPORT ON THE TENTATIVE ADOPTION OF 2013-2014 BIENNIAL HARVEST SPECIFICATIONS AND MANAGEMENT MEASURES

The Groundfish Management Team (GMT) reviewed and discussed the materials provided under this Agenda Item I.3. and offers the following considerations.

Given the number of items for consideration and the length of this report, the GMT attempted to follow the order and numbering of subjects as presented in Attachment 1 under this agenda item.

Contents

1. Preferred Non-Overfished Species Harvest Specifications

1a. Modify lingcod ABC, based on corrections from March 2012

The GMT supports modifying the lingcod allowable biological catch (ABC) based on corrections from March 2012.

1b. Adopt preferred ACLs, including modifications to lingcod based on the revised ABC

The GMT supports adopting preferred annual catch limits (ACLs), including modification to lingcod based on the revised ABC, as described in 1a.

2. Preferred Overfished Species Harvest Specifications

2a. Confirm or modify the rebuilding plan parameters and preferred ACLs

The GMT reviewed overfished species rebuilding plan parameters and preferred ACLs provided in Agenda Item I.3.a, Attachment 3. The GMT reviewed the Council's preliminary preferred ACLs, which are summarized below in Table 1, and offers the following comments. We expect to take more time discussing these preliminary preferred ACLs for Agenda Item I.8 and should have more time to respond to specific questions if the Council requests.

We offer some comments on the widow ACL alternatives below under the discussion on widow sector allocations.

As a reminder, the 2013-2014 integrated analysis compares the impacts of a range of ACLs for two species: canary rockfish and Pacific Ocean perch (POP). Only a single ACL (preferred) is considered within the integrated analysis for each of the remaining overfished species.

Table 1. 2013 Integrated alternatives.

Alternative	No Action	1 – PPA	2	3	4	5	6	7
Bocaccio	274	320						
Canary	107	116	101	116	48	216	101	147
Cowcod	3	3						
DRK	296	317						
POP	183	150	150	74	247	74	222	222
Petrale	1,160	2,592						
YE	17	18						

Comments on Stock Status

Regarding the preferred ACLs for canary rockfish and POP, the GMT notes that although it will be necessary to increase the median time to rebuild (i.e., T_{target}), the current biomass ($B_{current}$) is larger than biomass estimates shown in the previous stock assessments (i.e., both stocks are increasing in biomass). The primary difference between the two most recent assessments for both species was not a decrease in current biomass, but rather a perceived increase in B_0 (estimate of unfished biomass). We can offer additional explanation for Agenda Item I.8.

Management Implications of the Range of Alternatives

A general description of how management may be affected by the various combinations of ACLs shown in Table 1 are:

- Management measures for the recreational fisheries and commercial fixed gear fisheries would be similar among options 1, 2, 3, 5, 6, and 7. Option 4 (lowest canary rockfish ACL) would require more restrictive management measures than selection of any of the other options (1, 2, 3, 5, 6, and 7) for these fisheries. Varying the ACL for POP has no effect on recreational fisheries or on commercial fixed gear fisheries

- Trawl fisheries are affected by varying both POP (north of 40^{o} 10' N. latitude) and canary rockfish ACLs.

Canary ACL Alternatives – Impacts to Recreational Fisheries

The Oregon and California recreational fisheries are able to operate under status quo management measures under all of the ACL alternatives with the exception of the low Canary ACL of 48 mt. More restrictive management measures would need to be implemented for Oregon and California recreational fisheries in order to keep these fisheries under specified harvest guidelines associated with this alternative. The Washington recreational fishery would be able to operate under status quo management measures for the low canary alternative but projected mortalities are expected to be right at the harvest guideline leaving no buffer for unanticipated increases in encounters with canary rockfish.

Canary ACL Alternatives – Impacts to Nearshore and Non-nearshore Fisheries

The non-nearshore fishery and the Oregon and California nearshore fisheries are able to operate under status quo (No Action) management measures for all of the ACL alternatives with the exception of Alternative 4 (low canary ACL of 48 mt). More restrictive management measures would need to be implemented for non-nearshore fisheries (i.e., move the seaward fixed gear rockfish conservation area (RCA) from 100 fm to 150 fm, coast wide) and the Oregon and California nearshore fisheries (drastically reduced trip limits for target species and/or modifications to the seaward RCA) in order to keep these fisheries under specified canary rockfish harvest guidelines associated with Alternative 4.

The non-nearshore fisheries and the Oregon and California nearshore fisheries would not be affected by the higher canary rockfish ACLs shown under alternatives 1, 2, 3, 5, 6, or 7. Management measures will be similar for these fisheries among each of those alternatives and are implemented to reduce mortality of yelloweye rockfish (the constraining species under these alternatives).

Canary ACL Alternatives – Impacts to Trawl Fisheries

The trawl fisheries (whiting and non-whiting) are most impacted by Alternative 4 (lowest canary POP ACL) and Alternatives 3 and 5 (lowest POP ACLs). The remaining alternatives result in similar and less constraining management measures needed to keep total mortality below the respective ACLs.

3. Preliminary Management of Flexible Set-Asides and Allocations

3a. Adopt preliminary preferred options for flexible management of set-asides

The supplemental materials for this item were not available for the GMT to discuss in time for this agenda item. The Team will review the materials when available and provide comments under Agenda Item I.8 if possible.

3b. Confirm or modify the FMP within trawl allocation for widow rockfish

As we pointed out in November (Agenda Item E.4.b, Supplemental GMT Report 3, November 2011), there is considerable uncertainty around the estimate of steepness for widow, and in turn, considerable uncertainty in the stock's status (Agenda Item E.1.a, Attachment 3, November 2011). As in November, the Council may weigh that risk be revisiting the following decision table (Table 2, excerpted from that assessment), showing depletion under the base case and low steepness for the two ACL options.

Table 2. Decision table under two constant catch levels equal to the ACL alternatives and based on two different states of nature (steepness).

			State of Nature			
			h=0.41		Base Case (*h*=0.76)	
Management Decision	Year	Catch (mt)	Depletion (%)	Spawning Biomass (mt)	Depletion (%)	Spawning Biomass (mt)
Constant Catch (1500 mt)	2012	600	29.4	22288	50.7	36053
	2013	1500	28.6	21686	49.9	35514
	2014	1500	27.2	20619	48.5	34473
	2015	1500	26.1	19839	47.5	33785
	2016	1500	25.6	19443	47.2	33585
	2017	1500	25.7	19515	47.8	34014
	2018	1500	26.4	19993	49.2	35022
	2019	1500	27.2	20655	51.1	36325
	2020	1500	28.1	21354	53.1	37737
	2021	1500	29.0	22029	55.1	39182

	2022	1500	29.9	22648	57.1	40603
Constant Catch (2500 mt)	2012	600	29.4	22288	50.7	36053
	2013	2500	28.6	21686	49.9	35514
	2014	2500	26.4	20046	47.7	33896
	2015	2500	24.7	18729	45.9	32663
	2016	2500	23.5	17838	44.9	31957
	2017	2500	23.0	17460	44.9	31922
	2018	2500	23.1	17520	45.7	32499
	2019	2500	23.4	17783	47.0	33398
	2020	2500	23.8	18089	48.4	34429
	2021	2500	24.2	18364	49.9	35513
	2022	2500	24.5	18565	51.4	36589

There is little difference between the resulting depletion for both alternatives (i.e. they both approach or exceed the overfished threshold) at low steepness values. The GMT notes that the estimate of steepness is likely to be revisited in the next assessment and will strongly influence the estimate of stock status that results.

In addition to the new action alternatives for setting the ACL, the Council is considering alternative allocation schemes (Table 3, reproduced from Agenda Item I.3, Supplemental Attachment 7). These alternatives explore providing more opportunity for the shore-based trawl fleet (i.e., more widow allows for more shore-based midwater trawling opportunity).

Table 3. Trawl sector allocations, including No Action and five options, for widow rockfish under a range of ACL alternatives (mt).

ACL Alt.	Fishery HG	Trawl Alloc.	Widow Alloc. Option	SB IFQ Alloc.	At-sea Trawl Alloc.	MS Alloc.	CP Alloc.
Max. 2005-11 widow catch				124		73	73
600	513.4	467.2	Option 1	177.2	290.0	120.0	170.0
			Option 2	319.3	147.9	**61.2**	86.7
			Option 3	267.2	200.0	82.8	117.2
			Option 4	217.2	250.0	103.4	146.6
			Option 5	167.2	300.0	124.1	175.9
1,500	1,413.4	1,286.2	Option 1	996.2	290.0	120.0	170.0
			Option 2	1,138.3	147.9	**61.2**	86.7
			Option 3	1,086.2	200.0	82.8	117.2
			Option 4	1,036.2	250.0	103.4	146.6
			Option 5	986.2	300.0	124.1	175.9
2,500	2,413.4	2,196.2	Option 1	1,906.2	290.0	120.0	170.0

			Option 2	2,048.3	147.9	**61.2**	86.7
			Option 3	1,996.2	200.0	82.8	117.2
			Option 4	1,946.2	250.0	103.4	146.6
			Option 5	1,896.2	300.0	124.1	175.9

The same is true for the higher ACL alternative. An ACL of 2,500 mt allows for more shorebased trawling opportunity under all allocation scenarios. As we pointed out in November, this would result in increased midwater trawling to access widow and yellowtail, though that opportunity would likely be tempered by availability of canary.

As the Council considers both questions—the appropriate harvest level and the allocation to the shorebased trawl fleet—there are two different but interrelated issues to consider. One is the risk of widow dropping below the overfished threshold again in the near future and the other is the amount of opportunity to provide for midwater rockfish trawling. Both a higher ACL or a higher shorebased allocation might result in more participants gearing up for midwater rockfish trawling. The Council may wish to weigh this new targeting opportunity against the risk of finding out that steepness and depletion are considerably lower than currently estimated, and thus the risk of having to greatly reduce that opportunity in coming cycles.

3c. Two-year trawl and non-trawl allocations for bocaccio, canary, cowcod, petrale, and yelloweye

The Council may wish to reallocate fish from one sector to another, canary and yelloweye being the most likely candidates. The Council uses our best estimates of catch and total mortality in each sector to do so (see Supplemental Attachment 6). We would underscore that these projections are point estimates subject to varying degrees of uncertainty. Better informing the Council on this uncertainty and its consequences is an area we have wished to pursue since the last management cycle. We have not made much progress on formally quantifying this uncertainty in time to inform the Council this cycle. Nonetheless, awareness of projection uncertainty is a key piece—as the Council has recognized in past cycles—in making allocative recommendations. Figure 1and Figure 2 help visualize the ranges of catches we have seen for canary and yelloweye.

Canary interactions in certain commercial nearshore and recreational fisheries have been increasing in recent years. These encounters have made modeling canary total mortality more complicated and may result in more uncertain estimates. The Council may want to keep this in consideration when choosing whether or not to re-allocate fish among sectors.

Although predictions of catch within the individual fishing quota (IFQ) fishery during 2013-2014 constitute the best available information at the time of the analysis, several assumptions needed to be made for the IFQ catch projections for the 2013-2014 biennial harvest specifications and management measures which potentially had the effect of low-biasing projections for some species, including canary rockfish. Therefore, the Council should use caution when deciding on allocation levels for this fishery, including rebuilding stocks, such as canary rockfish.

First, due to the timeline for production of the preliminary DEIS, both catch and vessel account data were truncated at November 30, 2011 for input into the model. Thus, December catch was imputed based on historical levels but the actual December 2011 catch was exceptionally high. If this becomes a typical pattern in the IFQ fishery, this would mean model projections for 2013-2014 are too low. Two assumptions regarding trading of quota pounds (QP) also needed to be made; specifically, that QP trading had concluded for the input data (which was truncated), and that additional QP trading would not occur, beyond what had already taken place. Lastly, the first version of the model produced catch estimates for flatfish species that were biased low, which would could lead to low biasing of some bycatch species, including canary rockfish. The model itself is brand new and impossible to validate, since there is only one year of data available. Revisions to the model structure is planned for the next biennial harvest specifications and management measures cycle.

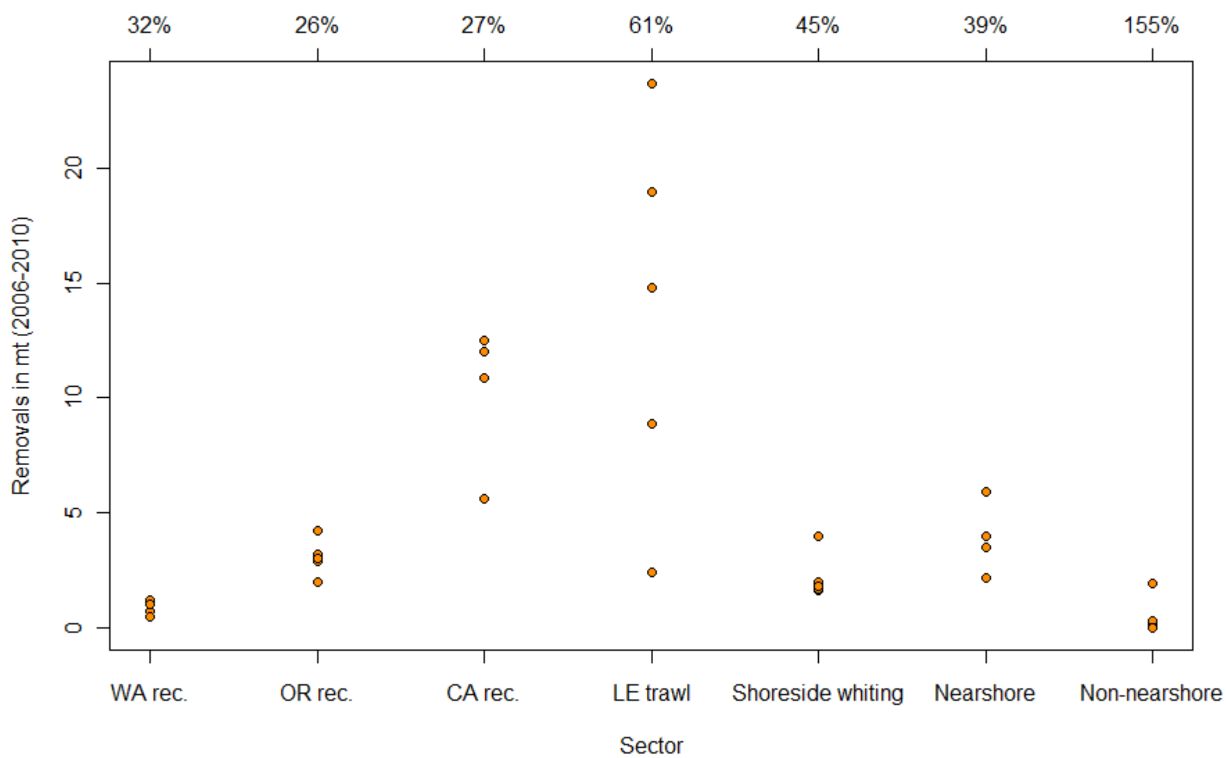


Figure 1. Canary catches for years 2006-2010 for several fishery sectors. Numbers on the secondary x-axis are the coefficient of variation of catch for each sector.

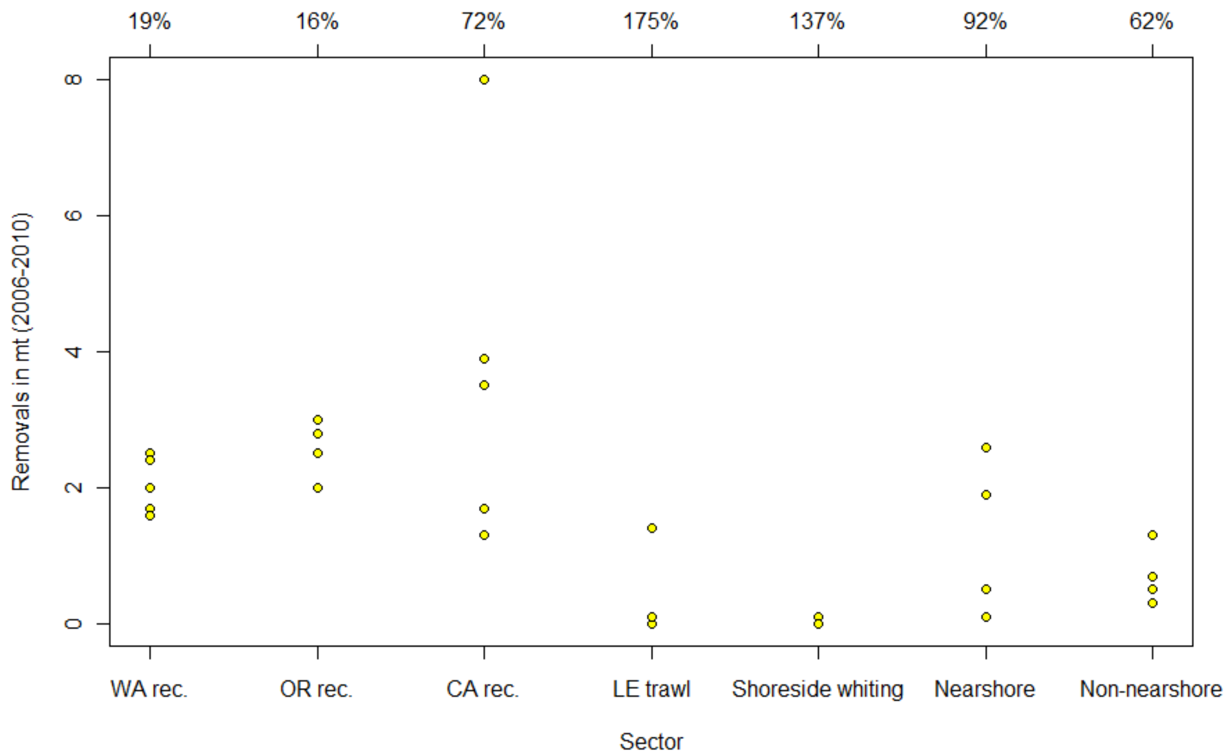


Figure 2. Yelloweye catch for years 2006-2010 for several fishery sectors. Numbers on the secondary x-axis are the coefficient of variation of catch for each sector.

3d. Harvest guidelines for black rockfish (OR and CA), blackgill rockfish (south of 40 10), blue rockfish (CA), spiny dogfish, and longnose skate

Black rockfish (OR and CA)

The Oregon Department of Fish and Wildlife (ODFW) and California Department of Fish and Game (CDFG) recommended maintaining the status quo allocation of black rockfish between California and Oregon (Agenda Item E.9.b, Supplemental Joint ODFW/CDFG Report, November 2011). The GMT recommends following the allocations proposed by CDFG and ODFW.

Blackgill Rockfish

The GMT notes that a technical correction was made to the ABC calculation in the stock assessment. In November, the Council recommended setting a harvest guideline at a level which would be equivalent to the ACL contribution to the complex. The GMT did not identify any issues with this approach. The GMT notes that blackgill rockfish management measures discussed below were revised to reflect the correction noted above.

Blue rockfish (in CA)

In November 2011, the Council recommended maintaining the status quo methodology for calculation of the harvest guideline in California, which would result in a harvest guideline of 236 mt in 2013 and 2014. The GMT recommends maintaining this methodology.

Spiny dogfish

The HG for spiny dogfish is discussed below.

Longnose skate
Longnose skate are primarily caught by 2 sectors – non-trawl and shoreside trawl. The No Action harvest guideline for longnose skate is 95 percent trawl and 5 percent non-trawl. The Council's preferred harvest guideline for 2013-2014, which is 90% trawl and 10% non-trawl, is more reflective of observed total mortality distributed between the two sectors. More detail regarding harvest guideline options can be found under section 5.j (below) and in Table 2-11 of the preliminary DEIS (Agenda Item I.3.a, Attachment 5).

3e. Changes to proposed tribal management measures—<u>new</u>

The GMT reviewed the letter from the Makah Tribe (Agenda Item I.3.b, Supplemental Tribal Comment) requesting changes to set-asides and trip limits for several species. None of the proposed changes are large enough to affect management measure analysis. Council staff has indicated that changes to set asides will not be incorporated into the analysis until after final action.

4. Adopt Preliminary Preferred Season Structure

4a. IFQ --Trawl RCA configurations

Projected catch estimates for 2013-2014 harvest specifications were made using one year of fishery catch which was made under the final RCA configuration in regulation for 2011. The No Action Alternative (2012) trawl RCA boundaries were listed in the preliminary DEIS as they existed at that time. Since then, the RCA boundaries which would be in place in 2012 as the No Action Alternative have been liberalized, due to the RCA change recommended by the Council at the March 2012 meeting. Those changes were to move the shoreward boundary from 75 fm to 100 fm during periods 3 and 5, north of 40° 10' N. lat. These changes mean the No Action Alternative could yield somewhat more bycatch of nearshore rebuilding stocks than projected for 2012. The RCA boundaries are not currently an input to the model, as bycatch rates under more than one configuration in the IFQ fishery do not yet exist, and bycatch under alternative RCA configurations cannot be reliably projected at this time. Thus, it is important to note that future RCA configurations which are more liberal than those in 2011 in any alternative will mean that the projections may be lower than those in the preliminary DEIS.

Every biennial cycle, the GMT provides analysis on the RCA boundaries for commercial fisheries. In the rationalized fishery, trawl and legal non-trawl gears can be used to harvest groundfish QP. Vessels adhere to the RCA according to the gear deployed.

For the 2013-2014 process, the GMT is requesting Council guidance on the scope of the IFQ RCA analysis for 2013-14. Changes to the current RCA structure would be explored to provide increased access to target species, while allowing individual accountability to minimize impacts to overfished species. Council guidance is necessary so that the GMT can coordinate with the Project Team to determine the type and scope of analysis required for the desired action. For example, some changes may be considered routine and accomplishable through inseason actions, while others may require analysis in the DEIS.

There is a wide range of RCA changes that could be contemplated. We list some examples below. To be clear, the GMT does not specifically endorse or recommend any of these options, but lists them only for purposes of initiating discussion:

1. Changing the shoreward trawl RCA boundary from shore to 75 fm or 100 fm (boundaries in 2007, prior to shoreward closure), in the area north of Cape Alava (48°10' N. latitude)
2. Narrowing the trawl RCA either coastwide or in small areas of the coast. Examples of previous requests include:
    a. Implementing a modified 200 fm trawl RCA boundary in Period 2 to provide increased access to petrale sole north of 40°10' N. latitude (Request from Agenda Item H.4.b, Supplemental GAP Report, March 2011)
    b. Implementing a year round shoreward trawl RCA boundary of 100 fm north of 40°10' N. latitude (Request from Agenda Item H.4.b, Supplemental GAP Report, March 2011).

4b. Non-Nearshore -- non-trawl RCA seaward configurations

The No Action seaward boundary for the non-trawl RCA is 100 fm from 40°10' N. latitude to the U.S. Canada border and 150 fm from 36° – 40°10' N. latitude (see preliminary DEIS, Appendix D, Figure C-5). No Action management measures would remain in effect under Alternatives 1, 2, 3, 5, 6, and 7. However, if the Council chooses Alternative 4 (low canary option), then the seaward non-trawl RCA would need to be moved to 150 fm coastwide (see preliminary DEIS, Appendix D, Figure C-6).

4c. Nearshore -- non-trawl RCA shoreward configurations

Based on Council direction, the GMT maintained status quo catch sharing for canary (OR = 26.7%; CA = 73.3%) and yelloweye rockfish (OR = 72.7%; CA = 27.3%) for modeling purposes. Under all alternatives, analysts explored two additional catch sharing scenarios to demonstrate the tradeoffs of varying overfished species allocations.

Under Alternatives 1-3 and 5-7, the nearshore fishery is primarily constricted by yelloweye rockfish. Two options (Option a and Option b) are included under each of these alternatives. In all of these cases, the RCA configuration would remain unchanged from No Action under Option a (30 fm north of 43° N. latitude; 20 fm between 43° N. latitude and 40° 10' N. latitude; 30 fm between 40° 10' N. latitude and 34° 27' N. latitude; 60 fm south of 34° 27' N. latitude). Under

Option b (i.e., 1b-3b and 5b-7b), the shoreward RCA would be moved from 20 fm to 30 fm between 42^o and 43^o N. latitude (i.e., the shoreward RCA would be 30 fm for the entire Oregon coast). This RCA liberalization may provide more fishing area, may increase fishing efficiency, and may decrease gear conflicts, but would also require landings reductions of target species relative to Options 1a-3a and 5a-7a.

Note that an additional increase in the yelloweye rockfish allocation to the nearshore fishery may allow for a liberalization of the RCA back to 30 fm for the area between 42º N. latitude and 40º 10' N. latitude and may allow landings that are closer or equal to historic state landing caps.

Under Alternative 4, the nearshore fishery is primarily constricted by the low allocation of canary rockfish, which is 50 percent lower than No Action. Shallow depth restrictions and large reductions in landed catch would be necessary due to areas of high canary bycatch.

Under Alternative 4a, the RCA configuration north of 42° N. latitude would include a 20 fm depth restriction statewide with a 40 percent reduction to landed catch relative to No Action. South of 42° N. latitude under Alternative 4a, a 20 fm depth restriction would be implemented statewide with a 20 percent reduction to landed catch; under Alternative 4b, the No Action RCA configuration would be implemented (20 fm between 42° N. latitude and 40° 10' N. latitude; 30 fm between 40° 10' N. latitude and 34° 27' N. latitude; 60 fm south of 34° 27' N. latitude) with a 45 percent reduction to landed catch relative to No Action.

4d. Washington Recreational -- Season date, bag limits, and area closures

Washington Recreational Fisheries Structure

The Washington recreational fishery season structure under the Preliminary Preferred Alternative is the same as the No Action Alternative described in Appendix C of the preliminary DEIS (Agenda Item I.3, Attachment 5, pdf page 422) and summarized below. The Washington recreational fishery can operate under all overfished species ACL alternatives, including the low canary alternative, under the Preliminary Preferred Alternative season structure.

Depth restrictions and area closures have been used for several years to keep the fishery focused in shallower water where there is expected to be a reduced encounter rate of yelloweye rockfish and increased survivability of released rockfish. Management measures necessary to keep recreational harvest of yelloweye rockfish within harvest guidelines require closure or significant restriction of the groundfish fishery in areas deeper than 20 and 30 fathoms along a substantial portion of the Washington coast, restrictions on groundfish retention during peak recreational fishing periods, and closed areas.

Table 4. Washington Recreational Seasons and Groundfish Retention Restrictions under the No Action Alternative.

Marine Area	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
3 & 4 (N. Coast)	Open all depths					Open <20 fm June 1-Sep 30 a/				Open all depths		
2 (S. Coast)	Open all depths		Open <30 fm Mar 15 - June 15 b/, c/, d/, g/			Open all depths except lingcod prohibited on Fri. and Sat. >30 fm e/,g			Open all depths g/			
1 (Col. R.)	Open all depths g/				Open all depths f/, g/					Open all depths g/		

a/ Groundfish retention allowed >20 fm on days when Pacific halibut is open.
b/ Retention of sablefish and Pacific cod allowed seaward of 30 fm from May 1- June 15.
c/ Retention of rockfish allowed seaward of 30 fm.
d/ Retention of lingcod allowed seaward of 30 fm on days that the primary halibut season is open.
e/ Retention of lingcod prohibited >30 fm, south of 46°58 on Fri. and Sat. from July 1 – August 31.
f/ Retention of groundfish, except sablefish and Pacific cod, prohibited with Pacific halibut on board.
g/ Retention of lingcod prohibited in deep-water areas at all times.

Groundfish Seasons

Under the Preliminary Preferred Alternative, the Washington recreational fishery would be open year round for groundfish except lingcod. Washington would continue to prohibit the retention of canary and yelloweye rockfish in all areas.

Groundfish Bag Limits

Under the Preliminary Preferred Alternative the recreational groundfish bag limit would be 12 fish per day including rockfish and lingcod. Of the 12 recreational groundfish allowed to be landed per day, sub limits of 10 rockfish, 2 lingcod and 2 cabezon would apply.

Lingcod Seasons and Size Limits

Under the Preliminary Preferred Alternative there would be no changes to the lingcod seasons and size limits in 2013 and 2014, the season would be as follows:

- Marine Areas 1-3: March 16 through October 12 in 2013 and March 15 through October 18 in 2014. Minimum size, 22 inches.
- Marine Area 4: April 16 through October 12 in 2013 and April 16 to October 15 in 2014. Minimum size, 24 inches.

Area Closures

Under the Preliminary Preferred Alternative, fishing for, retention or possession of groundfish and halibut during the Washington recreational groundfish and Pacific halibut fisheries would be prohibited in the following areas:

- C-shaped yelloweye rockfish conservation area (YRCA) in the north coast
- South coast and Westport YRCAs in the south coast

Lingcod fishing, retention or possession would be restricted in the following areas:

- Deep water areas in the south coast and Columbia River areas.

4e. Oregon Recreational -- season dates, bag limits, and area closures

<u>Preliminary Preferred Alternative</u>

Fishery Structure

The Oregon recreational fishery season structure under the Preliminary Preferred Alternative is the same as the No Action Alternative described in Appendix C of the preliminary DEIS and summarized below (Agenda Item I.3., Attachment 5, pdf page 451).

Depth restrictions are the primary tool used in the Oregon recreational fishery to keep total mortality of overfished species within allocations. Restricting the recreational groundfish fishery to shallower than 40 fathoms from April to September, the peak recreational fishing period, reduces impacts to overfished species in two ways: reducing the encounter rate of yelloweye; and canary rockfish and increasing the survival of released rockfish.

<table>
<tr><th></th><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>Jun</th><th>Jul</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
<tr><td>Groundfish Season</td><td colspan="3">Open all depths</td><td colspan="6">Open < 40 fm</td><td colspan="3">Open all depths</td></tr>
<tr><td>Marine Bag Limit [1]</td><td colspan="3">Ten (10)</td><td colspan="6">1 Fish Cabezon Sub-Bag [2]</td><td colspan="3">Ten (10)</td></tr>
<tr><td>Lingcod Bag Limit</td><td colspan="12">Three (3)</td></tr>
<tr><td>Flatfish Bag Limit [3]</td><td colspan="12">Twenty Five (25)</td></tr>
</table>

1 Marine bag limit includes all species other than lingcod, salmon, steelhead, Pacific halibut, flatfish, surfperch, sturgeon, striped bass, pelagic tuna and mackerel species, and bait fish such as herring, anchovy, sardine, and smelt
2 From April 1 through September 30, the marine bag limit is Ten (10) fish per day, of which no more than one (1) may be cabezon.
3 Flounders, soles, sanddabs, turbots and halibuts except Pacific halibut

Figure 3. Oregon Recreational Groundfish Season Structure and Bag Limits in 2013-2014 Under the No-Action Alternative.

Groundfish Bag Limits

Under the Preliminary Preferred Alternative, the Oregon recreational groundfish fishery bag limit would be 10 fish per day, with a 1 fish cabezon sub-bag limit. The lingcod bag limit would be 3 fish per day. The flatfish bag limit would be 25 fish per day.

Area Closures

Under the Preliminary Preferred Alternative, fishing for, retention or possession of groundfish and halibut would be prohibited in the Stonewall Bank YRCA that has been in place for several cycles (Appendix C of the preliminary DEIS, Supplemental Attachment 5, pdf page 451-452). No changes to the size or shape of the YRCA would be necessary.

Alternative 4

Fishery Structure

Under Integrated Alternative 4, canary rockfish instead of yelloweye rockfish, becomes the most limiting species to the Oregon recreational fisheries. To keep projected total mortality of canary rockfish within the Oregon recreational allocation more severe depth restrictions in the groundfish fishery or somewhat less severe depth restrictions plus a suspension of the recreational Pacific halibut fishery will be required (Agenda Item I.3., Attachment 5, pdf page 464).

Alt.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SQ	All depth			40 fm						All depth		
4A	20 fm											
4B	30 fm --No Halibut											

Figure 4. Oregon Recreational Groundfish Fishery Season Options in 2013-2014 under the integrated alternative 4.

Groundfish Bag Limit

Under Integrated Alternative 4 the recreational groundfish bag limits would be the same as the preliminary preferred alternative.

Area Closures

Under the Preliminary Preferred Alternative, fishing for, retention or possession of groundfish and halibut would be prohibited in the Stonewall Bank Yelloweye Rockfish Conservation Area (YRCA) that has been in place for several cycles. No changes to the size or shape of the YRCA would be necessary.

4f. California Recreational - Season dates, bag limits, and area closures

Season and Depth Restrictions under the Integrated Alternatives

Under all the integrated ACL Alternatives except the low canary rockfish ACL (Alternative 4), yelloweye rockfish limit the allowable depth restrictions and season lengths in Management Areas North of Point Conception, while encounters with cowcod limit the Southern Management Area. The season and depth restrictions, harvest guidelines and resulting mortality on overfished species for these alternatives are provided in Figure 5, Table 5, and Table 6, respectively. All divers and shore-based anglers are exempt from the seasonal closures for rockfish, cabezon, greenlings, lingcod, and California scorpionfish.

All integrated ACL alternatives except Alternative 4 allow a two week extension of the season in the Mendocino Management Area to Sept 2nd allowing fishing through Labor Day weekend

(Sept 2nd in 2013 and Sept 1st in 2014) as opposed to closure on August 15th under the No Action Alternative. Under all other alternatives, the projected total mortality on yelloweye rockfish increase by only 0.2 mt compared to the No Action Alternative, as a result of the increased season length in the Mendocino Management Area. No increases to other overfished species are expected. The number of angler trips is expected to increase under these alternatives for both private/rental boats (PR) and the Commercial Passenger Fishing Vessels (CPFV). CDFG estimates that an increase of approximately 1,400 angler trips on PR boats and 300 angler trips on CPFVs could occur in the Mendocino Management Area from August 15th to September 2nd providing a substantial increase in fishing opportunity.

Under Alternative 4, shallower depth restrictions (Option a) or reduced season lengths (Option b) relative to the No Action Alternative, would be required to keep mortality within the reduced canary rockfish HG of 7.1 mt in 2013 and 7.4 mt in 2014. As a result, the low canary rockfish allocation based on the Council's status quo catch sharing plan will adversely impact communities statewide. These impacts on communities vary depending on which option is being evaluated. The recreational fishery will not be able to fully utilize the available yelloweye rockfish allocation under this alternative due to the low allocation of canary rockfish.

The California recreational groundfish fishery has historically operated in deeper depths with longer seasons (PFMC, 2003). However, with more restrictive recreational harvest guidelines for the overfished groundfish species, communities in all the management areas coast wide have seen drastic reductions in season length and considerable increases in depth restrictions. Alternatives other than Alternative 4 would provide an additional two weeks of fishing opportunity in the Mendocino Management Area which has only a three month fishing season under the No Action Alternative. Alternatives that allow this additional opportunity would bring the seasons closer to historical fishing seasons in the area.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed				May 15 – Oct 31 <20fm						Closed	
Mendocino	Closed				May 15 – Sept 2 <20fm				Closed			
San Francisco	Closed					Jun 1 – Dec 31 <30fm						
Central	Closed				May 1 – Dec 31 <40fm							
Southern	Closed		Mar 1 – Dec 31 <60 fm									

Figure 5. California recreational groundfish season structure for 2013-2014 under integrated ACL Alternatives 1, 2, 3, 5, 6, and 7.

Table 5. California recreational allocations/harvest guidelines for 2013-2014 under integrated ACL Alternatives 1, 2, 3, 5, 6, and 7.

Species	Harvest Guideline (mt)
Bocaccio	167.9/174.2
Canary Rockfish	22.6/23.3
Cowcod*	1.0
Yelloweye Rockfish	3.4

*Non-trawl allocation

Table 6. California recreational projected impacts to overfished species for 2013-2014, under integrated ACL Alternative 1, 2, 3, 5, 6, and 7 including impacts to bocaccio from proposed changes to management measures.

Species	Projected Impacts (mt)	
Bocaccio	Two fish sub-bag limit (status quo)	50.7
	Three fish sub-bag limit	5.8
	Removing 10' minimum size length	0.2
	Total	56.7
Canary Rockfish	11.1	
Cowcod	0.3	
Yelloweye Rockfish	3.4	

Management Measures

CDFG proposed changes to the status quo management measures (sections 5l, 5m, 5o, and 5p below) for implementation in 2013-2014 under all of the integrated alternatives.

The detailed analysis provided in the April briefing book (Attachment 5, Agenda Item I.3, April 2012) indicate that the impacts resulting from the proposed recreational management measures are not expected to exceed any harvest guidelines, let alone any ACLs or overfishing levels (OFLs) for target species or increase total mortality of overfished species other than bocaccio. The three management measures affecting interaction with bocaccio are projected to result in an aggregate total mortality of 56.7 mt of bocaccio mortality, which can be accommodated within the 2013-2014 harvest guidelines (167.9 mt and 174.2 mt, respectively), with adequate buffer for uncertainty. To aid in evaluation of these management measures relative to the status quo management measures, increase in targeting, changes in angler behavior, and changes in effort for each of the management measures are provided in Table 7 below for reference.

Table 7. The justification, expected overfished species impacts relative to status quo, increase in targeting, changes in angler behavior, and changes in effort for each of the management measures proposed by CDFG for 2013-2014.

Management Measure	Objective	Overfished Species Impacts Relative to Status Quo	Increased Targeting	Change in Fishing Behavior	Change in Effort
Allow retention of shelf rockfish retention in the open groundfish season/depths (0-20 fm) in the CCA.	Reduced regulatory discard mortality. Bycatch converted to landings.	Minor increase in bocaccio impacts easily accommodated given total projected mortality and HG. No increase in cowcod is expected, since they are predominantly found in greater than 40 fm.	None. CCA is far from port. Other non-rockfish species are the primary targets.	Reduced discarding, bag limits achieved more quickly by converting discards to landings	Minor. CCA is far from port. Other non-rockfish species are the primary targets.
Increase the bocaccio sub-bag limit from two to three fish within the ten fish RCG bag limit.	Reduced regulatory discard mortality. Bycatch converted to landings.	Projected bocaccio impacts increase by 6.0 mt. No increase in cowcod mortality expected as bag limits are reached more quickly.	None. The aggregate 10 fish RCG bag limit remains the same and bocaccio offer no additional impetus for targeting.	Reduced discarding, bag limits achieved more quickly by converting discards to landings	None, since the aggregate RCG bag limit has not changed and smaller bocaccio are not the primary target.
Eliminate the ten inch size limit on bocaccio.	Reduced regulatory discard mortality. Bycatch converted to landings. Regulatory simplification.	0.2 mt projected increase in bocaccio mortality though may decrease as small fish displace larger in the sub-bag limit. No increase in cowcod mortality expected.	None expected since smaller fish are not targeted.	Reduced discarding, bag limits achieved more quickly by converting discards to landings.	None since small fish are not a targeted.
Increase kelp greenling sub-bag limit from two to ten fish within the ten fish RCG bag limit.	This will allow the recreational fishery to come closer to achieving their allocation under the increased ACL. Regulatory simplification.	None since greenlings are predominantly found in less than 10 fm where overfished species are uncommon.	Minor potential increase in shore based targeting since they are solitary. They are seldom targeted by boat based anglers.	Some boat based groundfish anglers may focus their effort closer to shore though other species are more desirable.	Minor potential increase in shore based effort.

5. Adopt Preliminary Preferred Management Measures

5a. RCA boundary modifications

The GMT did not have the opportunity to fully discuss this issue in and will include it under Agenda Item I.8 if the Council desires.

5b. Sorting requirements for aurora (north of 40° 10' N. latitude), shortraker (north of 40° 10' N. latitude), and rougheye (north of 40° 10' N. latitude) rockfish

The Council will be recommending whether to pursue the sorting designation for these three slope rockfish in the area north of 40° 10’ N. latitude, with the final recommendation scheduled for June. The GMT does not have much to add in terms of substance to the analysis of this issue provided in Supplemental Attachment 7 and summarized in Attachment 4 (Agenda Item I.3, April 2012).

With only two options at play, it seems less important for the Council to choose a preferred option at this meeting than to identify questions and areas for additional analysis. Identifying a preliminary preferred option at this meeting might have other benefits, however, such as focusing public comment for June, signaling the Council’s preference if one exists.

The crux of the issue described in the main analysis involves how well the sorting designation would serve its intended purpose of more precise and timely landings data, compared to an approach that pursued that same purpose using data from the state port sampling programs. The lack of individual total mortality estimates—inseason and post season—for these three stocks is due partly to the fact that competing priorities have kept them from being produced in earlier cycles and to the fact that the stocks are currently landed and reported as part of the minor slope rockfish sub-complex. It is possible, as we saw in November, to produce individual estimates of total landings for individual stocks without the sorting designation.

We typically expect that a sorting designation will produce superior information on landings because the designation is thought to allow for a complete count (or census) of landings. However, as articulated in the main analysis, identification of rockfish can be difficult even for professional biologists. Relying on buyers and vessels to make the correct species identification might therefore result in improper sorting, and in turn, inaccuracy in the census of landing. Because of this, some have argued that port sampling will produce more accurate estimates of landings for these stocks than would a sorting designation.

Others, while agreeing that identification can be challenging, believe that it is possible for vessels and buyers to sort accurately, especially over time and with education and outreach. A number of species are now sorted that once were not. In addition, much of the landings of these three stocks come in the IFQ fishery where observers and catch monitors are present to help with identification. The differences in opinion on the accuracy that will result from the sorting designation are not resolvable by the GMT at this time.

It seems reasonable to expect that something less than perfect sorting would result at least straight away. Yet the question of whether the sorting designation would produce better landings estimates than would estimates based on port sampling is more complicated.

To better inform the question on how well landings could be tracked without a sorting designation, the GMT or others would need to examine the statistical quality of the landings estimates produced using the port sampling data. Expert port samplers are most likely to accurately identify species and produce accurate estimates of species composition from a landing of slope rockfish, yet the quality of landings estimate for a stock will depend on:

(1) the coverage level (i.e., the percentage of overall slope rockfish landings sampled); and,
(2) the rarity of the stock in the catch (i.e., the rarer a stock appears in the catch , the more uncertain the estimate will be for a given level of sampling coverage).

Further complicating the issue, coverage levels will differ by strata in terms of time (e.g., month) and area (e.g., port). In the past, we have seen a single sample from one port influence an estimate of annual catch. We have not yet had the chance to investigate the coverage levels for slope rockfish in each of the states and to see whether such a thing is happening here. We may be able to provide the Council with some additional information during Agenda Item I.8. A more thorough look is possible in time for the Council's consideration of this issue in June.

This issue of statistical quality has come up for aurora, shortraker, and rougheye rockfish in the context of 2011 landings. Overall slope rockfish landings dropped substantially in the IFQ sector from what we have seen in previous years. In an attempt to determine how the catch of aurora, shortraker, and rougheye rockfish were affected, staff discovered that the IFQ estimates are considerably lower than the PacFIN estimates (e.g. for rougheye rockfish the difference in landings is between 1.5 mt and ~60 mt). Further time to investigate the reasons for this difference is needed. The IFQ data is preliminary yet is presumed to be more accurate because of the 100 percent coverage from observers onboard vessels and from catch monitors at offloads. On the other hand, there have been suggestions that the catch may not be perfectly sorted, and that the discrepancy could be caused by inaccurate sorting than expansions of port samples. The discrepancy was not discovered until a few days before arriving at this meeting. The reason for this difference among sampling results will be explored further.

Another area for additional input is on the implications of the sorting requirement on vessel and buying/processing operations. The information available to analysts on these implications is limited. Input from the GAP and public could help the Council better understand the practical changes and challenges that would be caused by this sorting designation. Likewise, the GMT sees the same benefit to the Council from input from the Enforcement Consultants on this issue and from additional input from the state port sampling programs.

Lastly, the Council also requested input on the general management implications of a sorting designation. The analysis highlights, and the GMT concurs, that the sorting designation only addresses catch accounting purposes. It is not a management measure for controlling catch. If the Council identified a need to lower catch of aurora, rougheye, or shortraker rockfish then additional management measures would be needed.

Bottom trawl and fixed gear vessels in waters seaward of the RCA are the two main sources of catches of these stocks. As described in the main analysis, the seaward boundary of the RCA is the only management measure available for mitigating catch of these stocks in the IFQ fishery. Based on the data shown in Supplemental Attachment 7, the GMT notes that the seaward boundary of the RCA (both trawl and non-trawl) would have to be moved to 250 fm or perhaps 300 fm to achieve the necessary reductions in catch. The change would depend on the amount of catch reduction needed and would have to be examined closely under the specific circumstances.

For fixed gear fisheries, trip limits might be effective at lowering catch of aurora, rougheye, and shortraker rockfish. The effectiveness would depend on the degree to which targeting of slope rockfish is occurring. If catch is largely incidental to the pursuit of key target stocks (e.g. sablefish), then trip limits would have limited effectiveness at lowering total mortality of aurora, rougheye and shortraker rockfish.

At this time, the GMT cannot advise the Council on the potential need for management action in 2013. We understand that the Council may receive additional guidance from the SSC and NMFS on addressing catch relative to the component OFL and ABCs of stocks managed in stock complexes under this agenda item.

5.b.2. Blackgill Rockfish (south of 40° 10' N. latitude)

Although there is no formal requirement to sort blackgill rockfish to individual species under No Action, many in the fleet already do so. Blackgill rockfish are easy to identify and commanded the best 2011 average price per pound of the minor slope rockfishes, so implementing a sorting requirement (as a result of implementing a harvest guideline, ACL or scientific sorting requirement) is not expected to change current fleet practices or daily operations. If anything, a sorting requirement could work in favor of the industry due to blackgill rockfish’s highest ex-vessel unit price. A sorting requirement may have an impact on state and federal programs because time and money may need to be invested into state sampling programs to increase the accuracy of identification.

5c. Catch accounting between limited entry and open access

The GMT supports this management measure as it would align the regulations in catch accounting with Council intent.

5d. Remove or reduce to 20” the lingcod minimum length limit in the shorebased IFQ fisheries (all legal gears)

The GMT did not have time to fully discuss this issue in time for this statement, and will include it under Agenda Item I.8.

5e. Modifications to the shorebased IFQ accumulation limits

The GMT did not have time to fully discuss this issue in time for this statement, and will include it under Agenda Item I.8.

5f. Modifications to the shorebased IFQ surplus carryover

The GMT did not have time to fully discuss this issue in time for this statement, and will include it under Agenda Item I.8.

5g. Regulatory correction for moving between the sablefish primary fishery to the daily trip limit fishery

The elimination of the daily trip limit in the LEFG sablefish DTL fishery, north of 36° N. latitude., at the request of the Groundfish Advisory Subpanel (GAP) and analysis of the GMT in 2009, caused the unintended consequences of impacting the amount of sablefish that LEFG primary fishery participants north of 36° N. latitude are allowed to land as they conclude fishing on their tier limits.

The Proposed Action to correct this situation is to add the following language in regulation:

"In the absence of a daily limit, 300 pounds would serve as a proxy for the daily limit ("the DTL amount"), only acting as the threshold to facilitate the transition of a vessel from participation in the sablefish primary fishery, to the sablefish DTL fishery."

More detail can be found in Appendix D of the preliminary DEIS under section D.12 (Agenda Item I.3.a, Supplemental 7).

The GMT agrees with this correction, and recommends the Council consider adopting this preliminary preferred Option.

5h. Proposed changes to sablefish limited entry and open access bi-monthly cumulative landing limits

The GMT recommends landing limits shown in Tables D-38 and D-41 (Supplemental Attachment 7) for the 2013 and 2014 sablefish limited entry and open access fisheries.

5i. Modifications to blackgill rockfish (south of 40°10' N. latitude) bi-monthly cumulative landings limits for limited entry and open access

At the November meeting, the Council preliminarily recommended to continue to manage blackgill rockfish within the slope rockfish complex south of 40º10' N. latitude and implement a harvest guideline. Per Council guidance, the non-trawl blackgill rockfish allocation was divided 60 percent LE (23.4 mt) and 40 percent OA (15.6 mt) to facilitate modeling trip limits.

Two modeling approaches (using 90 percent and 100 percent attainment of the non-trawl allocation) were used to analyze bi-monthly limits assuming average catch of all participating vessels from 2008 to 2010. The results of those trip limits are shown below in Table 8. Under a harvest guideline, any blackgill rockfish trip limit would be implemented as a sub-limit.

Table 8. Summary of bi-monthly trip limits for the limited entry and open access sectors assuming 90 percent and 100 percent attainment of the non-trawl allocation.

	90 % attainment	100% attainment
Limited Entry	1,200 lb./2 mo.	1,375 lb./2 mo.
Open Access*	400 lb./2 mo.	475 lb./ 2 mo.

*OA trip limits were rounded for ease of management

The GMT does not have any recommendation on these trip limits as the choice is primarily a risk call. The GMT notes that trip limits are a routine management measure that can be adjusted inseason. If landings are tracking higher or lower than expected, trip limits and/or RCA modifications can be implemented.

The GMT also notes that if blackgill rockfish was removed from the slope rockfish complex and given its own ACL, the management measures and trip limits for the LE and OA sectors would be the same as those under a harvest guideline. The only difference is that a species specific trip limit could be implemented, instead of a sub-limit (i.e., blackgill rockfish could be given its own line in the trip limit tables).

5j. Modifications to longnose skate bi-monthly cumulative landing limits and RCAs

Management measures that may be used to reduce fishing mortality for longnose skate during 2013-2014 are provided on pages 115–125 of Supplemental Attachment 7. Pages 88 through 115 provide background information and describe the basis for potential trip limit and RCA options. Most longnose skate are encountered in the shoreside trawl (~ 90 percent) and non-trawl sectors (~10 percent). Three-trip limit options (trawl and non-trawl) and two RCA options (trawl only) are provided that could be used to reduce longnose skate mortality, if needed. A summary of the options (along with a summary table) begins on page 126 of the preliminary DEIS Appendix D (Agenda Item I.3.a, Supplemental Attachment 7). An executive summary of this management measure is also provided in Agenda Item I.3.a., Supplemental Attachment 6 on pages 7–8.

The GMT concluded, based on new information, that additional management measures may not be needed to reduce mortality at the beginning of 2013. New information suggests that expected fishing mortality in 2013 and 2014 (1,120 – 1,182 mt) will not exceed the Preliminary Preferred ACL (2,000 mt) or the No Action ACL (1,349 mt). The new information was provided at the March 2012 Council meeting, where the Science and Statistical Subcommittee (SSC) recommended that the same discard mortality assumption used in assessments (50 percent mortality for trawl and fixed gear) be applied in management for catch accounting (Agenda Item F.2.b, Revised Supplemental SSC Report, March 2012). Prior to this recommendation, catch accounting assumed 100 percent mortality for discarded longnose skate for all sectors. This former mortality assumption led to the initial urgency of implementing management measures, because west coast groundfish total mortality reports demonstrated that 2009 and 2010 OYs (1,349 mt) were exceeded.

Note that in this analysis, the No Action option includes (a) No Action ACL (1,349 mt), (b) No Action management measures (e.g., trip limits and RCAs), and (c) No Action harvest guidelines (95 percent trawl – 5 percent non-trawl). Under this option, the 2013 and 2014 non-trawl harvest guidelines (61 mt) would be exceeded by the expected total mortality for that sector (65-91 mt), assuming 50 percent discard mortality (Table 9). Note however, that if the Council decides to choose the preliminary preferred harvest guideline (90 percent trawl – 10 percent non-trawl) and set-asides, while at the same time opting to select the No Action ACL (1,349 mt), then neither the trawl harvest guideline (which would be approximately 1,153 mt) nor the non-trawl harvest guideline (which would be approximately 128.7 mt) would be exceeded by expected sector-specific mortalities for longnose skate (1,025-1,106 mt for shoreside trawl and 65-91 mt for fixed gear).

The GMT therefore recommends that, regardless of the ACL option selected by the Council (PPA or No Action), the trawl: non-trawl harvest guideline be specified at 90 percent trawl: 10 percent non-trawl to more closely approximate actual encounter proportions between the sectors. **This preliminary preferred harvest guideline is also shown in Table 2-11 of the preliminary DEIS (Agenda Item I.3.a, Attachment 5).**

Table 9. 2013-2014 expected total mortality and harvest guidelines for longnose skate by sector assuming: (1) preliminary preferred ACL (2,000 mt), set-asides, and sector harvest guidelines (90% trawl; 10% non-trawl), (2) No Action ACL (1,349 mt), set-asides, and harvest guidelines (95% trawl; 5% non-trawl), and (3) No Action ACL (1,349 mt), and preliminary preferred set-asides and harvest guidelines (90% trawl; 10% non-trawl).

	Expected mortality (mt)	Harvest Guidelines (mt)		
Sector	No Action 2013-2014 expected mortality (min-max; mt)	1 PPA ACL (2,000), set-aside, and harvest guidline	2 No Action ACL (1,349), set-aside, and harvest guideline	3 No Action ACL (1,349), PPA set-aside, and PPA harvest guideline
Shoreside trawl	1,025 – 1,106	1,739	1,154	1,153
Non-trawl	65 - 91	193.8	61	128.7

It is important to point out that option 3 above is the only new option (i.e., No Action and Option 1 were analyzed in the preliminary DEIS). ***The Council could consider 1,349 as an ACT, while selecting Option 1 (the PPA ACL, set-asides and harvest guideline).***

The GMT notes that the trend in ex-vessel price, landings, and total mortality have increased significantly during recent years, especially for trawl. This recent increase in total mortality demonstrates the potential need for active inseason tracking of landings and discards to ensure that the ACL and sector-specific harvest guidelines are not exceeded. Under IFQ, tracking data will include landings and discard data in near-real time (i.e., updated catch and discard data will be acquired inseason a few times per year). Inseason actions (e.g., trip limits) could be implemented as early as June Council meetings, if deemed necessary. If needed, in season action made by the June Council meetings would likely be timely enough to ensure that the ACLs are not exceeded; most IFQ catch during 2011 occurred during the second half of the year (e.g., Agenda Item F.6.b, Supplemental NMFS Report, March 2012).

Finally, the GMT would like to point out that additional reductions in longnose skate mortality may be possible through voluntary avoidance or use of more selective fishing gears (e.g., halibut excluder devices, or grids, may also reduce the catch of longnose skate). For example, recent advances in excluder development suggest that the use of four-seam trawl nets may have more potential for reducing unintended bycatch compared with two-seam nets. Future analysis and the required subsequent regulation changes could be useful in exploring the merits of four-seam nets coupled with excluder devices shoreward of the trawl RCA.

The GMT concludes and recommends: (1) The Council adopt the preliminary preferred longnose skate harvest guideline of 90 percent trawl and 10 percent non-trawl, shown in Table 2-11 of the preliminary DEIS.

(2) Although the GMT supports the Council Preliminary Preferred Option shown in the preliminary DEIS (ACL = 2,000 mt), the Council might consider adopting an ACT of 1,349 mt (if the Council opts to manage for lower mortality than shown under the PPA ACL). We could provide more information for Agenda Item I.8.

(3) The Council may provide guidance to the GMT to engage in enhanced and frequent inseason tracking of longnose skate landings and discards to project and anticipate total mortality using WCGOP and PacFIN data.

(4) The Council may consider including this management measure analysis for the Final EIS to ensure that this range of management measures may be available for reducing longnose skate mortality through routine inseason management actions, if necessary.

5k. Modifications to spiny dogfish bi-monthly cumulative landing limits and RCAs

As summarized in Attachment 4 and analyzed in detail in Supplemental Attachment 7 (p. 131), the Council requested analysis of managing to dogfish's ABC of 2,044 mt in 2013 and 2,024 mt in 2014. In this scenario, dogfish would remain as part of the Other Fish complex. The team still concludes that it is, practically speaking, possible to target management measures at dogfish while leaving its harvest specifications within the complex. The legal and regulatory side of managing to an ABC within a stock complex might need more clarification (i.e. would the Council need to establish a harvest guideline or other such in order to take action on dogfish alone?). Multiple viewpoints have arisen in team discussions.

On the basic question about the need for additional management measures, we would point to Table D-74 (reproduced from Supplement Attachment 7), which identifies the sector by sector total dogfish mortality estimates for the years 2006-2010. As that table shows, 2008 was the only one of those years in which catch exceeded the 2013-14 ABC levels. Average total mortality for 2006-2010 was 1,566 mt. In 2008 multiple sectors saw total mortality levels that were substantially above their respective averages. If the 2008 estimate is thrown out, the average total mortality over the period drops to 1,333 mt.

These average catches suggest that there is no immediate need for new management measures to go into place on January 1, 2013. Instead, we suggest that the Council consider improving inseason monitoring and management capabilities by adding new options to the FMP's set of routine management measures. The approach would involve monitoring dogfish catches inseason and then responding to prevent large deviations from average catch if needed. The June and September meetings would be the most likely opportunities for the Council to consider and recommend inseason action for dogfish. We explain more below.

To be clear, we recommend consideration of this approach in light of the Council's desire for a limited scope for 2013-14. The Council should anticipate longer term decisions for dogfish post-2013-14, especially given the evaluation schedule for the Fmsy harvest proxy for elasmobranchs.

Why did catch spike in 2008?

We are unsure why dogfish catches spiked in 2008. Variability in the movement of the stock (i.e. increased encounter rates) and availability to the fleet is as or more likely to be the main cause as changed fleet behavior (i.e. targeting). As described in Supplemental Attachment 7, the average discard rate since 2006 has averaged 90 percent. Dogfish catches are thought to be highly variable between years and seasons in spite of this. This variability in catch has also been seen in fishery independent surveys and has occurred to a larger degree than would be expected based on the stock's slow population dynamics (i.e. changes in catches from year to year can be due to changes in the stock's *availability* to the survey instead of to changes in *abundance*).[1] The bottom line is that catch has the potential to spike again in 2013 and 2014 and that we do not have the current ability to predict such spikes pre-season.

To better show the relative magnitude and variability of dogfish catch sectors during 2006-2010, Figure 6 displays the sector by sector total mortality estimates from Table D-74 for the sectors showing the highest dogfish catches. Looking to this data, it would take similar large deviations from average catch in two or more of the major (in terms of dogfish catch) sectors to raise the risk of exceeding the ABC. Even if all sectors experienced catches at the 75th percentile of what was observed in 2006-2010, total mortality would remain below the ABC. If every sector went to its 90th percentile level, the ABC would be exceeded (Table 10). The conditions causing high catch years (e.g. dogfish availability) could be such that it is likely for multiple sectors to experience high catches in the same year. Again, we are unsure what those conditions might be.

[1] *See* Figure D-28 on p. 143 of Agenda Item I.3.a, Supplemental Attachment 7.

Table D-74. (Reproduced from Supplemental Attachment 7). West coast groundfish total mortality estimates, by sector in metric tons, for dogfish shark from 2006-2010. Estimates assume 100% mortality for discarded dogfish shark. Data acquired from Hastie and Bellman (2007) and Bellman et al. (2008-2011).

	Shoreside commercial fisheries								Total recreational fishing mortality					
YEAR	**LE bottom Trawl**	**CA Halibut**	**Pink Shrimp**	**Non-nearshore fixed-gear**	**Nearshore fixed-gear**	**Shoreside hake mid-water trawl**	**WA tribal landings**	**All at-sea hake fisheries**	**WA**	**OR**	**CA**	**Research**	**Remaining incidental OA fisheries landings**	**Estimated total fishing mortality**
2006	666.0	--	--	563.0[a]	--	33.2	77.0	59.0	0.0	0.0	3.9	5.8	1.3	1,407.0
2007	652.0	3.0	1.0	509.0	0.0	51.0	113.0	155.0	0.0	0.0	5.0	13.0	1.0	1,504.0
2008	1,023.0	3.0	4.0	332.0	1.0	59.0	303.0	673.0	--	0.0	3.0	14.0	82.0	2,497.0
2009	665.5	3.2	0.4	216.2	0.0	16.0	125.4	163.4	--	0.1	4.9	10.9	1.0	1,206.9
2010	520.1	2.9	16.4	254.1	0.1	124.6	6.9	277.7	--	0.1	1.6	10.2	0.4	1,215.1

[a]Reported as "estimated non-trawl", which included non-nearshore fixed gear, nearshore fixed gear, and minor landings made with troll

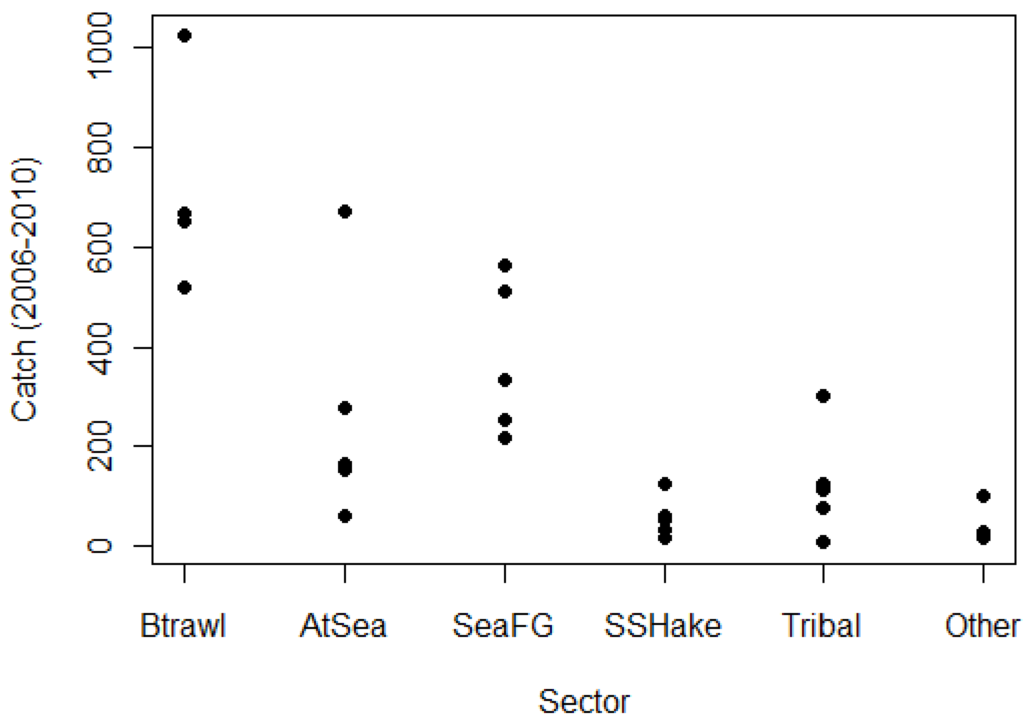


Figure 6. Total mortality estimates (mt) by sector, 2006-2010, for the sectors taking the majority of dogfish catches ("Btrawl" = bottom trawl; "AtSea" = Catcher Processor and Mothership whiting sectors; "SeaFG" = Nonnearshore Fixed Gear; "SSHake" = Shoreside whiting).

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Table 10. The 90th percentile, 75th percentile, and average estimates of total dogfish mortality (mt), 2006-2010, for the sectors taking the majority of dogfish catches.

	Bottom Trawl	**Non-nearshore FG**	**At Sea**	**Shoreside Hake**	**Tribal**	**Other**	**Total**
Average	705.3	374.9	265.6	56.8	125.1	38.4	1,566.0
75th percentile	666.0	509.0	277.7	59.0	125.4	31.7	1,668.8
90th percentile	880.2	541.4	514.9	98.4	232.0	76.9	2,343.7

Harvest Guideline Decision

The Council's November motion requested analysis of harvest guidelines (HG) of 75% and 25% for trawl and non-trawl, respectively. Typically, set asides must be taken "off the top" before harvest guidelines can be calculated. We do not know that the Council intended such formality, or instead, whether the intent was to give analysts informal guidance on how to treat sectors if management option choices became necessary in the analysis. Yet, with the way set asides are accounted for now, the dogfish harvest guideline would pose additional decisions for the Council.

Further complicating matters, current set asides do include set asides for the Other Fish complex as a whole (e.g., the At Sea fleet has a set aside of 534 mt). For now, the team suggests the Council focus on its intended approach for dogfish specifically. Our understanding is that the technical issues with set asides and the Other Fish can be worked out.

Also, we understand that setting formal set asides to accommodate treaty tribal fisheries would require consultation and determination of an appropriate amount. Tribal set asides are taken "off the top" before HGs and other such allocative management measures and are different in nature from other set asides because of the law governing tribal treaty rights. We also understand that there is likely insufficient time for such consultations to occur in time for the June analysis.

As to the setting of set asides in general, post-Amendment 20 we have recommended that maximum observed catch be used generally for certain set asides as a precautionary measure unless circumstances justify otherwise. The Council has accepted the "maximum" approach for a lot of species on the rationale that the Council does not directly manage, and hence has less control over outcomes, for most of the set aside fisheries (but not EFPs). The high variability in dogfish catch poses such different circumstances and a potentially more complicated policy decision for the Council. To help with this potential decision, we present 90th and 75th percentile scenarios in addition to the maximum (Table 11).

Regardless of the approach taken for set asides, the Council's proposed trawl and non-trawl HGs appear to give more room for spikes in the trawl catch than in non-trawl. As shown above, the non-nearshore fixed gear fisheries are the major source of non-trawl catches.

We would note that trawl/non-trawl HGs may not be necessary if the Council were to rely on the improved inseason monitoring and response approach described above. The decision on how to manage the various trawl and non-trawl sectors would depend on the circumstances that arose during the 2013 and 2014 fishing years.

Table 11. Trawl and non-trawl harvest guidelines resulting from the maximum, 90th percentile, 75th percentile set asides scenarios. The 2014 ABC is 20 mt less meaning the estimated HG would also be 20 mt less each.

	2013 ABC	2014 ABC	Tribal	Research	Incidental OA	2013 Trawl HG (75%)	2013 Non-trawl HG	2014 Trawl HG (75%)	2014 Non-trawl HG

								(25%)		(25%)
Max	2,044	2,024	303	14	102	1,217	406	1,202	401
90th percentile	2,044	2,024	232	14	66	1,297	433	1,282	427
75th percentile	2,044	2,024	125	13	11	1,421	474	1,406	469

Inseason Monitoring and Example Routine Management Measures

We will have differential ability, by sector, to track total catches of dogfish inseason in 2013-14. The IFQ monitoring infrastructure (covering bottom trawl, shoreside whiting, and IFQ fixed gear trips) should allow for timely estimates of dogfish discard and retention in that sector. The at sea whiting sectors are also subject to 100 percent observer coverage and dogfish catch should also be available on a timely basis.

Catch in the non-nearshore fixed gear sectors will not be as easy to track, however, as most of the catch is discarded and the sector is subject to the ~20% observer coverage by the West Coast Groundfish Observer Program.

In general, the approach we are proposing would allow the Council inseason flexibility to address spikes in dogfish catch. There are downsides (e.g. one sector is affected by bycatch in another sector), and the Council would potential face difficult risk/policy decisions.

The GMT did not have time to discuss the various management measure options indentified in Supplemental Attachment 7 yet plans on doing so for in time for Agenda Item I.8. **For now, the GMT requests general feedback on our suggested approach and on the need for non-trawl and trawl HGs.**

5l. Recreational shelf rockfish retention in the CCA

CDFG is proposing a modification to existing regulations governing recreational groundfish fishing within the Cowcod Conservation Areas (CCA) to allow retention of shelf rockfish taken during the open season for groundfish within the existing depth constraint of 20 fm. The proposed action is based on the expectation that removing the prohibition on shelf rockfish retention in depths of 20 fm or less in the CCA when fishing for rockfish is open will reduce discard mortality that currently occurs while in pursuit of other species within the 10 fish Rockfish, Cabezon, Greenling (RCG) bag limit. Under the proposed action, it is hoped that recreational anglers will meet their RCG bag limit sooner and with less discarding, thus potentially reducing the chances of encounters with overfished species. Increased impacts to shelf rockfish including bocaccio are expected to be minimal and can be accommodated within the recreational harvest guideline with a minimal risk of exceeding the ACLs. No ACLs for target or overfished species are expected to be exceeded as a result of this action.

5m. Remove the California recreational bocaccio size limit

The status quo sub-bag limit for bocaccio is two fish. CDFG is proposing to increase the sub-bag limit from two to three fish. The increase in the sub-bag limit is only expected to increase total bocaccio impacts by 11.5 percent (5.8 mt). The recreational harvest guidelines are not expected to be exceeded by increasing the bag limit as proposed, given the magnitude of the buffer between projected mortality of 57 mt and the recreational allocation of 167.9 mt in 2013 and 174 mt in 2014. In addition, individuals could reach their bag limits faster and with less regulatory discarding which could result in less time on the water, reducing fuel costs and chances of encountering cowcod.

5o. Increase the California recreational bocaccio sub-bag limit

CDFG is proposing to remove the minimum size limit of ten inches on bocaccio. Removing the size limit is expected to increase total bocaccio impacts by 1.0 percent (0.4 mt). Currently bocaccio is the only rockfish species in the recreational sector that has a size limit and removing the size limit would reduce regulatory complexity. There are no expected impacts to other overfished species as a result of this management measure.

5p. Increase the California recreational greenling sub-bag limit

The status quo sub-bag limit for greenlings is two fish. CDFG is proposing to increase the sub-bag limit to 10 fish to maintain consistency with state regulations, which were modified to reflect the increased contribution to the “Other Fish” complex analyzed in the 2011-12 FEIS. By increasing the sub-bag limit, the estimated mortality would be approximately 15.6 mt, which is far below the revised recreational allocation of 49.5 mt providing a substantial buffer to prevent an overage. The CDFG is not proposing any changes to the minimum size restriction. There are no expected impacts to overfished species as a result of this increase.

5q. Proposed Seabird Conservation Measures to Mitigate and Track Expected Impacts on Short-tailed Albatross—new

The GMT did not have time to fully discuss this issue in time for this statement, and will include it under Agenda Item I.8.

PFMC
04/03/12

Agenda Item I.3.b
Supplemental SSC Report
April 2012

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON TENTATIVE ADOPTION OF 2013-2014 BIENNIAL HARVEST SPECIFICATIONS AND MANAGEMENT MEASURES

The Scientific and Statistical Committee (SSC) provided its overfishing limit (OFL) and acceptable biological catch (ABC) recommendations to the Council for groundfish for the years 2013-2014 at previous Council meeting as shown in Table 1 of Agenda Item I.3.a, Attachment 2. Table 1 includes a minor change in the previously recommended ABCs for 2013 and 2014 for lingcod north of 40°10' N Latitude. The SSC regards the OFL and ABC values provided to the Council at the March meeting to be the most appropriate values for use in management and does not endorse the changes reflected in Table 1. Given the OFL values and P* values adopted by the Council, the ABC for 2013 and 2014 for lingcod north of 40°10' N Latitude would be 3,036 mt and 2,878 mt respectively.

Two new issues were brought to the attention of the SSC. The first issue concerns the OFL contribution values for stocks managed in complexes. The SSC has recommended that the OFLs for stock complexes be set equal to the sum of the OFL contribution values for the stocks in the complex for which these values are available. The SSC did not set OFL contribution values for stocks lacking a scientific basis for setting an OFL contribution value. Tables showing OFL contribution values in stock complexes should clearly distinguish these missing values as having no scientifically based estimation methods.

The NMFS guidance for implementing National Standard 1 recommends that stock complexes consist of stocks with similar vulnerability and susceptibility to reduce the likelihood that disproportionate harvest occurs on any component stock. However, no two stocks are exactly alike, and in establishing stock complexes there will always be tradeoffs between management practicality and concerns about individual species. The SSC has previously recommended that the current system of stock complexes be evaluated and noted, in particular, its concern about the stocks grouped in the Other Fish Complex.

Since OFLs are set for stock complexes, rather than for individual stocks within a complex, the SSC recommends against using OFL contribution values to evaluate whether overfishing is occurring for component stocks. The SSC recommends that for species with OFL contribution values, a comparison of recent catches with those values be used to identify whether stock complexes are working as they were intended. If catches regularly exceed OFL contribution values, this could indicate a problem with how the stock complexes are structured, and justify action in the next management cycle which could include removing the species concerned from the complex and prioritizing it for a full assessment.

The second issue identified is the 10 percent rollover provisions for quota pounds. In the event annual catch limits are inadvertently exceeded, the SSC does not view relatively modest interannual departures from annual ACLs as cause for concern from a biological perspective. Once the trawl rationalization system stabilizes, rollovers to the following year may act to balance rollovers from the previous year. Ensuring that OFLs are not exceeded is an adequate additional constraint to ensure that the annual departures from ACL do not have biological impacts.

PFMC
04/03/12

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Via Email and First Class Mail

March 29, 2012

William W. Stelle, Jr.
Regional Administrator
National Marine Fisheries Service
7600 Sand Point Way NE
Seattle, WA 98115-0070

Re: Makah Treaty Groundfish Fisheries in 2013 and 2014

Dear Mr. Stelle:

We have been asked to write to you on behalf of the Makah Indian Tribe. Pursuant to 50 C.F.R. § 660.324(d), please be advised that the Tribe intends to continue all of its existing groundfish fisheries in 2013 and 2014, and requests that, except as noted below, all existing treaty groundfish regulations and allocations be continued.

The Tribe anticipates that it will continue to have five catcher boats participating in the Pacific whiting fishery in 2013 and 2014. However, the Tribe has not yet determined its likely harvest in 2013 and 2014, and will work with your staff to develop an appropriate set aside for the Makah whiting fishery in those years.

The Tribe requests an increase of 15 metric tons (mt) in the tribal set aside on widow rockfish in 2013 and 2014 (from 45 to 60 mt) associated with the Tribe's midwater trawl fishery.

The Tribe requests an increase of 24.6 mt in the tribal set aside for petrale sole in 2013 and 2014 (from 45.4 to 70 mt) associated with the Tribe's bottom trawl fishery.

The Tribe requests in increase of 21 mt in the tribal set aside for minor shelf rockfish in 2013 and 2014 (from 9 to 30 mt). The Tribe requests that a separate trip limit for redstripe rockfish of 800 pounds per trip be established for the Tribe's fishery, while retaining the current 300 pound per trip limit for all other minor shelf rockfish in the Tribe's fishery.

The Tribe requests an increase of 12 mt in the tribal set aside of shortspine thornyheads in 2013 and 2014 (from 38 to 50 mt). The Tribe does not request any change in the current bimonthly trip limit for shortspine thornyheads in the Tribe's fishery.

Makah representatives will be available to discuss any questions you or your staff may have regarding these matters at the upcoming Council meeting.

Sincerely,

ZIONTZ, CHESTNUT, VARNELL,
BERLEY & SLONIM

Marc Slonim

Marc D. Slonim

cc (via email only):

Frank Lockhart
Kevin Duffy
Russ Svec
Steve Joner

March 12, 2012

Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, Oregon 97220-1384

RE: TENTATIVE ADOPTION OF 2013/2014 BIENNIAL SPECS/BLACKGILL ROCKFISH ALLOCATION

Mr. Chairman and Council Members,

For the record, my name is Gerry Richter and I represent fixed gear fishermen as a member of the Groundfish Advisory Subpanel (GAP). You'll recall my public comment during the Emerging Issues portion of the March meeting where I informed the Council of a developing problem dealing with allocation of Blackgill rockfish for the 2013/2014 season.

Blackgill was assessed this past August, and the results of that assessment were much more pessimistic than the prior 2005 review. Current stock status stands at about 30% depletion and there are indications the species may have been overfished from the 1990's up until around 2008. We are looking at drastically reduced 2013/2014 ABC's, OFL's and ACL's with trip limits reduced accordingly as well. Blackgill is a component of the Minor Slope rockfish complex in the south. The species has been a very important contributor to fixed gear fisheries catches from Morro Bay all the way south to the Mexican border. Catches in southern California alone averaged over 400 tons per year from the late 1970's thru the mid 1990's. Gear types were vertical longline, horizontal longline, rod & reel and set gill nets.

The emerging issue with Blackgill is the way it will be allocated for the 2013/2014 season. Per Amendment 21, Slope rockfish were allocated at 63% to the trawl sector while 37% went to fixed gear. While as a total Slope complex component this allocation is likely accurate, it is not accurate for the individual Blackgill species itself. Historical catches favor fixed gear in any time frame one wishes to choose. The entire 2000 to 2010 catch period produces a 52% fixed gear to 48% trawl result. Going back 20 years the landings from 1990 to 2010 favor fixed gear 63% to 37% (Interestingly exact opposite of what Amend. 21 produced). If one were to go back to the late 70's the percentages increase to 4 to 1 fixed gear over trawl.

I'm not commenting here to rip trawl or the IFQ program, I'm not about that and never have been. This is about what is right and fair and believe me the fixed gear sector is going to need every last pound of Blackgill it can get! Trip limits of 10,000 to 40,000 pounds of Slope rockfish, of which could have been all Blackgill, could well be dropping down to as low as 250 to 700 pounds or so. Those very low numbers may affect the directed Sablefish fishery just as a bycatch species. It is critically important to this fixed gear representative that we correct the allocation error per Amend. 21 for Blackgill rockfish and correct it in time for the start of the 2013 fishing season.

Thank you for your consideration of this very important emerging issue,

Gerry Richter
GAP fixed gear

Natural Resources Defense Council
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March 15, 2012

Mr. Dan Wolford, Chair
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, OR 97220

RE: Agenda Item I.3, Biennial Harvest Specifications for 2013-2014 Groundfish Fisheries

Dear Chairman Wolford and Council Members:

Please accept the following comments on behalf of the Natural Resources Defense Council (NRDC), in regard to the Council's adoption of OFLs, ABCs, and ACLs for the 2013-14 groundfish harvest specifications.

1. Remove Blackgill from Complex and Establish a Sorting Requirement

Blackgill rockfish south of 40° 10' N. latitude was assessed in 2011, revealing that recent years' catches have approached and at times exceeded the ABCs calculated for 2013 and 2014. *See* John C. Field & Don Pearson, *Status of the Blackgill Rockfish, Sebastes melanostomus, in the Conception and Monterey INPFC Areas for 2011*; *see also* November 2011 Briefing Book, Agenda Item E.9.b GMT Report 2, at 3. The stock is currently managed in the southern Minor Slope Rockfish complex, and has never had an individual catch limit or a sorting requirement.

Because blackgill catch is likely to approach the stock's OFL contribution in 2013 and 2014, NRDC recommends removing blackgill from the Minor Slope Rockfish South complex and managing it individually. Removal from the complex is arguably necessary, as it appears to offer the only effective way to control mortality and prevent overfishing. *See* November 2011 Briefing Gook, Agenda Item E.9.b GMT Report 2, at 3-4 (discussing the limited options for controlling mortality if blackgill is left in the complex). Regardless of the management options chosen, it will be necessary to track blackgill mortality in 2013 and 2014, so NRDC urges the Council to establish a sorting requirement for the species.

2. Maintain Status Quo Shortbelly ACL to Provide Forage

Starting in 2011, the Council set an ACL for shortbelly rockfish of 50 mt in recognition of its critical role as a forage species in the California Current ecosystem. NRDC strongly supports maintaining this precautionary catch level for the 2013-14 specs cycle, and applauds the Council for considering the forage needs of predators. In the future, NRDC would encourage the Council to solidify protection for shortbelly by permanently placing the species off limits to a targeted fishery. Such an action could easily be rolled into any upcoming FMP amendment, and given that no targeted fishery currently exists, would have no economic impact.

3. Set Precautionary Sablefish ACL to Protect Biomass and Ensure Future Revenues

NRDC is concerned about poor recruitment and potential over-harvesting of sablefish. The most recent stock assessment states, “average recruitment is estimated to have declined steadily between the 1970s and 2007. Recruitments during the 1980s were, on average, roughly an order of magnitude higher than the very poor recent cohorts estimated between 2002 and 2007.” Ian J. Stewart et al., *Status of the U.S. Sablefish Resource in 2011*, at 7. While a few recent year classes appear strong, those estimates still have high uncertainty, and the background trend is one of consistently low recruitment. *Id.*

Poor recruitment, when combined with status quo catch levels, has resulted in declining biomass for sablefish. Current biomass is below the B_{MSY} level, and still declining. The SSC states: “There is a strongly and robustly-estimated declining trend in spawning biomass, and there is little likelihood for recovery to the MSY proxy biomass under the catches considered in the decision tables.” September 2011 Briefing Book, Agenda Item G.4.b Supplemental SSC Report, at 3.

NRDC urges the Council to take proactive steps with sablefish and implement a strong precautionary harvest reduction in 2013-14. In particular the Council should set an ACL significantly below the ABC, to reflect the economic and ecological risk associated with poor recruitment and declining biomass. The ACL is an appropriate point to take this reduction, as it is a discretionary step where concerns broader than scientific uncertainty can be considered. NRDC specifically recommends the Council set an ACL no higher than 5,250 mt for 2013 and 2014, in order to provide sablefish with important relief from fishing pressure and to allow the resource to stabilize.

Reducing sablefish harvest is not only good policy from a conservation point of view, but is economically prudent. The SSC has noted that “there is an appreciable (about 15 percent) probability that [Sablefish] is currently depleted below the overfished threshold.” September 2011 Briefing Book, Agenda Item G.4.b Supplemental SSC Report, at 3. This probability will increase in upcoming years, as stock size is projected to decline further. *See* Stewart et al., *supra*, at 13. Given the commercial importance of sablefish, and the strict harvest limits that come with rebuilding, it would create real problems if the stock were declared overfished. For this reason, the Council should view near-term quota reductions as an investment toward ensuring a stable resource in the future.

4. Address Longnose Skate F-Proxy Before Modifying ACL or Discard Mortality Assumption

Currently a proxy F_{msy} of 45%SPR is used to calculate the annual Overfishing Limit (OFL) for longnose skate. This F-proxy is too aggressive, and should be changed. The 45%SPR harvest rate was designed as a default level for groundfish generally, but elasmobranches are known to be more sensitive than teleosts to fishing pressure. *See, e.g.*, Will J.F. Le Quesne & Simon Jennings, *Predicting Species Vulnerability with Minimal Data to Support Rapid Risk Assessment of Fishing Impacts on Biodiversity*, 49 J. Applied Ecol. 20, 23 (2012); Michael G. Frisk et al., *Estimation and Analysis of Biological Parameters in Elasmobranch Fishes: A Comparative Life History Study*, 58 Can. J. Fisheries & Aquatic Sci. 969 (2001). The American Fisheries Society has explicitly stated that "Population models used in fishery management appropriate for more highly productive species may be inappropriate for sharks and rays. Shark and ray management should be predicated on the long-term sustainability of healthy populations, and on the precautionary principle that management should be conservative in the face of sparse data, erring in favor of maintaining the health of the resource rather than fostering short-term economic gains." J.A. Musick et al., *AFS Policy Statement #31b: Management of Sharks and Their Relatives*, at 3 (2000) (internal citations omitted).

For longnose skate in particular, the most recent stock assessment concluded that the F45% proxy would result in depletion over the long run: "Because of th[e] low steepness and other reproductive characteristics of th[is] stock, fishing at the target SPR of 45% is expected to reduce the spawning biomass to less than 12% of the unfished level over the long term." Vladlena Gertseva & Michael Schirripa, *Status of the Longnose Skate (Raja rhina) Off the Continental U.S. Pacific Coast in 2007*, at 8. Reducing biomass to 12% of unfished levels (B_0) would render the stock overfished—a clear signal that the F-proxy is inappropriate.

The stock assessment authors suggested revising longnose skate's F-proxy: "The Council's Scientific and Statistical Committee should consider the appropriateness of using the current proxy harvest rate for setting the Allowable Biological Catch for longnose skate." *Id.* On reviewing the stock assessment, the SSC concluded: "Considering that elasmobranches have distinct life history traits that differ from other groundfish, the default harvest rate for groundfish (F45%) is unproven and potentially too aggressive." June 2007 Briefing Book, Agenda Item E.6.b Supplemental SSC Report. For comparison, the assessment authors provided a direct estimate for SPR_{msy} of 61%—a much more conservative level of fishing pressure. The direct SPR_{msy} estimate corresponds closely with the SPR at 40% depletion, suggesting it could be a useful guidepost in setting a new F-proxy.

Despite knowing that 45%SPR significantly overshoots F_{msy} for longnose skate, and despite having an alternative available for use, the Council has continued to base the longnose skate OFL on 45%SPR. This approach has generated catch levels which, if fully met, would move the stock toward depletion in the long run. The Council accordingly is failing to meet its obligations under the Magnuson-Stevens Act. *See* 16 U.S.C. § 1851(a)(1) (requiring conservation and management measures to prevent overfishing); *id.* § 1851(a)(2) (requiring use of the best available science). Continuing to use 45%SPR is also arbitrary and capricious under the Administrative Procedure Act, given the clear proof that 45%SPR is an inadequate proxy, and given the direct estimate of 61%SPR as an alternative. 5 U.S.C. § 706(2)(a).

To avoid doubts about the legality of its 2013-14 Groundfish Harvest Specifications, the Council should revise the F-proxy for longnose skate, replacing the current proxy with a non-arbitrary value (either a direct estimate or a reasonable proxy). This would ideally occur in the context of a broader examination of elasmobranch F-proxies, as recommended by the longnose skate stock assessment authors, but could also be done in short order for just this species.

Instead of revising the F-proxy and producing accurate OFLs, the Council's approach to date has been to simply set an ACL (OY) of 1349 mt—a catch level based on 150% of historical average catch. This value is lower than the OFL (ABC), and is "intended to accommodate anticipated mortality in fisheries while keeping the stock biomass above 60 percent under all [the likely] states of nature." November 2011 Briefing Book, Agenda Item E.4.b. Supplemental GMT Report 3. Though not a legal solution, this precautionary ACL has, as a practical matter, helped mitigate the problem of overly-aggressive OFLs in past specs cycles.

For the 2013-14 specs, however, the Council has selected a Preliminary Preferred Alternative (PPA) ACL of 2000 mt—a substantial increase from prior years, and a value much closer to the OFL than before. NRDC opposes raising the longnose skate ACL from its status quo value of 1349 mt, without fixing the F-proxy. Doing so would move the ACL closer to a flawed OFL, and therefore would bring to a head the legal and scientific issues that have been lingering with longnose skate: a catch of 2000 mt could very well approach or exceed the harvest level produced by the true F_{msy} or a reasonable, non-arbitrary proxy.

For the same reason, NRDC opposes changing the longnose skate discard mortality assumption used for management. Recent GMT discussion has suggested modifying the assumed discard mortality of 100% used in the Total Mortality Reports, to correspond with the 50% assumption used in the stock assessment. *See* November 2011 Briefing Book, Agenda Item E.4.b Supplemental GMT Report 3, at 8-9. While it may make sense in principle to bring the two values into alignment, as a practical matter the Council should not change the discard mortality assumption until the flawed F-proxy is addressed. Changing the discard mortality assumption would "have significant management implications," *id.*, and if done without fixing the F-proxy, could bring the Council closer to the position noted above—having longnose skate mortality approach or exceed the harvest level produced by the true F_{msy} or a reasonable, non-arbitrary proxy.

To the extent maintaining the status quo ACL of 1349 mt requires new management measures, NRDC supports the GMT recommendation to incorporate the shoreside non-whiting trawl allocation of longnose skate into the ITQ program. *See* November 2011 Briefing Book, Agenda Item E.9.b Supplemental GMT Report 4, at 8-9. IFQ management appears to be the most promising tool for controlling longnose skate mortality, as it can create accountability for bycatch species without excessive closures or disruption of the fishery.

5. Remove Spiny Dogfish from Complex and Address F-Proxy

As NRDC has noted in previous comment letters, spiny dogfish is a long-lived species with low fecundity. Females reach maturity around 35 years of age and bear only a small amount of pups each year, making the species highly vulnerable to fishing pressure. The 2011 stock assessment states: "Life history traits of spiny dogfish make the species highly susceptible to overfishing and slow to recover from stock depletion." Vladlena Gertseva & Ian Taylor, *Status of the Spiny Dogfish Shark Resource off the Continental U.S. Pacific Coast in 2011*, at 24.

Due to this slow growth and low fecundity, the current F_{MSY} proxy for spiny dogfish of 45%SPR is far too aggressive. Indeed, it has been acknowledged that fishing at this rate will eventually drive the stock to extinction. September 2011 Briefing Book, Agenda Item G.4.b Supplemental GMT Report, at 1. The SSC agreed, stating that it "concurs that the Council F_{MSY}-Proxy may be too aggressive for spiny dogfish and other elasmobranches managed under the Groundfish Fishery Management Plan." September 2011 Briefing Book, Agenda Item G.4.b Supplemental SSC Report, at 5. For reference, the 2011 stock assessment provided a direct estimate of F_{MSY} of 79%SPR—a much lower level of fishing pressure. Gertseva & Taylor, *supra*, at 11.

Now that the Council has clear evidence showing the current F-proxy is too aggressive for spiny dogfish, it is untenable to continue setting the OFL based on F45%. There is little doubt that it would be arbitrary and capricious to use an F-proxy which is shown to lead to eventual extinction. *See* 5 U.S.C. § 706(2)(a). Furthermore, doing so would violate National Standard 2, which requires the use of the best available science, as well as National Standard 1, which requires conservation and management measures to prevent overfishing. *See* 16 U.S.C. § 1851(a)(2), (1).

To avoid these serious legal issues, NRDC strongly urges the Council to change the spiny dogfish F-proxy for the 2013-14 harvest specifications—either using the direct estimate or a more reasonable, non-arbitrary proxy. This would ideally occur in the context of a larger review of elasmobranch F-proxies, as noted above, but could also be done in a short time frame for spiny dogfish individually.

If the Council and NMFS believe revising the F-proxy is infeasible for the 2013-14 specs cycle, NRDC recommends reducing the ACL as an interim solution. By "manually" setting the spiny dogfish ACL at the catch level produced by a proper F_{msy} estimate, the Council could avoid what would otherwise be overfishing during the 2013-14 period. The direct estimate of F_{msy} = 79%SPR provided by the stock assessment would produce an OFL around 900 mt. *See* Gertseva & Taylor, *supra*, at 18 (applying a harvest rate of 77%SPR to current biomass to produce a harvest of 928 mt). Therefore, by setting an ACL of approximately 900 mt, the Council could avoid overfishing. While not a long-term solution, this would be a practical approach for the 2013-14 specs cycle, and would be amply justified by the evidence before the Council.

NRDC also encourages the Council to remove spiny dogfish from the "Other Fish" complex. This is necessary to implement the interim solution above, and also would represent a positive step in managing the stock. Management within a complex removes accountability for overages of single species, as an ACL only exists at the complex level. To prevent overfishing—either with the interim solution above or a different approach—it will be necessary to have a species-specific ACL for spiny dogfish. Longnose skate was removed and managed individually after its first assessment, and spiny dogfish should be treated similarly. Removing spiny dogfish from the "Other Fish" complex has been discussed on several occasions by Council staff and advisory bodies, and there appears to be general recognition that removal is necessary for effective management.

Two final point bear mentioning with respect to spiny dogfish. First, NRDC urges the Council not to change the assumed discard mortality rate used in management, until the flawed F-proxy is addressed. As noted for longnose skate, this change could create a serious risk of overfishing, given the inappropriate F-proxy currently being used. Second, to the extent new management measures are needed to control catch, NRDC supports the GMT recommendation to bring the shoreside non-whiting trawl allocation of spiny dogfish into the ITQ program. *See* November 2011 Briefing Book, Agenda Item E.9.b Supplemental GMT Report 4, at 8-9. While reduced trip limits would discourage targeting, it is unclear how much mortality can be reduced with that approach. *See id.* IFQ management would likely be a superior option, as it can create accountability while also allowing retention when desired, and can avoid excessive closures or disruption of the fishery.

*   *   *

We hope these comments are helpful, and thank you for your consideration.

Sincerely,

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March 23, 2012

Mr. Dan Wolford, Chair
Pacific Fishery Management Council
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Portland, OR 97220-1384

RE: Agenda Item I. Groundfish Harvest Specifications for 2013-2014

Dear Chairman Wolford,

Thank you for the opportunity to comment on the groundfish harvest specifications for 2013-2014. In addition to our previous correspondence regarding groundfish harvest specifications and our joint letter with the National Resources Defense Council on overarching groundfish management issues, please accept the following comments expressing the management concerns for the following species:

Spiny Dogfish

Last year, National Marine Fisheries Service scientists conducted the first ever stock assessment for spiny dogfish sharks off the U.S. Pacific Coast.[1] The assessment authors, the Scientific and Statistical Committee (SSC) and Groundfish Management Team (GMT) all noted that because of the extremely low productivity, longevity and other vital characteristics of spiny dogfish, fishing at the $F_{MSY\text{-}Proxy}$ level (spawning potential ratio [SPR] 45 percent) is expected to severely reduce this population over the long term. As the GMT made abundantly clear, "*This proxy SPR rate would lead this stock to **extinction** over a long time scale*."[2] The SSC stated that it "*concurs that the Council $F_{MSY\text{-}Proxy}$ may be too aggressive for spiny dogfish and other elasmobranches [sharks and rays] managed under the Groundfish Fishery Management Plan*."[3]

The best available science makes it abundantly clear that the $F_{MSY\text{-}Proxy}$ is incorrect and that further use of this proxy would constitute overfishing. For the 2013-2014 biennial management specifications, we request that you base the overfishing limit (OFL) and allowable biological catch (ABC) on the model estimated SPR_{MSY}=0.77, which means an ABC no greater than 848 metric tons.[4] Importantly, we ask that you immediately direct the SSC and GMT to reevaluate the current proxy harvest rate and biological reference points for spiny dogfish and other elasmobranchs, and amend the Groundfish FMP appropriately. Failure to adjust harvest levels now to adequately reflect the biology of the stock will only constrain fisheries in the future.

Oceana also encourages the Council to remove spiny dogfish from the "Other Fish" complex. The "Other Fish" complex is a diverse group of species with widely varying life histories and population trends and every effort should be made to manage individual stocks as new information becomes available. Longnose skate was removed from the "Other Fish" complex and managed individually after its first assessment, and spiny dogfish should be treated similarly. Sufficient information now exists in order to manage spiny dogfish sustainably. To prevent overfishing it is necessary to set a species-specific Annual Catch Limit (ACL) for spiny dogfish.

Lower catch limits for spiny dogfish need not be constraining to the groundfish fishery as there is clearly room for improvement and a responsibility to reduce the wasteful bycatch of this species. In 2010, 60% of the total spiny dogfish catch was discarded in the bottom trawl fishery. The Magnuson-Stevens Act explicitly requires that NMFS "to the extent practicable and in the following priority—(A) minimize bycatch; and (B) minimize the mortality of bycatch which cannot be avoided" 16 U.S.C. § 1853(a)(11). This requirement is reinforced in National Standard 9, with which all Fishery Management Plans must be consistent, and which restates the requirement to minimize bycatch to the extent practicable. *See id.* § 1851(a)(9). When it added these provisions to the Act, Congress was very clear that its intent was to halt the "shameful waste" occurring in the nation's fisheries. 142 Cong. Rec. S10,794, at 10,820 (1996). Reduce bycatch. Currently, the west coast 'fishery' for spiny dogfish is more waste than anything else. Finally, these spiny dogfish are from a transboundary stock, and the U.S. should develop a bilateral management plan with Canada for this shared population between the U.S. Pacific Coast and British Columbia.

Shortbelly Rockfish

Shortbelly rockfish has been widely recognized as a critically important forage species in the California Current ecosystem, serving as a primary prey item for many species including marine mammals, seabirds, Chinook salmon, other commercially important fishes.[5] [6] [7] [8] [9] We support the current ACL of 50 MT for 2013-2014, which was initially established by the Council in the 2011-2012 specifications process to prevent a directed fishery from developing on this species by recognizing its importance as a key forage species. We encourage the Council to maintain this protection and consider an FMP Amendment that would give this species more permanent protection in the future. Thank you for consideration of these comments.

Sincerely,

Geoff Shester

Geoff Shester, Ph.D.
California Program Director

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[2] PFMC. September 2011. Agenda Item G.4.b Supplemental GMT Report

[3] PFMC. September 2011. Agenda Item G.4.b Supplemental SSC Report.

[4] Gertseva, V., and I. Taylor. 2011. Status of spiny dogfish shark resource off the continental U.S. Pacific Coast in 2011. PFMC. 2011. Agenda Item G.4.a Attachment 7, p. 10.

[5] Ainley, D.G., W.J. Sydeman, R.H. Parrish, and W.H. Lenarz. 1993. Oceanic factors influencing distribution of young rockfish (*Sebastes*) in Central California: a predator's perspective. CalCOFI Reports 34: 133-139.Roth, J.E., N. Nur, P. Warzybok and W.J. Sydeman. 2008. Annual prey consumption of a dominant seabird, the common murre, in the California Current system. ICES Journal of Marine Science 65:1046–1056.

[6] Chess, J.R., S.E. Smith, and P.C. Fischer. 1988. Trophic relationships of the shortbelly rockfish, *Sebastes jordani*, off central California. CalCOFI Reports 29: 129-136.

[7] Field, JC, MacCall, A.D., Bradley, R.W., and Sydeman, W.J. 2010. Estimating the impacts of fishing on dependent predators: a case study in the California Current. Ecological Applications 20:2223-2236.

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[9] Sydeman, W.J., M.M. Hester, J.A. Thayer, F.Gress, P. Martin, J. Buffa. 2001. Climate change, reproductive performance and diet composition of marine birds in the southern California Current system, 1969-1997. Progress in Oceanography 49: 309-329.

March 23, 2012

Mr. Dan Wolford, Chair
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, OR 97220

RE: Agenda Item I.3, Biennial Harvest Specifications for 2013-2014 Groundfish Fisheries

Dear Chairman Wolford and Council Members:

Please accept the following supplemental comments on behalf of Oceana and the Natural Resources Defense Council (NRDC), in regard to the Council's adoption of harvest specifications for 2013-14 in the West Coast groundfish fishery.

1. Issues with the Council's ACL Framework

We appreciate the work that has gone into the Council's Annual Catch Limit (ACL) framework through Amendment 23 to overhaul the terminology and process of setting harvest levels and bring it into compliance with the new requirements of the 2006 reauthorization of the Magnuson-Stevens Act. In particular, the new framework developed by Dr. Steve Ralston and the SSC for addressing scientific uncertainty is commendable. The new management system of Overfishing Limits (OFLs), Acceptable Biological Catches (ABCs) and ACLs is a step forward and helps make previously implicit conservation decisions by the PFMC more explicit and publicly transparent. We are concerned, however, with several remaining gaps in the current approach, and would encourage the Council to address the deficiencies noted below in order to bring the current ACL framework into full legal compliance.

a. Full Accounting of Costs and Benefits in the Choice of P*

In setting harvest levels under the Amendment 23 framework, the Council chooses a preferred risk of overfishing—also known as P*—for each species. We support the use of P* for the purpose of making the treatment of risk more explicit, but we believe the Council's process for selecting P* does not accurately capture the economic costs and benefits associated with that risk preference.

There are many types of costs and benefits to be weighed in selecting a risk preference for overfishing. Here we focus on only one type of cost and benefit—revenues generated by commercial and recreational fishing, which we refer to as "economic" costs and benefits. Other types of costs and benefits include those generated by ecosystem services, non-consumptive uses, existence value, and so forth. Our discussion here is oriented around economic costs and benefits because we believe that even within this narrow type of valuation, the Council is not considering the full range of factors that should bear on its choice of risk preference for overfishing.

To put our concerns in context, consider the economic disaster to West Coast fishing communities that has taken place over the past two decades, due to the fact that certain groundfish stocks were inadvertently being fished in exceedance of their F_{MSY} catch levels (such as cowcod, yelloweye rockfish, canary rockfish, widow rockfish, etc.). While the excessive harvest provided short-term benefits at the time, the costs of avoiding the overfishing disaster through more risk averse (precautionary) management choices would have been small relative to the massive contraction of the fishery we have seen as the result of necessary management measures to stop overfishing and rebuild overfished stocks.

The underlying economic rationale for avoiding overfishing is that the discounted future costs of foregone harvest due to depletion are greater than the short-term benefits of overexploitation. From an economic perspective, the choice of P* should reflect the net present value of avoided costs from depletion associated with overfishing. While the overall framework with P* and sigma is spelled out in the FMP, the choice of P* for each species and species complex must take into account directly the tradeoff between short-term harvest and long-term risk to the stocks. Given that approximately 40% of Council managed groundfish stocks would be expected to be experiencing overfishing under the choice of P* = 0.4, there will be many stocks where harvest will exceed their F_{MSY} catch levels. While the Council considers the resulting catch levels under the current sigma values for each P* value, there is no comparable measure of the economic benefit of lower P* values, in terms of net present expected value of averted costs. We suggest that the Council ask its SSC and advisory bodies to address this question, so that the Council can select P* in a more complete and transparent decision-making process.

b. Types of Scientific Uncertainty Captured by Sigma Values

The National Standard 1 (NS1) Guidelines define the ABC control rule as a "specified approach to setting the ABC for a stock or stock complex as a function of the scientific uncertainty in the estimate of OFL and any other scientific uncertainty." 50 C.F.R. § 600.310(f)(2)(iii). The guidelines note that "The ABC control rule should consider uncertainty in factors such as stock assessment results, time lags in updating assessments, the degree of retrospective revision of assessment results, and projections." *Id.* § 600.310(f)(4).

With respect to sigma, the SSC's approach to quantifying scientific uncertainty does not represent a complete or sufficient treatment of uncertainty. The sigma of 0.36 is the result of the SSC's quantification of only one source of uncertainty—uncertainty in current year biomass. Sources of error that are not included in the SSC's quantification exercise include forecast error, uncertainty in the optimal harvest rate, and ecological factors. Indeed, the SSC itself acknowledged that the sigma of 0.36 recommended for Category 1 stocks "is only a first step, in part because *it just considers uncertainty in biomass*. Going forward, it will be important to consider other sources of uncertainty, such as F_{MSY}. Because of that it was also recognized that the present analysis underestimates total variance." March 2010 Briefing Book, Agenda Item E.4.b, Supplemental SSC Report 2 (emphasis added). Since only one source of uncertainty is contained in the sigma = 0.36 value, the Council has implicitly set all other sources of uncertainty equal to zero.

The Council should direct the SSC to include an analysis of these other recognized forms of uncertainty in the estimates of sigma as a top priority. Because the Council is currently ignoring known sources of uncertainty, we are concerned the Council's ACL framework fails to meet the requirements laid out in the National Standard 1 Guidelines. *See* 50 C.F.R. § 600.310(f)(4).

c. Incorporating Ecosystem Considerations Into the Selection of ACLs

Selecting ACLs is the operational way that the Council is mandated to achieve Optimum Yield for each fishery. The Magnuson-Stevens Act mandates that fisheries be managed to achieve Optimum Yield (OY), which reflects an effort to balance fisheries production with the need to take into account the protection of marine ecosystems. *See* 16 U.S.C. § 1851(a)(1); 16 U.S.C. § 1802(33). Hence, OY is prescribed as maximum sustainable yield as reduced by any relevant economic, social, or ecological factors. *See* 50 C.F.R. § 600.310(e)(3)(i)(A). The NS1 regulations implementing the Magnuson-Stevens Act repeatedly emphasize that OY must account for ecological considerations, *id*. § 600.310(e)(3)(iii)(C), and that Annual Catch Limits must achieve OY on a continuing basis, *id.* § 600.310(e)(3)(ii). Incorporating ecological factors into catch levels is therefore a required element of Fishery Management Plans. 50 C.F.R. § 600.310(e)(3)(iv)(C). However, with the exception of a few species like shortbelly rockfish, we fail to see ecological factors being considered and incorporated into the selection of ACLs by the Council. The Groundfish FMP as amended by Amendment 23 neither lists the relevant ecological factors nor describes how OY, in the form of ACLs, will account for ecological considerations. We hope to see the Council's Fishery Ecosystem Plan to help address this management gap, and we urge the Council to request the Ecosystem Plan Development Team to develop ways to make ecological considerations more explicit in Pacific groundfish management.

As an example of ecological factors that should be accounted for in the selection of ACLs, comprehensive diet information has been compiled and synthesized for species in the California Current, including the major prey items for West Coast groundfish and the extent to which West Coast groundfish contribute to the diets of other species in the California Current Large Marine Ecosystem. *See* Aaron M. Dufault et al., National Marine Fisheries Service, *A Synthesis of Diets and Trophic Overlap of Marine Species in the California Current*, NOAA Tech. Memo. NMFS-NWFSC-103 (2009). Even in the absence of food web models, the diet information can identify key forage species and their relative contributions (and therefore importance) to a variety of predators, including federally managed species such as Chinook salmon, albacore tuna, yelloweye rockfish, as well as protected species and other top predators. Despite the wealth of information on species interactions, ecological indicators, and food webs, nowhere in the current Groundfish FMP or the biennial harvest specifications process is there an analysis of the benefits of protection afforded to marine ecosystems or an assessment of what constitutes adequate forage for all components of the ecosystem, as required by the NS1 Guidelines. *See* 50 C.F.R. § 600.310(e)(3)(iv)(C).

Similarly, the importance of maintaining higher biomass levels is well-documented, and comprises a factor to be considered in OY, and therefore in setting ACLs. As noted by prominent fishery scientist Ray Hilborn:

> [T]here is little long term yield to be lost by keeping most stocks at 50% of unfished stock size. Given the growing social acceptance of more intact ecosystems as an objective of fisheries management, higher target stock size ranges than 35-40% should be considered desirable. Furthermore, it is generally expected that fisheries will be

> more profitable at the higher end of stock sizes, and economic arguments would favor aiming at or above the 35-40% target levels.

Ray Hilborn, *Pretty Good Yield and Exploited Fishes*, 34 Marine Policy 193, 196 (2010). A similar conclusion was reached by a diverse group of fisheries scientists and marine ecologists, reconciling long-standing differences in the perspectives of the two disciplines:

> [A] wide range of exploitation rates ($0.25 < u < 0.6$) yield ≥90% of maximum catch but with very different ecosystem consequences: whereas at $u = 0.6$ almost half of the species are predicted to collapse, reducing exploitation rates to $u = 0.25$ is predicted to rebuild total biomass, increase average body size, and strongly reduce species collapses with little loss in long-term yield. In addition to reconciling fishery and conservation objectives, setting exploitation rate below u_{MMSY} reduces the cost of fishing and increases profit margins over the long term.

Boris Worm et al., *Rebuilding Global Fisheries*, 325 Science 578, 578 (2009). These recent statements by leading fisheries scientists and ecologists illustrate that the greatest benefits to the nation—in terms of long-term catch, profits from fishing, more intact ecosystems, reduced risk of species collapse, increased average body size, and so forth—are achieved at biomass levels above the PFMC's default proxy target reference point of B40%. One only has to consider how different the West Coast groundfish fishery would be today had we been managing the currently overfished species toward biomass targets higher than B40%, as the fishery would be much more profitable than it is in the current highly constrained state of rebuilding.

For these reasons, we are concerned that the Council is failing to adequately analyze and account for ecological factors in selecting ACLs, as required by the Magnuson-Stevens Act and NS1 regulations. We urge the Council to explicitly address ecological benefits provided by forage and higher biomass levels, among other things, when analyzing the catch level that will achieve OY and provide the greatest benefit to the nation.

2. Reference points for flatfish

As we have pointed out in previous letters to the Council, we are deeply concerned with the reference points used in flatfish management. We believe the Council's decision to lower the reference points from a B40% target and F40% harvest rate to a B25% target and F30% harvest rate was not justified based on the available evidence, and was driven solely by a desire to harvest more flatfish in the near term without exceeding the overfished threshold.

In its analysis of the flatfish reference points, the SSC Groundfish Subcommittee Report on Petrale Sole highlighted the lack of analysis on which to base the new B25% harvest control rule proxy for flatfish:

> The [SSC groundfish] subcommittee also recommends that a more comprehensive analysis of the PFMC's harvest control rule proxies be undertaken as soon as practicable, which may influence and/or supersede these recommendations. In particular, biomass targets and thresholds should be established that are consistent with expected stock productivities and in accordance with expected levels of intrinsic stock variability. The subcommittee recognizes that this will be a major undertaking, which logically should be conducted as a full management strategy evaluation, but these

> issues and concerns are fundamental to proper utilization, conservation, and stewardship of groundfish resources.

September 2009 Briefing Book, Agenda Item E.2.c, Supplement al SSC Report. Since making that recommendation, no management strategy evaluation has been performed, nor additional comprehensive analysis as suggested, nor was such analysis conducted in the 2011-2012 Groundfish Specifications EIS. Furthermore, there has been no analysis of the services rendered by flatfish such as petrale sole in the California Current marine ecosystem, or other benefits associated with the selection of higher biomass targets, such as increased catch per unit effort. We ask the Council to request an SSC review of flatfish reference points, and to initiate a management strategy evaluation to examine the effects of maintaining West Coast flatfish at such low biomass levels. Without this, we believe the current reference points may violate the requirement in National Standard 2 to use the best scientific information available, *see* 16 U.S.C. § 1851(a)(2), and the Magnuson Stevens Act's mandate to avoid overfishing, *id.* § 1851(a)(1).

* * *

We hope these comments are helpful, and we thank you for your consideration.

Sincerely,

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April 2, 2012

Mr. Dan Wolford, Chair
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, OR 97220

RE: Agenda Item I.3, Biennial Harvest Specifications for 2013-2014 Groundfish Fisheries

Dear Chairman Wolford and Council Members:

Please accept the following supplemental comments on behalf the Natural Resources Defense Council (NRDC), in regard to the Council's adoption of harvest specifications for 2013-14 in the West Coast groundfish fishery. In particular, NRDC wishes to offer thoughts on the rebuilding plans for pacific ocean perch (POP) and canary rockfish.

The 2011 stock assessments for POP and canary rockfish both reflect a significantly new scientific understanding of those stocks' status, scale, and productivity. As a result of the changes, detailed below, neither stock is projected to rebuild by the existing target year for rebuilding (T_{target}), and the rebuilding plans for both stocks must be revised. The Council will implicitly decide on new rebuilding plans for POP and canary rockfish in the course of selecting 2013-14 annual catch limits (ACLs), since the ACL for both these stocks will represent the level of fishing mortality associated with rebuilding.

1. Lower the SPR Harvest Rate for Pacific Ocean Perch

In the new stock assessment for POP, 2011 summary (age 3+) biomass was estimated to be about 5% lower than what would have been estimated by an update of the old model—25,482 mt instead of 26,839 mt. *See* Owen S. Hamel & Kotaro Ono, *Draft Stock Assessment of Pacific Ocean Perch in Waters Off the U.S. West Coast*, at 3 (2011). Additionally, the new assessment concluded that POP has a significantly larger unfished biomasss (B_0) than previously estimated—119,914 mt instead of 83,786 mt. *Id.* As a result of these new B_0 and current-year biomass estimates, POP is now understood to be at a significantly lower depletion level than previously believed—19.1% instead of 28.6%. *Id.* The new estimate of fully-rebuilt MSY is also lower (despite B_{msy} being higher than before), and near-term harvesting at the current spawning potential ratio (SPR) is now understood to yield fewer fish than previously thought. *See id.* at 8.

The Council's Science and Statistical Committee (SSC) approved the 2011 stock assessment as the best available science last September. *See* September 2011 Briefing Book, Agenda Item G.4.b Supplemental SSC Report, at 1. At the same meeting, the Council adopted it for use in management. *See* September 2011 Decision Document, at 2.

The picture painted by the 2011 stock assessment is more pessimistic than that painted by the previous assessment, though the term "pessimistic" must be understood in context. In particular, there is less POP biomass in the water than previously believed, so the stock can be said to be worse off in an absolute sense. There is also much farther to go to rebuild to healthy (and legally-mandated) levels, so the stock can be said to be worse off in a relative sense. It is not necessary to dwell on the characterization of "pessimistic," but it is worth noting these changes, as they are what create the need to revise the POP rebuilding plan. As stated by the Council's Groundfish Management Team (GMT) last November, "the main point [emerging from the new assessment] is that the stock has much further to rebuild than previously thought, which makes the circumstances much different from those the Council considered last cycle." November 2011 Briefing Book, Agenda Item E.4.b GMT Report, at 4.

Recognizing that the rebuilding plan needed revision, the GMT last November provided the Council with a range of options for 2013-14 ACLs, each of which would entail revising the POP rebuilding plan in certain ways. At the November meeting, the Council chose a preliminary preferred alternative (PPA) ACL of 150 mt for 2013 and 153 mt for 2014, corresponding to a SPR harvest rate of 86.4%. *See* April 2012 Briefing Book, Agenda Item I.3.a Attachment 3, at 2. The SPR of 86.4% that was selected as PPA in November is the same SPR rate as used previously for rebuilding POP, though that harvest rate now yields somewhat less catch.

As an initial matter, NRDC commends the Council for not raising catch levels or changing to a more aggressive SPR rate, given the more-pessimistic new stock assessment. Case law is clear that this action would fall outside the Council's discretion under the Magnuson-Stevens Act. *See NRDC v. NMFS*, 421 F.3d 872, 880 (9th Cir.2005); *NRDC v. Locke*, No. 01-cv-421, Slip Op. at 8-9 (N.D. Cal. Apr. 23, 2010). Choosing a higher ACL alternative than the PPA, such as 222/226 mt or 247/251 mt, would almost certainly make the Council vulnerable to a lawsuit, and NRDC commends the Council for avoiding this obvious pitfall.

Even the currently-selected PPA, however, may be too aggressive in light of the new biological understanding of POP. Applying the same SPR harvest rate to a new set of biological facts does not actually maintain the same rebuilding plan—rather, it effectively strikes a new balance between conservation and economics. This is visible with the POP ACL in several ways. First, while the SPR harvest rate has stayed constant, the value for P_{max}, or the probability of rebuilding by T_{max}, has decreased from 89.7% to 73.0%. *Compare* FEIS for 2011-12 Harvest Specifications and Amendment 16-5, February 2011, at 64, *with* April 2012 Briefing Book, Agenda Item I.3.a Attachment 3, at 2 . In other words, harvesting at this constant rate is now less likely to achieve rebuilding by T_{max}. Second, maintaining the current SPR rate will result in a significant increase in the number of years past $T_{F=0}$ that rebuilding will be prolonged. Under the previous rebuilding plan, economic necessity justified a delay in rebuilding of two years beyond the F=0 situation, whereas under a new rebuilding plan based on the very same SPR harvest rate of 86.4%, rebuilding would be delayed for eight years beyond F=0. *See id.*; *see also* November 2011 Briefing Book, Agenda Item E.4.b GMT Report, at 5 ("Because of the changed estimate of B_{zero} and resulting change in stock status, that SPR rate now corresponds to a T_{target} that is 8 years beyond the $T_{F=0}$ year. In the 2011-12 rebuilding plan, the Council's preferred T_{target} was only 2 years beyond the $T_{F=0}$ year . . . ."). Thus, under the PPA, the relative priority given to conservation has slipped, in relation to economic priorities.

The Magnuson-Stevens Act and subsequent case law establish that the primary goal of fisheries management in the United States is conservation. *See NRDC v. NMFS* , 421 F.3d at 879 ("The purpose of the Act is clearly to give conservation of fisheries priority over short-term economic interests."); *NRDC v. Daley*, 209 F.3d 747 (D.C. Cir. 2000). Accordingly, rebuilding plans must be as short as possible, with the limited concession that Councils can account for the needs of fishing communities. *See* 16 U.S.C. § 1854(e)(4)(A); *NRDC v. NMFS*, 421 F.3d at 880; *NRDC v. Locke*, Slip Op. at 9. In practice, this means that T_{min} and T_{max} set out a potential decision space, within which the Council must start at T_{min} and justify departures upward based on economic necessity. *See NRDC v. NMFS*, 421 F.3d at 880 ("Congress intended to ensure that overfished species were rebuilt as quickly as possible, but wanted to leave some leeway to avoid disastrous short-term consequences for fishing communities."). To reiterate: case law establishes that the Council does not have unfettered discretion to choose any year between T_{min} and T_{max} as the T_{target}. Rather, the year selected as T_{target} must be justified with concrete economic needs that require a departure from the zero fishing situation in order to avoid disaster. *See id.* at 879-80 (noting that the requirement to be "as short as possible" is a "significant mandate[] that constrain[s] the Agency's options in adopting a rebuilding plan for overfished species").

Here, it is not clear that that any justification for departing upward from T_{min} has changed, yet the new rebuilding plan created by the Council's PPA ACL would entail a significant shift in favor of economics and away from conservation. Accordingly, NRDC is concerned that an ACL of 150/153 mt may violate applicable law. *See id.* at 880 (finding NOAA to have violated the Magnuson Act "because the Agency altered dramatically the balance between the needs of a species and of fishing communities with no statutorily grounded justification."). To avoid doubts about the legality of its actions, NRDC urges the Council to choose lower 2013-14 ACLs for pacific ocean perch.

2. Maintain Current Catch Levels for Canary Rockfish

The 2011 canary rockfish assessment update, like the POP assessment, found a higher unfished biomass for the stock than previously estimated. After incorporating the revised Oregon catch history, the 2011 canary update found B_0 to be 27,846 metric tons of spawning stock biomass (SSB), in contrast to the 2009 update, which estimated B_0 to be 25,993 mt. *See* John R. Wallace, *Rebuilding Analysis for Canary Rockfish Based on the 2011 Updated Stock Assessment*, at 5. The 2011 update also found canary's current-year biomass to be slightly lower than what would have been estimated for 2011 by the previous model run. *See id.* at 11. As a result, the depletion for canary declined: under the previous assessment, 2009 depletion was estimated at 24%, whereas under the updated model run, 2009 depletion was around 21%. *See* June 2011 Briefing Book, Agenda Item E.2.b Supplemental SSC Report, at 5. Current-year depletion is now estimated to be 23.2%. Wallace, *supra* at 3.

The Council's Science and Statistical Committee (SSC) approved the 2011 canary stock assessment as the best available science last June. *See* June 2011 Briefing Book, Agenda Item E.2.b Supplemental SSC Report, at 5. At the same meeting, the Council adopted it for use in management. *See* June 2011 Decision Document, at 2.

While the changes in the canary assessment are not as dramatic as for POP, the net result is still a slightly more pessimistic outlook. In an absolute sense, there is less canary biomass in the ocean than we would have believed based on projections from the previous assessment, and in a relative sense, canary has farther to go before it reaches fully rebuilt status. Due to these changes, the stock is now unable to meet its rebuilding goals as currently set: "[T]he new rebuilding analysis forecasts that the Council's existing T_{target} is not thought achievable even if fishing mortality ceased entirely on the stock beginning in 2013." November 2011 Briefing Book, Agenda Item E.4.b GMT Report, at 3. Accordingly, the Council must revise the canary rebuilding plan in the course of setting 2013-14 ACLs.

The Council has selected a PPA ACL for canary of 116 mt for 2013 and 119 mt for 2014. *See* April 2012 Briefing Book, Agenda Item I.3.a., Attachment 3, at 1. These catch levels correspond to an SPR rate of 88.7%, which is officially the SPR rate used in the 2009 rebuilding plan. *See* April 2012 Briefing Book, Agenda Item I.3.a Attachment 5, at 38.

NRDC again commends the Council for not arbitrarily changing the canary SPR to a more aggressive rate, in order to increase catch. As noted above with respect to POP, doing so would create serious legal infirmities in the 2013-14 Groundfish Harvest Specifications.

That said, NRDC remains concerned about canary ACLs for 2013-14, as the PPA of 116/119 mt will result in a de facto change in SPR harvest rate to a less precautionary level. This is true because while the 2009 rebuilding plan officially contained an 88.7% SPR harvest rate strategy, the actual 2011-12 ACL values of 102/107 mt were calculated from a more conservative SPR rate. *See* John R. Wallace & Jason M. Cope, *Status Update of the U.S. Canary Rockfish Resource in 2011*, at 13-14. The SPR rate that would generate these catches is approximately 90%. *See* Wallace, *supra*, at 8. So although on paper it appears that the Council is maintaining a constant SPR rate by using 88.7% for the 2013-14 ACLs, in reality this SPR rate is more aggressive than what was used for the past specs cycle. Phrased differently, the increase in catch levels from 102/107 mt in 2011-12 to 116/119 mt in 2013-14 is not simply a result of biomass increasing; it represents a change to a more aggressive SPR harvest rate.

To support this change, there has been no demonstration of increased economic need. Indeed, the GMT has essentially indicated that such a justification would be impossible: "Keeping 2011-12 ACLs in place would equate roughly to the SPR harvest of 90% . . . . The SPR harvest rate of 90% is too similar to the status quo SPR harvest rate for there to be contrast in estimated impacts to fishing communities." November 2011 Briefing Book, Agenda Item E.4.b GMT Report at 3-4. Given the framework for rebuilding plans established by the Magnuson-Stevens Act and clarified in *NRDC v. NMFS*, the Council must justify increases in catch—departures from the F=0 level—with demonstrated economic need, and in this case, it does not appear that the Council is able to do so. Thus, NRDC would encourage the Council to maintain the current, more precautionary, SPR rate of 90%for 2013-14, by selecting ACL Alternative C from the list of alternatives prepared by the GMT.

We hope these comments are helpful, and we thank you for your consideration.

Sincerely,

Seth Atkinson
Oceans Program Attorney
Natural Resources Defense Council

Phoenix Processor Limited Partnership

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April 3, 2012

April 2012 Council Meeting, Public Comment, Agenda Item I.3.

Re: Reconsideration of Amendment 21 Allocations of Widow Rockfish Within Trawl Sectors:

Dear Chairman Wolford and Members of the Pacific Fishery Management Council:

This letter is submitted on behalf of Phoenix Processor Limited Partnership (PPLP), which owns two of the floating processor motherships that operate in the Mothership Cooperative Program in the rationalized Pacific whiting fishery. Many of the partners in PPLP also own and operate catcher vessels active in the MS Coop Program. Our comments address Agenda Item I.3 regarding trawl allocations of widow rockfish under Amendment 21 and potential FMP amendment changes that would affect PPLP and the catcher vessels that deliver product to PPLP.

Amendment 21 to the Pacific Coast Groundfish Fishery Management Plan (Groundfish FMP) established how widow rockfish would be allocated between the trawl sectors both while the species was managed under rebuilding and when the species is declared rebuilt. At its April 2009 meeting, the Council took final action to arrive at the current within-trawl allocation in the Groundfish FMP, which specifies that 500 mt or 10% of the trawl allocation (whichever is greater) would be allocated to the whiting fisheries with the remainder allocated to the shoreside non-whiting fishery.[1] Prior to making its decision the Council tasked the Groundfish Allocation Committee (GAC) with considering the needs of the different sectors. The GAC noted that the value of the whiting fishery comes from attaining whiting quotas and not in the bycatch, and recognized that bycatch limits specified as formal allocations, which are less flexibly managed than set-asides, are more likely to constrain future whiting fisheries and reduce the overall benefit to the fishery and the nation.[2] Further, the GAC acknowledged the interannual variability of bycatch observed in the fishery, and the lack of precision in projecting these amounts. In order to address this variability and lack of precision, the Council recommended bycatch

[1] April 2009 Council Meeting, Agenda Item F.3.d., Meeting Minutes at page 32 (Motion 18).
[2] April 2009 Council Meeting, Agenda Item F.3.b., GAC Report at page 3.

amounts high enough to not constrain these fisheries. Since the motion was made, the fishery has not changed.[3] The rationale supporting its decision remains valid.

Now that widow rockfish has been declared rebuilt, some participants in the shoreside fishery seem bent on abusing the Spex process to subvert the Council's prior action. This effort amounts to little more than a fish grab; there is nothing fair or equitable about this. The Council had legitimate reason to decide upon the within-trawl allocation set forth in Amendment 21. No changed circumstances have been identified that would support any deviation from that decision.

In the interest of providing further information to assist the Council's selection of a final preferred alternative, the draft environmental impact statement (DEIS) being prepared for the biennial harvest specifications (Spex) includes an analysis of additional options for reallocation of widow rockfish between trawl sectors. PPLP is concerned over the sufficiency of the analysis of these options. Nonetheless, the analysis presented as Attachment 7 demonstrates clearly that the mothership sector will be severely impacted if any option other than the Amendment 21 status quo is selected as a final preferred alternative.

We are perplexed why the Council would revisit Amendment 21 under a cursory analysis shoehorned into the Spex DEIS. As acknowledged by Council staff, there is a tradeoff between formal allocations made in an FMP amendment and those made during the Spex process; formal allocations provide a more stable management outlook and facilitate long range business planning by fishermen.[4] Analyzing a revision to Amendment 21 through the Spex DEIS is especially troubling in the context of NOAA General Counsel advice that "[f]ormal allocations do require more analysis than is conventionally done for short-term allocations decided in the biennial specifications process; therefore, formal allocations are not revisited every biennial management cycle."[5]

In this case, the Attachment 7 analysis is certainly insufficient to support an FMP amendment. Table D-16 in Attachment 7 provides an abbreviated calculation of the impacts to at-sea sectors. This Table makes it plainly apparent that the mothership sector is particularly at risk of not being able to harvest its whiting allocations under the options. However, there is no description of impacts to the human environment, no economic assessment of the respective costs and benefits that would accrue to the different trawl sectors, nor any discussion of the basis for the analysis confined to fleet performance during the years 2005-2011 instead of the 1995-2005 period that informed Amendment 21. Cherry-picking years of relatively low bycatch while the stock was under rebuilding unfairly punishes the at-sea fleet, and the mothership sector in particular, for successful avoidance of an overfished species, and ignores the potential bycatch needs when the stock enjoys a rebuilt status. Without this information in the analysis, it is impossible to tell if any presumed benefit to the shoreside directed fishery outweighs the harm to the at-sea sectors.

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[3] At the time the within-trawl allocations were adopted, the Council had already taken final action in November 2008 on Amendment 20, which established a coop fishery for the mothership sector and a single shoreside sector, and these anticipated changes provided the context within which widow rockfish was expected to be rebuilt.
[4] April 2009 Council Meeting, Agenda Item F.2.d., Meeting Minutes at page 25.
[5] Id.

The additional options analyzed also fail to consider alternate approaches that could meet the stated objective of providing more widow rockfish to the shoreside sector to support a target fishery. Direct reallocation is a blunt tool, and risks more harm than it may achieve in benefits. Other approaches, such as a regulatory fix to allow a release of unused bycatch from the at-sea sectors later in the year, establishment of a non-apportioned reserve available to cover bycatch events, or a mechanism for transferability of widow rockfish from the shoreside sector if at-sea allocations were to be reduced are all possibilities that should be analyzed prior to taking final action. Given the magnitude of the potential harm, this decision deserves a more robust analysis and more creative thinking than has been provided in Attachment 7.

Even if the analysis were sufficient, which it is not, we question whether the agency could actually implement an FMP amendment under the schedule contemplated here. Given the agency's current workload addressing agency priorities and court-ordered deadlines, there is considerable risk that selecting any option that would require an FMP amendment would derail the agency's progress. Again, it is not at all clear that any benefit outweighs the risks. If there is to be a reconsideration of Amendment 21, it should be done properly, with full analysis, at a time within which it can be implemented without taking away from the agency's core mission.

PPLP supports the Council's November 2011 decision to select as its preliminary preferred alternative the current within-trawl allocation specified in the Groundfish FMP under Amendment 21.[6] We respectfully request the Council to affirm its prior decision and select the existing Amendment 21 allocation as its final preferred alternative. Thank you for your consideration of our comments.

Regards,

James Mize
Safety and Compliance Manager, Premier Pacific Seafoods, Inc.
On behalf of Phoenix Processor Limited Partnership

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[6] *See* April 2012 Council Meeting, Agenda Item I.3.a, Attachment 5 (*Excerpts from the Preliminary DEIS*) at Section 2.2.3.1 ("The Council adopted the rebuilt widow rockfish Amendment 21 within trawl allocation as the preliminary preferred alternative, as specified in the FMP and regulations.").

March 30, 2012

Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, Oregon 97220-1384

RE: TENATIVE ADOPTION OF BIENNIAL SPECS/YELLOWEYE ROCKFISH ALLOCATION FOR NEARSHORE FISHERY SOUTH OF 40/10.

Mr. Chairman and Members of the Council

For the record my name is Bill James and today I am representing Port San Luis Commercial Fishermen's Association. At the March 2012 meeting I stated that The Nearshore Fishery in 2011 landed only 50 percent of its ACL (OY) and I asked for the vessel limit is changed to allow for more permit holders to fish on the same vessel. For the 2013/2014 I wish to raise the bi-monthy trip limits but I I have been told that the Nearshore Fishery south of 40/10 needs more Yelloweye Rockfish in order to raise the trip limits. The Nearshore Fishery is the leading Fishery (ex-vessel $$)at Port San Luis (Avila). Avila and Morro Bay produce approximately 70 percent of the high dollar nearshore fish in California. The San Francisco live fish markets and the restaurants that serve live fish are very dependent on the Avila-Morro Bay area fishermen especially in the late fall and winter months as Oregon Nearshore is severely limited due winter weather.

In conclusion, please allow an increase of Yelloweye Rockfish for the Commercial Nearshore Fishermen south of 40/10 for the 2013-2014 period. This increase in Yelloweye Rockfish will allow the Nearshore trip limits to be increased which will allow for two permit holders to be able to fish on the same vessel. Marine reserves have made it difficult to fish close to port. With more Yelloweye Rockfish permit holders with small vessels could have the option of fishing on a larger vessel with another permit holder and fish further from port in more productive areas.

Thank you for your consideration.

Bill James

Fishery Consultant for Port San Luis Commercial Fishermen's Association

TRAWL RATIONALIZATION TRAILING ACTIONS

Under this agenda item, the Council is anticipated to (1) take final action on the appropriate trailing actions addressed at the March 2012 Council meeting, (2) plan for the potential reallocation of quota shares (QS) for widow rockfish, and (3) receive information on providing input to advancing consideration of at-sea electronic monitoring as replacement for the 100 percent observer requirement.

At its March 2012 meeting, the Council:

- adopted preliminary preferred alternatives for most of the Council list of items for the second trawl rationalization program improvement and enhancements rule (PIE 2), including a change to the opening for the shoreside whiting season,
- adopted a preliminary preferred alternative for the midwater chafing gear regulations and put this issue on a priority track with the goal of implementation on time for the 2013 whiting season,
- provided guidance on the National Marine Fisheries Service (NMFS) list for PIE 2,
- decided to consider reallocation of the widow quota shares, now that widow rockfish has been rebuilt, and
- authorized the convening of a one-day workshop on gear-related trailing actions convened by the Enforcement Consultants, with an invitation to interested members of the Groundfish Management Team (GMT) and Groundfish Advisory Subpanel (GAP) (Northwest Region and Fishery Science Center staff are also encouraged to participate, and the workshop will be open to the public).

In March, the Council also discussed the delays on trawl trailing actions that would result from workload in response to the remand from the Pacific Dawn case (Agenda Item I.5). In order to ensure timely action on the court order, the Council decided that at this meeting it would consider only those trailing action issues which required limited analysis and adjustments to the regulatory language. As opportunity arises, these limited workload issues could be combined with a regulatory package on another issue moving forward for the coming year or addressed through their own rulemaking. Agenda Item I.4.a, Attachment 1 provides a list of the issues which meet those criteria and on which final Council action is required at this meeting (from both the Council and NMFS PIE 2 lists), a listing of other trailing actions in various stages of development and/or implementation, and a discussion of each of the items from the Council list of PIE 2 issues (including the whiting season and chafing gear issues). Agenda Item I.4.a, Attachments 2 and 3 provide a more detailed discussion of the whiting season and chafing gear issues, respectively. The NMFS list of trailing actions is provided in Agenda Item I.4.c NMFS Trailing Actions.

In relation to the status change in widow rockfish (from a previously overfished designation, now fully rebuilt) and consequent possible quota share (QS) reallocation, the Council is scheduled to discuss the need to extend the moratorium on QS trading, and to discuss the process and calendar which might be followed in considering this reallocation. Materials related to the potential suspension of QS trading related to whiting QS reallocation (Agenda Item I.5) may be relevant to this discussion.

Identification of cost efficiencies for the trawl rationalization program continues to be an important Council priority. In this regard, observer costs and the opportunity for gaining efficiencies through the use of at-sea electronic monitoring has been an area of emphasis. At this meeting, on the evening of April 3 there will be a technical presentation on electronic monitoring. Additionally, under this agenda item there will be presentations by (1) Dr. Mark Holliday, Director of the NMFS Office of Policy, on national at-sea electronic monitoring policy and efforts under way in other regions, (2) Mr. Barry Thom on funding and other relevant electronic monitoring efforts in the northwest, and (3) Mr. Randy Fisher on an initial test program proposed to occur this season in the Pacific whiting fishery. Information on a study for at-sea electronic monitoring in the trawl rationalization program is provided as Agenda Item I.4.b, NMFS Electronic Monitoring. The Council may wish to provide comment on study design and policy coordination for at-sea electronic monitoring and consider how study results might be incorporated into the Council policy deliberations for potential regulatory implementation.

Moving forward, a number of rulemakings are planned, a calendar for which is provided in Agenda Item I.4.a, NMFS Draft Rulemaking Plan. This spring NMFS is expected to provide a cost recovery rule for deeming by the Executive Director. The public comment period for this rule is expected to be open during the June Council meeting, providing an opportunity for Council comment, if needed. Staff work will continue on PIE Rule 2 and gear rule issues during any lulls in the work on whiting fishery reallocation. At its June meeting, the Council will receive a report on gear issues based on the Enforcement Consultants Gear Workshop and it is expected that at the Council's September meeting remaining PIE Rule 2 issues will be brought back to the Council for final action. A calendar on trailing action issues is provided on page 2 of Agenda Item I.4.a, Attachment 1.

Council Action:

1. **Select final preferred alternatives for those trailing actions on which the Council is ready to move forward (Agenda Item I.4.a, Attachment 1 and Agenda Item I.4.c, NMFS Draft Rulemaking Plan).**
2. **Consider the need for a suspension of widow QS trading while widow QS reallocation is being considered and a possible calendar for consideration and implementation of that reallocation.**
3. **Provide comment on study design for at-sea electronic monitoring and policy processes.**
4. **Provide other direction and guidance on trawl trailing actions, as needed.**

Reference Materials:

1. Agenda Item I.4.a, Attachment 1, Trawl Rationalization Trailing Actions: Descriptions And Next Steps.
2. Agenda Item I.4.a, Attachment 2, Trawl Rationalization Trailing Actions: Whiting Season Opening Date and Southern Allocation, Draft Council Decision Analysis Document.
3. Agenda Item I.4.a, Attachment 3, Trawl Rationalization Trailing Actions: Chafing Gear, Draft Council Decision Analysis Document.

4. Agenda Item I.4.b, NMFS Electronic Monitoring: 2012 Electronic Monitoring Feasibility Plan.
5. Agenda Item I.4.c, NMFS Draft Rulemaking Plan: Draft Rulemaking Plan.
6. Agenda Item I.4.c, NMFS Trailing Actions: NMFS List of Trailing Actions.

Agenda Order:

a. Agenda Item Overview — Jim Seger
b. Reports on Electronic Monitoring — Mark Holiday, Barry Thom, and Randy Fisher
c. Reports and Comments of Advisory Bodies and Management Entities
d. Public Comment
e. **Council Action**: Adopt Final Preferred Alternatives as Needed and Provide Guidance on Other Trailing Actions

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Agenda Item I.4.a
Attachment 1
April 2012

TRAWL RATIONALIZATION TRAILING ACTIONS:
DESCRIPTIONS AND NEXT STEPS

For Final Council Action at this Meeting (Council Action #1)

At the March 2012 Council, meeting there was a discussion of the need to reprioritize the Program Improvements and Enhancement Rule 2 (PIE 2) trailing action items to ensure that the time table could be met for reconsideration of shoreside and mothership whiting fishery catch shares. To that end, it was agreed that at this meeting Council decisions on trailing actions would only proceed on those items slated for PIE 2 which require limited analysis and regulatory language and the chafing gear issue. On this basis, the following have been brought to the Council for finalization at this meeting.

PIE Rule 2, Council list (covered in this attachment)

1. Allow fixed gear and trawl permits to be registered to the same vessel at the same time -
2. Change the opt-out requirement for QP deficits
3. Eliminate the double filing of co-op reports
4. Whiting season opening date and southern allocation (also see Agenda Item I.4.a, Attachment 2)
5. Chafing gear (also see Agenda Item I.4.a, Attachment 3)

PIE Rule 2, NMFS list (covered in Agenda Item I.4.c, NMFS Trailing Actions)

1. First receive site license changes
2. Catch monitor certification requirements
3. Start renewal process 9/15 for LE permit, vessel account, and QS permits
4. Remove 12/15-31 ban on QP transfer
5. Observer provider certification
6. Clarify processor obligation
7. Observer program regulatory changes
8. Change “permit holder” to “vessel owner”
9. Process for changes vessel ownership

For Council Planning Actions (Council Action #2)

Widow Rockfish QS Reallocation. At its March 2012 meeting, the Council decided to move forward with “developing alternatives for reallocation of widow rockfish quota shares at the permit level” leaving identification of the appropriate process and time frame for later action. At the end of the meeting, the Council scheduled the selection of a preliminary preferred alternative for the November 2012 Council meeting. A process and time schedule for development of the widow rockfish QS reallocation alternatives has yet to be determined. A calendar for trawl trailing actions is provided on page 2.

Status on Actions Completed and Moving Forward for Implementation January 1, 2013 (for additional detail see March 2012, Agenda Item F.8.a, Attachment 1)

Cost Recovery - Trailing actions will be proceeding on cost recovery with regulations to be drafted for deeming by the executive director this spring and proposed regulations published such that the comment period will be open during the June Council meeting.

Status on Delayed Actions (for additional detail see March 2012, Agenda Item F.8.a, Attachment 1)

Risk Pools - Safe Harbor from Control Rules – The Council has finalized action on safe harbors for risk pools. Council transmittal and NMFS decision processes are delayed to prioritize quota reallocation for the whiting fishery.

Lenders - Safe Harbor from Control Rules – The Council has selected a preliminary preferred alternative (PPA) on safe harbors for lenders. Selection of a final preferred alternative (FPA) has been delayed to prioritize quota reallocation for the whiting fishery.

Other Lender Issues – The Council has not selected a PPA for other lender issues. The topics under this category have been narrowed to the question of whether the NMFS QS tracking system should include a capability that would allow the QS owner and lender to attach lender information to the QS account. In March, the GAP recommended no action on this issue. Further consideration has been delayed to prioritize quota reallocation for the whiting fishery.

Gear Issues – Gear issues include multiple gears on a trip, gear modifications to increase efficiency, and restrictions on areas in which gears may be used. Action on all of gear issues (except chafing gear) was delayed pending the results from a one day gear workshop to be convened by the Enforcement Consultants immediately prior to the June Council meeting.

Calendar on Trawl Rationalization Actions

Table. Council schedule for trawl rationalization related actions.

	Council Meetings			
	April	June	Sept	Nov
Current Trailing Actions				
Immediate Priority	Final Action (Agenda Item I.4)			
Gear		Gear Workshop Results	PPA	FPA
Lender Issues		FPA?	FPA?	
Other Remaining PIE 2 Issues (NMFS List)			FPA	
Widow QS Reallocation Amendment	Decide on Process (Agenda Item I.4)	??	??	PPA*
Electronic Monitoring	Discussion (Agenda Item I.4)			
Whiting Fishery Catch Share Reallocation	Identify Alternatives (Agenda Item I.5)	PPA	FPA	
Carry-over – Intermediate Term Response	PPA (Agenda Items I.3 and I.8)	FPA		
Carry-over –Long Term Solution				
PIE 3 (Implementation in 2014)			Scoping	Alternatives for Analysis*
Adaptive Management Program QP Distribution Methodology (Implement by 2015)				

* Final Action required by April 2013 for implementation by January 1, 2014.

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PIE Rule 2 Council List

1. Allow fixed gear permit and trawl permits to be registered to the same vessel at the same time (Preliminary NEPA Determination: EA)

Originally, the license limitation program allowed a trawl and fixed gear (longline or fishpot) permit to be registered to the same vessel at the same time (additionally, there are a few permits endorsed for both trawl and one of the fixed gears). At a later time, because of enforcement and/or monitoring needs, regulations were modified to prohibit stacking of trawl permits with permits endorsed for other gears. Since then vessel monitoring system (VMS) and declaration systems may have reduced or eliminated the need for this restriction.

The trawl rationalization program was intended to allow vessels to move between the use of trawl and other gears while continuing to operate under the IFQ program (gear switching). Additionally, it allows vessels to participate in the IFQ fishery without ever using trawl gear. However, the flexibility of any vessel that wants to participate in both the IFQ program and the limited entry fixed gear fishery is limited by the number of times a permit may be transferred to a vessel in any year (one time per year).[1]

Status quo: A trawl endorsed permit cannot be on a vessel at the same time together with a limited entry longline of fishpot endorsed permit. A permit may only be transferred to a vessel one time per year.[1]

Alternative 1: Allow a trawl permit and up to three fixed gear permits (longline and/or fishpot) to be registered to the same vessel at the same time. No change to the number of transfers allowed per year.

Alternative 2 (PPA): Same as Alternative 1 but additionally specify that

[1] The transfer of a permit from a vessel to a vessel "unidentified" status does not count against the transfer limit but if the permit is then transferred to a vessel (whether back to the same vessel from which it was transferred or a different vessel) that transfer counts against the limit. Thus a permit can be moved from and back to the same vessel one time per year.

- the established declaration process would be used to specify, for enforcement and monitoring purposes, which permit is being used or if fishing is being conducted in the open access gear, and
- the opportunity to stack a trawl gear permit with fixed gear permit would be specified in regulations such that the limited entry fixed gear exception for freezing sablefish would not allow the freezing of sablefish caught under the trawl rationalization program.

Another option which could address this issue would be to increase the number of transfers allowed per year. This would increase a vessel's flexibility to move between the limited entry trawl and fixed gear fishery and it would also allow more flexibility for vessels to move between the limited entry and open access fisheries, reducing the wall between these sectors. Such a provision would also increase administrative costs.

Summary of Impacts

The increased flexibility for vessels in the fixed gear fishery to take part in the trawl fishery, and vice versa, could increase the amount of the trawl allocation taken by vessels using fixed gear.

Degree of Effect: Trawl vessels are already able to use fixed gear to take their trawl allocation, and fixed gear vessels are already allowed to switch into the trawl fishery and use fixed gear to take the trawl fishery through the acquisition of a trawl permit. The proposed action would increase the number of times a year a vessel could switch between participating in the limited entry fixed gear fishery and the trawl IFQ fishery. Under status quo, trawl vessels are able to increase their use of fixed gear to optimize profits, and would be expected to continue to do so to the degree that they generate higher profits.

The keys in determining the degree of effect of an increase in flexibility to move between fisheries is the degree to which (1) harvesting the trawl allocation with fixed gear yields higher profits than harvesting the allocation with trawl gear, (2) vessels that use only fixed gear are able to garner higher profits by expanding their fishing into the IFQ fishery than combination trawl-fixed gear vessels, and (3) the one time per year limit on transferring permits constrains the degree to which a fixed gear vessel would otherwise participate in the trawl IFQ fishery. The degree of effect will depend not only profits with respect to a particular species but the profits associated with all other species which are caught together with that species. For example, a complete switch of the harvest of sablefish from trawl gear to fixed gear would only be expected if the harvest of sablefish by fixed gear generated more profits than generated by all the species that trawlers catch together with sablefish. Quantitative information is not available to assess the degree to which the proposed increase in flexibility would result in a change in gear usage.

Biological Impacts: The ACLs and sector allocations would not be modified. Therefore, the biological impacts are limited to those related to difference between harvesting a portion of the trawl allocation with fixed gear as compared to trawl gear. Those differences likely relate primarily to habitat impacts and differences in gear selectivity. Amendment 20 specifies that vessels with trawl permits using a nontrawl gear are required to comply with the conservation areas applicable to those nontrawl gears (Section A-1.3). In general, the LE fixed gear RCA boundaries are shallower than the trawl RCA boundaries. Therefore, a switch from trawl gear to fixed gear would force activities into shallower waters shoreward of the RCA and allow vessels to fish in shallower areas seaward of the RCA. To the degree that an increased portion of the trawl allocation is taken by fixed gear vessels, the habitats impacted and species harvested may be different than under status quo. In terms of gear selectivity, in addition to size selectivity (e.g. fixed gear may be selective for larger sablefish), fixed gear may also have different selectivity for bycatch species (e.g. fixed gear vessels tend to take more yelloweye as bycatch than trawl vessels. However, while the species selectivities may be different, all harvest of IFQ species will still have to be covered by QP, and harvest of non-IFQ groundfish species will be controlled through other applicable management regulations such that harvests will be maintained within the ACLs. Additionally, during the time fixed gear vessels are participating in the IFQ program they would be required to carry observers, increasing the information available about fixed gear bycatch of all species, including marine mammal and bird interactions.

Alternative 1 would allow a vessel which was grandfathered into the limited entry fixed gear fishery as a freezer longliner to also freeze sablefish that it catches under the trawl IFQ program. There is one vessel in this class. At present, that vessel cannot enter the trawl IFQ fishery as a freezer longliner because to do so would require it to remove its fixed gear permit, on which event the exception which allows it to freeze at sea would expire. The potential for increased freezing of sablefish at sea under Alternative 1 could decrease the availability of biological information, since sampling of fish processed at-sea would not be possible, except to the extent that the onboard observer might have an opportunity to take up that responsibility. Under the current program, onboard observer duties focus on the documentation of discards while shoreside monitors and samplers are responsible for collecting data on landed fish. Alternative 2 would prohibit the fixed gear freezer vessel from expanding its freezing operations into the trawl fishery ensuring that biological data could continue to be collected without having to make other adjustments to the program. The freezer longliner would be allowed to participate in the trawl IFQ program so long as it landed its trawl IFQ sablefish unprocessed.

Socio-Economic Impacts: The economic effect will be a possible increase in the net revenues generated by the fishery. Such an increase would be expected to have an upward increase on quota prices. To the degree that a shift occurs, there may be some social effects as the number of trawl vessels (or size of trawl operations) decrease and fixed gear operations increase. These effects would be expected to the degree that there are social differences between members of the trawl and fixed gear communities. Even if the differences are minimal, all shifts in the distribution of harvest generally involve some disruption as some individuals move out of production while others move in. Such shifts are part of the costs associated with a market based management system.

Alternative 2 would prevent the longline freezer vessel operating in the limited entry fixed gear fishery from freezing fish caught in the trawl IFQ fishery. This vessel was granted a very limited grandfather exception in the fixed gear fishery. The exception expires with a change in ownership of the permit or the vessel, or the separation of the permit from the vessel. The exception was so limited because it was an advantage being given to this vessel over any other vessel in the fishery, due to the vessels investment in at-sea processing equipment prior to the the prohibition of at-sea processing of fixed gear caught sablefish. Equity questions arise as to whether or not the vessel should be allowed to expand freezer its operations into the trawl IFQ fishery (freezing sablefish taken with fixed gear under the trawl IFQ program). Alternative 1 would allow this expansion. Any vessel allowed to process atsea, while others vessel do not have such opportunities, is likely to have a profit advantage over other vessel and therefore be more likely to accrue additional QS and QP, up to the accumulation limits.

Agency and Data System Impacts: The alternatives to status quo may reduce administrative costs by reducing the need for vessels to transfer their permits on and off a vessel in order to move between limited entry fisheries.

Alternative 2's reliance on the gear declaration system could require an enhancement of the existing data system. Vessels which are dual-endorsed, have limited entry permits for both trawl gear and one of the fixed gears, present some challenges to the current data system. There are a total of 5 dual-endorsed permits. For such permits, managers and enforcement need to be able to determine whether such vessels are fishing in the IFQ fishery or the fixed gear fishery. The current regulations specify that this determination will be made based on the vessel gear declarations. However, gear declarations are sometimes in error. In this regard, at the November 2011 Council meeting the EC stated:

> If this alternative [Alternative 2] is adopted, the EC strongly encourages industry leaders to impress upon their membership the importance of maintaining the proper declaration that accurately reflects their fishing activity. Accuracy with the declaration process is both legally required and vital to the analysis of effort by fishery managers.

A system has not been developed to handle corrections to the gear declarations and the provision of those modifications to managers responsible for tracking harvest. Allowing the stacking of fixed gear and trawl permits will increase the need for resolving this issue. There may be means other than the gear declarations for determining whether or not a trip is an IFQ trip. Alternative 2 would dictate that rather than using an alternative means for classifying a trip (e.g. the filing of an electronic landings record under the IFQ program) that the gear declarations program be used. This alternative may require an enhancement of that system such that corrected declarations are incorporated into the declaration datasets and that information from declaration data system is transmitted to the catch monitoring system (e.g. PacFIN).

	Summary: Status and Next Steps
✓	Originally prioritized for implementation in 2013. Now prioritized ASAP given workload constraints.
☼	Select a PPA.

2. Change the opt-out requirement for QP deficits (Preliminary NEPA Determination: No Further NEPA Required)

The question under this issue is whether to change the opt-out requirement for QP deficits lasting more than 30 days, in order to allow vessels to rejoin the fishery after deficits are cleared.

Under status quo, any vessel with a documented deficit is prohibited from fishing groundfish and is required to cure the deficit within 30 days. If a vessel carries a deficit for more than 30 days and the amount of the deficit is within the carry-over allowance, then the vessel can stay within compliance of the program by opting out of the fishery for the remainder of the year. Vessels which do not opt out, but instead incur a violation, are allowed to rejoin the fishery as soon as the deficit is cured. Deficits greater than the carryover allowance must be brought to within the carryover allowance before the 30-day clock expires, otherwise the vessel will incur a violation.

In the following discussion, all references to a vessel's ability to opt out apply only to situations in which the deficits are less than the carryover allowance, unless otherwise noted.

A variety of circumstances may arise under which a vessel incurs a deficit. When a deficit is incurred early in the year, it may not be possible to acquire QP for certain species at a reasonable price because of uncertainties about bycatch rates and tight QP markets for constraining species. Later in the year QP could become more available. However, current regulations give the vessel two choices, each with potentially substantial adverse consequences: (1) incur a violation, including the penalty and subsequent consequences of a violation record, and preserve the opportunity to participate later in the year, or (2) leave the fishery and forgo all remaining opportunity for the year (unused QP might be sold off to other vessels).

The alternatives under consideration are as follows:

Status Quo: Vessels that have carried a known deficit for more than 30 days may avoid a violation by opting out of the fishery for the remainder of the year (so long as the deficit is less than the carryover allowance).

Alternative (PPA): Vessels that have carried a known deficit for more than 30 days may avoid a violation by opting out of the fishery (so long as the deficit is less than the carryover allowance). Such vessels may opt back in once they have cured their deficit.

The 30-day clock with the provision allowing vessels to opt-out for the remainder of the year was originally intended to encourage vessels to cover their overages sooner rather than later. However, as described above and portrayed in the following table, this provision create a situation in which a vessel which incurs a violation is allowed to continue in the fishery while a vessel which stays in compliance must opt out for the remainder of the year. Some view this situation as inequitable.

Table 1. Implications of the alternatives for vessels incurring a deficit that is within the carryover allowance.

Situation of Vessels Incurring a Deficit	**Status Quo**	**Alternative**
Vessel covers deficit within 30 days	Vessel <u>not in</u> violation. Vessel <u>can re-enter</u> the fishery as soon as deficit is covered.	Vessel <u>not in</u> violation. Vessel <u>can re-enter</u> the fishery as soon as deficit is covered.
Vessel <u>opts out</u> by 30 days and covers deficit later	Vessel <u>not in</u> violation. Vessel <u>must stay out</u> of the fishery the entire year.	Vessel <u>not in</u> violation. Vessel <u>can re-enter</u> the fishery as soon as deficit is covered.
Vessel <u>does not opt out</u> and covers deficit later	Vessel <u>in</u> violation. Vessel <u>can re-enter</u> the fishery as soon as deficit is covered.	Vessel <u>in</u> violation. Vessel <u>can re-enter</u> the fishery as soon as deficit is covered.

Vessels with deficits ***greater than the deficit carryover allowance*** <u>may not</u> avoid a violation by opting out by 30 days.

On the one hand the alternative to status quo might be perceived as more equitable. On the other hand changing the opt-out requirement (the alternative) might make the 30-day clock for covering a deficit less meaningful (the 30-day clock would be relevant only for those vessels with deficits greater than the carryover provision). If the vessel chooses to "opt out" there is no cost in doing so. Under the proposed alternative it could opt back in as soon as the deficit is covered, also at no cost. Since the vessel cannot fish while in deficit, the steps of opting out and opting back may not carry much meaning. However, the EC points out that the fleet is more aware of the 30-day requirement than it is aware of the provision prohibiting fishing while in deficit and therefore has recommended that the 30-day requirement be maintained.

With respect to utilization of the opt-out provision the EC provided the following information in their November 2011 report:

> To date there have been three events where a vessel was in deficit and approached the 30-day time period before covering their deficit. In two of these cases the deficit involved target species, and the vessel did not cover the deficit because it was participating in another fishery and chose to wait until the end of the 30-day period before covering their deficit. In the third situation, the deficit involved a large quantity of an overfished species. In all three situations the deficits were larger than the carryover amount (10 percent) and the vessels were not eligible to opt out.

While vessels have not been using the opt-out provision, it is uncertain whether or not they have had to pay higher prices for QP in order to avoid being forced into the opt-out/violation choice. The following table portrays some tradeoffs between the alternatives.

Table 2. Tradeoffs between status quo and alternative for changes to the opt-out provision.

Status quo	Alternative
A potential inequity from being forced to leave the fishery to maintain compliance while vessels that incur a violation are allowed to fish.	Elimination of a potential inequity.
The possibility of being forced to pay higher prices for QP because of the pressure to avoid having to choose between a violation and forgoing fishing for the year.	More time to shop/wait for a better QP price.
Incentive to resolve overages before 30 days.	Little incentive to resolve overages before 30 days.

	Summary: Status and Next Steps
✓	Originally prioritized for implementation in 2013. Now prioritized ASAP given workload constraints.
☼	Select a FPA.

3. Eliminate double filing of co-op reports (November and March) (Preliminary NEPA Determination: No Further NEPA Required)

Currently both mothership and catcher-processor co-ops are required to submit to the Council a preliminary annual report in November and to NMFS a final annual report by March 31 of the following year. Since the fishery is not completed on time for the November meeting and a subsequent final report must be provided by March 31 of the following year, question has been raised about the necessity of providing the preliminary report.

Status Quo: Require that co-ops provide a preliminary annual report to the Council in November and a final annual report to NMFS by March 31 of the following year.

Alternative (PPA): Require that co-ops provide only final annual reports for a particular year but require that it be provided to both NMFS and the Council. The annual report must be provided to NMFS by March 31 of the subsequent year. The annual report should be provided to the Council on time for distribution with the April briefing book, i.e. by the briefing book deadline for the April Council meeting (but no earlier than March 10).

The original requirement for filing preliminary and final reports was patterned based on co-op filing requirements for Alaskan fisheries. The purpose of the requirement for filing a preliminary report is not apparent, and the filing of preliminary reports has apparently been eliminated in the Alaska program.

	Summary: Status and Next Steps
✓	Originally prioritized for implementation in 2013. Now prioritized ASAP given workload constraints.
☼	Select a FPA.

4. Whiting season opening date and southern allocation (Preliminary NEPA Determination: EA)

See also, Agenda Item I.4.a, Attachment 2.

Under a rationalized fishery, the previous rationale for varying start dates among areas and whiting sectors may no longer apply. As a first step, at its November 2011 meeting, the Council adopted for consideration the GAP and Trawl Rationalization Regulatory Evaluation Committee (TRREC) option of moving the whiting season start date for all sectors and areas to May 15, consistent with the start date for the at-sea fishery. The GAP recommendation, adopted as guidance by the Council, also stated:

> The GAP also supports reviewing the overall whiting fishery management regime, including consideration of moving towards a year round fishery. If this adds significant workload, it should remain a priority for the TRREC to address for implementation in the Program Improvements and Enhancements (PIE) 3 rule or beyond.

Only the issue of moving the whiting season date to May 15 is part of the current action. The following are the options for consideration.

Status quo: No Action. The current regulations for the start date and sourthern allocation are as follows.

> 660.131(B)(2) Different primary season start dates. North of 40°30’ N. lat., different starting dates may be established for the catcher/processor sector, the mothership sector, and in the Pacific whiting IFQ fishery for vessels delivering to IFQ first receivers north of 42°N. lat. and vessels delivering to IFQ first receivers between 42° through 40°30’ N. lat. . . .
>
> (iii) Primary whiting season start dates and duration. After the start of a primary season for a sector of the whiting fishery, the season remains open for that sector until the sector allocation of whiting or non-whiting groundfish (with allocations) is reached or projected to be reached and the fishery season for that sector is closed by NMFS. The starting dates for the primary seasons for the whiting fishery are as follows:
>
> (A) Catcher/processor sector—May 15.
> (B) Mothership sector—May 15.
> (C) Shorebased IFQ Program, Pacific whiting IFQ fishery.

(1) North of 42°N. lat.—June 15;
(2) Between 42°–40°30′N. lat.—April 1; and
(3) South of 40°30′N. lat.—April 15.

660.55 (f)(2) . . . No more than 5 percent of the Shore based IFQ Program allocation may be taken and retained south of 42° N. lat. before the start of the primary Pacific whiting season north of 42° N. lat. . . . .

Alternative (PPA): Use a single May 15 start date for all whiting sectors including California fisheries and eliminate the 5 percent California early season whiting fishery cap, to the extent that a fishery management plan (FMP) amendment is not required. This change would be implemented through the two-meeting process already authorized under the framework of the Pacific Coast Groundfish FMP.

	Summary: Status and Next Steps
✔	Originally prioritized for implementation in 2013. Now prioritized ASAP given workload constraints.
☼	Select a FPA or provide guidance on further development of alternatives and consider the process to be followed.

5. Chafing Gear (Preliminary NEPA Determination: EA)

See also, Agenda Item I.4.a, Attachment 3.

The chafing gear issue has been identified as a high priority for Council action. The following chafing gear alternatives were reviewed by the Council at its March 2012 meeting.

Status Quo: No Action

Alternative 1: Eliminate all chafing gear restrictions as they apply to midwater trawl gear gear (includes not only the cod end but the entire net).

Alternative 2 (PPA): Amend midwater trawl gear restrictions to allow for greater chafing gear coverage on the codend (status quo chafing gear regulations for the rest of the net).

Chafer may cover the bottom and sides of the codend in either one or more sections. Chafers can only be attached at the open end of the codend (end closest to trawl mouth) and sides. The terminal end (end closest to terminal end of codend) or the end of each chafer section if using multiple chafers must be left unattached. The only chafer allowed on the top codend panel would be reinforced netting panels under lifting, and constraining straps. All chaffers will conform to codend mesh size regulations.

	Summary: Status and Next Steps
✔	Prioritized for implementation in 2013.
☼	Select a FPA or provide guidance on further development of alternatives and consider the process to be followed.

I.4.d – Council Action Template

Following is a detailed list of action items for potential use in motion making.

1. **Council Action:** "1. Select final preferred alternatives for those trailing actions on which the Council is ready to move forward."

PIE Rule 2, Council list (covered in this attachment)	Council Action
1. Allow fixed gear and trawl permits to be registered to the same vessel at the same time.	
2. Change the opt-out requirement for QP deficits	
3. Eliminate the double filing of co-op reports	
4. Whiting season opening date and southern allocation (also see Agenda Item I.4.a, Attachment 2)	
5. Chafing gear (also see Agenda Item I.4.a, Attachment 3)	
PIE Rule 2, NMFS list (covered in Agenda Item I.4.c, NMFS Trailing Actions)	
1. First receive site license changes	
2. Catch monitor certification requirements	
3. Start renewal process 9/15 for LE permit, vessel account, and QS permits	
4. Remove 12/15-31 ban on QP transfer	
5. Observer provider certification	
6. Clarify processor obligation	
7. Observer program regulatory changes	
8. Change "permit holder" to "vessel owner"	
9. Process for changes vessel ownership	

2. **Council Action: 2.** "Consider the need for a suspension of widow QS trading while widow QS reallocation is being considered and a possible calendar for consideration and implementation of that reallocation."

3. **Council Action:** "3. Provide comment on study design for at-sea electronic monitoring and process for incorporation of results into the Council process."

PFMC
03/15/12

Agenda Item I.4.a
Attachment 2
April 2012

TRAWL RATIONALIZATION TRAILING ACTIONS

ISSUE: WHITING SEASON AND SOUTHERN ALLOCATION

Draft Council Decision Analysis Document

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CHAPTER 1 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 Introduction

This document provides background information about, and analyses for, modifications affecting regulations for the shore-based whiting fishery. The proposed action would require an amendment to the regulations implementing the Pacific Coast Groundfish Fishery Management Plan (FMP). The proposed action must conform to the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the principal legal basis for fishery management within the Exclusive Economic Zone (EEZ), which extends from the outer boundary of the territorial sea to a distance of 200 nautical miles from shore.

In addition to addressing MSA mandates, this document is an environmental assessment (EA), pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended. This document is organized so that it contains the analyses required under NEPA.

1.2 Description of the Proposed Action

The action considered under this issue is to amend the regulations governing the groundfish fishery by modifying the season opening date for the shore-based primary whiting season and the allocation cap on the amount of the allocation taken and retained early in the season in the area south of 42° N. lat.

1.3 Purpose and Need for the Proposed Action

The trawl rationalization program generates benefits over the previous management program to the degree that previous management constraints can be relieved and flexibility provided in the new program. The opportunity for regulatory relief is generated by the individual and collective responsibility for staying within allowed catch levels that is imposed by the rationalization program. The self responsibility of the trawl rationalization program is generated through a system of catch shares (in the form of IFQs or catch limits assigned to co-operatives). Flexibility in the new program is provided by providing the opportunity for individuals to trade catch shares among themselves. This flexibility is expected to allow the industry to optimize the value it derives from the fishery, subject to those regulations which need to remain in place to achieve conservations objectives and address socio-economic concerns which would not otherwise be expected to result from the influence of market forces.

A substantial portion of the regulatory relief provided to the shore-based trawl fishery was the near elimination of the system of 2-month trip limits which was used to control harvest of nonwhiting species under the previous management regime. However, the trawl rationalization program made no automatic adjustments to the season structure used to control harvest in the shore-based and at-sea whiting fishery. There may be an opportunity to further enhance benefits of the trawl rationalization program by relieving constraints imposed by the season regulations. The Amendment 20 trawl rationalization program specifically identified consideration of modification of the whiting seasons to be a matter for a trailing action.

CHAPTER 2 DESCRIPTION OF THE ALTERNATIVES

2.1 Alternatives

2.1.1 Background

In 1996, the northern shore-based fishery (north of 42° N. lat) and at-sea whiting fisheries (mothership and catcher-processor) all began on May 15, the central shore-based fishery (between 42° N lat. and 40° 30' N lat.) began on March 1 and the southern fishery (south of 40° 30' N lat.) began on April 15. For 1997 the Council adopted, and NMFS approved, a preferred alternative which changed the opening date for the northern shorebased fishery to June 15, and moved the start date for the central fishery to April 1. Additionally, an allocation decision was made to limit the central and southern fisheries (the California fisheries) to taking a total of 5% of the shorebased allocation prior to the start of the northern fishery. These regulations have remained in place and continue under the trawl rationalization program.[1]

In addition to modifying the season dates and establishing a California early season allocation, the Council's action for the 1997 fishery also established a framework for modifying the season opening dates on an annual basis. The framework for taking action is discussed in Section 2.3.

The alternative to status quo would return the northern shore-based season start date to May 15 and would also move the California fishery season start dates to May 15. The 5% limit on the

[1] The Council's action implemented for the 1997 fishery:

> **Adopted alternative: establish a season framework.** Under the proposed framework, the Council may set separate season opening dates for each of the three sectors. Objectives and criteria for making these decisions are included in the discussion document. The season for northern California (40°30' N to 42° N latitude) would be modified to open April 15 in 1997 (60 days prior to the opening of the northern shorebased season) and be subject to a limit of 5% of the shore-based allocation (about 4,300 mt in 1997). The 1997 season opening date for mothership processors and catcher-processors will remain May 15, but the shore-based season north of 42°N will be June 15. Seasons may be adjusted annually to achieve the stated objectives. In addition, at-sea processors would be authorized to process whiting waste products when other at-sea whiting operations are prohibited, except for 48 hours before and after the at-sea whiting season is open.

amount of fish taken in the California fisheries prior to the start of the northern fishery becomes nonsensical if the California and northern fisheries start at the same time. Therefore, the alternative to status quo would also eliminate the early season allocation to the California shore-based whiting fishery (south of 42° N. lat).

The environmental assessment for the 1997 action is available from the Council website: http://www.pcouncil.org/wp-content/uploads/02_1997_EA_RIR_Whiting.pdf.

2.1.2 Description of Alternatives

The following are the alternatives being considered for this action.

Status quo: No Action. The current regulations for the start date and sourthern allocation are as follows.

660.131(B)(2) Different primary season start dates. North of 40°30' N. lat., different starting dates may be established for the catcher/processor sector, the mothership sector, and in the Pacific whiting IFQ fishery for vessels delivering to IFQ first receivers north of 42°N. lat. and vessels delivering to IFQ first receivers between 42° through 40°30' N. lat. . . .

(iii) Primary whiting season start dates and duration. After the start of a primary season for a sector of the whiting fishery, the season remains open for that sector until the sector allocation of whiting or non-whiting groundfish (with allocations) is reached or projected to be reached and the fishery season for that sector is closed by NMFS. The starting dates for the primary seasons for the whiting fishery are as follows:

(A) Catcher/processor sector—May 15.
(B) Mothership sector—May 15.
(C) Shorebased IFQ Program, Pacific whiting IFQ fishery.
  (1) North of 42°N. lat.—June 15;
  (2) Between 42°–40°30′N. lat.—April 1; and
  (3) South of 40°30′N. lat.—April 15.

660.55 (f)(2) . . . No more than 5 percent of the Shore based IFQ Program allocation may be taken and retained south of 42° N. lat. before the start of the primary Pacific whiting season north of 42° N. lat. . . . .

Alternative (PPA): Use a single May 15 start date for all whiting sectors including California fisheries and eliminate the 5 percent California early season whiting fishery cap, to the extent that a fishery management plan (FMP) amendment is not required. This change would be implemented through the two-meeting process already authorized under the framework of the Pacific Coast Groundfish FMP.

2.1.3 Rationale

A number of considerations influenced the 1996 decision to move the season opening date for the northern shore-based fishery from May 15 to June 15, including providing an opportunity for catcher vessels to participate sequentially in the mothership fishery (opening May 15) and the shorebased fishery (opening June 15), and allowing vessels to complete their May-June DTS cumulative limits before the start of the fishery (it was not permissible to land more than 60% of the DTS limit in a particular month). The shift from a May 15 to a June 15 opening (and from March 1 to April 1 for the central area) was also expected to have some effect in allowing the fish to grow to a larger size prior to harvest (decreasing the total number of individual fish taken to achieve the allocations and having some marginal effect on increasing stock productivity). On the down side was an expectation that shifting a portion of the season to later in the year might increase bycatch rates of rockfish because more of the whiting stock biomass would be in northern areas where rockfish such as yellowtail and widow are more available to midwater gear. With respect to the salmon fishery, the 1997 EA summarized:

> The salmon bycatch data do not show a consistent pattern other than to indicate that high salmon bycatch rates may occur in the at-sea fishery later in the year. The shore-based fishery has experienced low salmon bycatch rates during most summer periods. It would be diffcult to predict the impact of changing the season timing on salmon bycatch, especially on a year-to-year basis as could occur under the proposed framework" (Council 1997, p. ES-4).

The change in the shore-based season opening dates was supported by all sectors of the industry, including the shore-based processors in northern California.

The 5% limitation on early season whiting catch in the California fishery was seen as "prevent[ing] expansion and further capitalization in that area, contributing to further stability as well as minimizing cost to the nation from further capitalization" (Council 1997, p. ES-4).

For the shorebased industry in the north, returning to a May 15 opening would increase flexibility to determine the most optimal time to harvest the whiting by adding one month to the season length. The actual timing of harvest would likely take into consideration numerous factors including bycatch rates of other species (bycatch of groundfish is constrained by the quota pounds fishermen hold and bycatch of salmon above certain levels may trigger a reinitiation of consultation under the ESA[2]), opportunity costs related to other fishing opportunities (such as participation in the mothership whiting fishery or pink shrimp fishery), optimal size and condition of whiting for processing, and market prices. Moving the season start dates for California fisheries would simplify regulations and eliminate the 5% early season cap (eliminate a management measure requiring a possible inseason action that would constrain participants in the IFQ program) and may have an effect on salmon bycatch. The tradeoff for the California fisheries is a decrease in flexibility due to the shortened season. However, with implementation of the IFQ program it appears that harvest has moved out of northern California (Table 2-1. Industry members report that the historic landing in this area were primarily from catcher vessels trying to get a jump on the start of the season. With the IFQ travelling south for the early season no longer provided an advantage in terms of increased harvest opportunity.

[2] The standard for reinitiation of consultation is 0.5 Chinook per mt for any sector or a total of 11,000 Chinook for all sectors including the whiting fishery

Table 2-1. History of early season participation (1994-1996 and 2004-2011)

Shoreside Early Season Landings		1994	1995	1996	2004	2005	2006	2007	2008	2009	2010	2011
						Metric Tons						
N of 42	May 15-June 14	12,648	25,598	11,250	-	-	-	-	-	-	-	-
42°–40°30′N. lat	April 1-May 14	1,730	[redacted]	1,283	[redacted]			2,087	2,298	1,792	1,736	0
S. of 40°30′N. lat.	April 15-May 14	0	0	0	0	[redacted]	0	0	0	0	0	0
						ExVessel Value ($)						
N of 42	May 15-June 14	796,295	2,682,576	657,727	-	-	-	-	-	-	-	-
42°–40°30′N. lat	April 1-May 14	171,850	[redacted]	119,509	[redacted]			259,645	493,746	197,080	297,657	0
S. of 40°30′N. lat.	April 15-May 14	0	0	0	0	[redacted]	0	0	0	0	0	0
						Number of Vessels						
N of 42	May 15-June 14	16	25	26	-	-	-	-	-	-	-	-
42°–40°30′N. lat	April 1-May 14	4	1	4	4	4	5	6	7	6	9	0
S. of 40°30′N. lat.	April 15-May 14	0	0	0	0	1	0	0	0	0	0	0
						Number of Buyers						
N of 42	May 15-June 14	6	11	7	-	-	-	-	-	-	-	-
42°–40°30′N. lat	April 1-May 14	3	1	3	2	2	2	3	5	5	7	0
S. of 40°30′N. lat.	April 15-May 14	0	0	0	0	1	0	0	0	0	0	0

Cells are blacked out to ensure confidentiality.

2.2 Alternatives Considered But Rejected from Detailed Analysis

The scope of the current alternatives is limited to moving the whiting season opening for the shore-based fisheries to May 15, coastwide, and a complementary adjustment (elimination of the 5% cap on the early season catch in the south). Moving the whiting season opening date even earlier, or other modifications of the whiting season regulations might also be considered but would require a more extensive analysis that could not likely be completed on time to be implemented for the 2013 fishery, given current workload constraints. Therefore, the current priority is to determine whether some interim regulatory relief can be provided until more substantial adjustments to the whiting regulations can be considered.

2.3 Process for Taking Action

The Council's action for the 1997 fishery (see footnote 1) established a framework for modifying the season opening date on an annual basis. That framework was codifed in the following regulations:

> 660.131(B)(2) Different primary season start dates. North of 40°30' N. lat., different starting dates may be established for the catcher/processor sector, the mothership sector, and in the Pacific whiting IFQ fishery for vessels delivering to IFQ first receivers north of 42°N. lat. and vessels delivering to IFQ first receivers between 42° through 40°30' N. lat.
>
> (i) Procedures. The primary seasons for the whiting fishery north of 40°3′ N. lat. generally will be established according to the procedures of the PCGFMP for developing and implementing harvest specifications and apportionments. The season opening dates remain in effect unless changed, generally with the harvest specifications and management measures.
>
> (ii) Criteria. The start of a primary season may be changed based on a recommendation from the Council and consideration of the following factors, if applicable: Size of the harvest guidelines for whiting and bycatch species; age/size structure of the whiting population; expected harvest of bycatch and prohibited species; availability and stock status of prohibited species; expected participation by catchers and processors; the period between when catcher vessels make annual processor obligations and the start of the fishery; environmental conditions; timing of alternate or competing fisheries; industry agreement; fishing or processing rates; and other relevant information.

The framework does not provide for the modification of the southern allocation nor does it include modifying the season start date for the southern most area (south of 40°30' N. lat.). Additionally, NMFS as made a preliminary determination that an EA will be required for this action. Given that the Council will need to go through the process of adopting a preliminary and preferred alternative, that the framework does not appear to provide any relief in terms of the analytical requirements, and that the current scope of the alternative goes beyond that covered by the framework, it is not readily apparent that use of the framework provisions for changing the whiting season provides any advantage over use of the socio-economic framework contained in the FMP. The socioeconomic framework requires a full rule making process including two decision meetings for the Council (preliminary and final actions).

CHAPTER 3 IMPACTS

3.1 Direct and Indirect Impacts to the Physical Environment, Including Habitat and Ecosystem, and Biological Environment

Biological impacts will be driven by the degree to which an earlier season opening results in a shift of harvest earlier into the year. Under the status quo IFQ program there is no race to fish. Whether an earlier opening results in earlier fishing will likely be driven by early season market prices, the condition of fish, catch per unit effort, the occurrence of bycatch species (for which there is an avoidance incentive), opportunities in other fisheries, etc. Heavy fishing at the outset of the season under status quo might indicate a higher probability of an advantage to an earlier season, whereas a lower fishing rate at the start of the season could indicate a lower probability that a substantial amount of effort would shifted as a response to the earlier opening. In 2011 (the first year of the IFQ program), most of the harvest occurred in the summer. The fishery opened June 15 and in the first 15 days of the fishery 10,803 metric tons were landed (Table 3-1).

Table 3-1. Shorebased whiting fishery landings in 2011, by period.

Period	Metric Tons	**Sum of REV**
6/15-6/30	10,803	2,629,271
7/1-8/31	54,169	13,117,101
9/1-10/31	24,342	5,793,081
11/1-12/31	2,082	489,500
Season Total	91,396	22,028,953

Note: In 2011, all whiting directed shoresbased landings occurred north of 42^{o} north latitude.

The average daily rate of landings for the last half of June was about 23% lower than the rate in July-August (
Figure **3-1**).

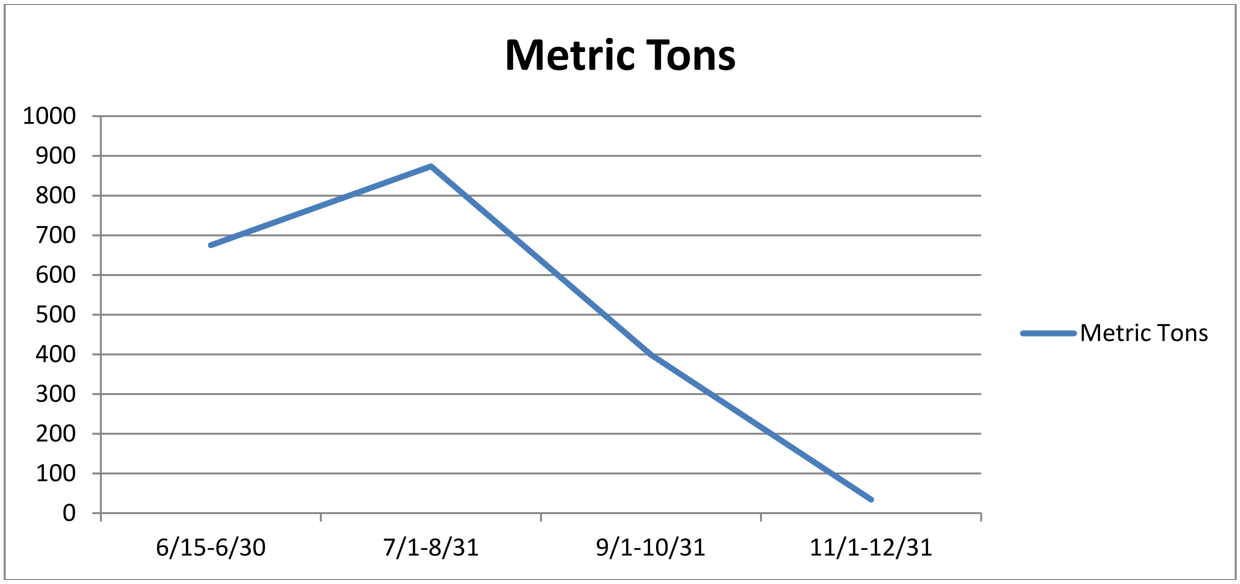

Figure 3-1. Average daily harvest rate in the shorebased whiting fishery in 2011, by period.

The lower rate in late June could either be an indicator of less desirable fishery condition or simply a ramp up in the early days of the season. Since there was not a race for fish there was little incentive for vessels to be fishing at full capacity on day one of the season. Any conclusions from this data must be limited by the fact that it covers only a single year and fishery conditions in subsequent seasons could vary and result heavier fishing or lighter earlier in the season.

The 1997 EA (Council 1997) found that the likely biological and physical environment impacts from shifting the whiting season opening dates would accrue to the whiting resource, salmon (mostly chinook), and other groundfish species (primarily yellowtail and widow rockfish). A summary of the main conclusions of the EA is provided in the following sections. Some of this information may need to be updated for this EA.

3.1.1 Whiting

The 1997 EA stated

> Delaying all or part of the whiting harvest to later in the season allows the whiting to grow, and thus fewer would be caught to achieve the harvest guideline. This could equate to as much as a 10% increase in longterm yield if the entire harvest were delayed until September each year, compared to the entire harvest being taken in April.

Under consideration here is a one month move (from June 15 to May 15) of a portion of the shorebased sector's allocation of whiting (42%). The 1997 EA provided results for a four month delay in harvest, a September harvest as compared to a harvest taken entirely in April. Given that the change here is for a one month move of only a portion of the total harvest, the maximum impact on long term yield would likely be relatively small. Moreover, movement of the opening date to May 15 does not mean the timing of the entire shore-based harvest will be moved forward by a one month increment. The IFQ program provides an opportunity for harvest to be spread out over a longer period of time. It may that an extension of the season duration by one month encourages a steady but lower rate of harvest, spread out over a longer time, or that conditions are such that very little harvest occurs earlier in the year.

Regardless, it seems unlikely that the entire allocation would be harvested during the earlier period (May 15-June 14) as a result of the season change.

3.1.2 Bycatch Species

The 1997 EA stated

> Non-target species are affected in that if whiting operations occur in areas where the non-target species are relatively more abundant, bycatch rates will increase. Again, the dynamic nature of the marine ecosystem makes prediction of bycatch rates difficult. For example, salmon bycatch in the whiting fishery is not uniform, but rather patchy, and most tows are free of any salmon. A report by NMFS scientists indicates that in the 1995 at-sea fishery, two sampled tows accounted for 10% of the total salmon bycatch, and 25 tows account for approximately 60% of the total estimated salmon bycatch. These 25 tows represent about 1% of the total of 2,222 tows recorded and 2% of the 1,131 tows sampled. Improved communication among participants in the fishery could help reduce this bycatch by identifying areas of local salmon abundance. Rockfish bycatch is somewhat more uniform, but again a few tows account for the majority of the bycatch.

With respect to salmon in particular, the EA went on to state

> An early season (especially in late April and early May) has been associated with higher salmon bycatch rates, especially in the shore-based fishery. However, during the joint venture period of the 1980s, salmon bycatch generally increased after June, peaked in July, and increased again in October. A NMFS reported dated May 25, 1992 concluded 11there is little apparent seasonality. The late season seems especially variable. (Appendix D.) In recent years, the at-sea fishery has not operated extensively in the summer or fall, so salmon bycatch information is absent. However, in 1992 at-sea processors operated in September and October, and in 1994 operated for 5 days in October. Salmon bycatch in September 1992 was very low, but samples from vessels delivering to motherships in early October showed an extremely high chinook salmon bycatch rate. Catcher-processors during that time period had a very low chinook bycatch rate. After the first week of October, the mothership bycatch rate went to zero and the catcher-processor bycatch rate exceeded the voluntary 0.05 salmon per mt guideline. Thus, the data do not show a consistent pattern other than to indicate that high salmon bycatch rates may occur late in the year. The shore-based fishery has experienced low salmon bycatch during most summer periods. It would be difficult to predict the impact of changing season timing on salmon bycatch, especially on a year-to-year basis, as could occur under the proposed framework.

This information needs to be updated with more recent data. When the season was moved from May 15 to June 15 NMFS found that the rule change was within the scope of the consultation in place at that time.[3]

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[3] The ESA Biological Opinion on salmon provide criteria that would require reinitiating an ESA consultation. In September 2010, NMFS issued a public notice which read, in part, as follows:

> The National Marine Fisheries Service (NMFS) is concerned that current Chinook salmon bycatch rates in the 2010 shoreside Pacific Whiting fishery have been consistently higher than 0.05 Chinook/mt of whiting. This catch ratio is the guideline outlined in the 1999 Biological Opinion addressing potential effects of incidental Chinook salmon mortality in the whiting fishery. Consultation shall be reinitiated if: the shoreside catcher/processor, mothership, or Tribal components of the fishery exceed or are expected to exceed the bycatch rate of 0.05 chinook/mt of whiting; and the expected total bycatch of chinook in the fishery is expected to exceed 11,000 fish." (NMFS, 2010)

With respect to rockfish in particular, the EA went on to state

> Rockfish are the primary groundfish taken as bycatch in the whiting fishery, especially widow and yellowtail rockfish. Bycatch of these species could tend to increase if seasons are set late in the year when the bulk of the whiting biomass is in northern waters where rockfish are more available to midwater trawl gear. As with salmon, if areas of rockfish concentration can be identified and avoided, bycatch could be reduced.

Irrespective of the effects of a move of the season on the amount of rockfish taken as bycatch, the effects would largely be allocational since total trawl related mortality is limited by sector allocations and the amount of fish allocated to each quota holder. The allocations to each QP holder provide individual vessel incentive to avoid bycatch for IFQ species that may constrain total harvest.

3.2 Direct and Indirect Impacts to the Socioeconomic Environment

3.2.1 Fishery and Business Impacts

Under the trawl rationalization program businesses will time the harvest and processing of product to maximize net revenues from all fishing opportunities in aggregate. Extending the shorebased season by a month will increase the choices available for the northern fishery, providing an opportunity to improve private economic benefits if those benefits are higher in the May 15-June 14 period than later in the year. If the benefits cannot be increased by harvesting during that period then it is less likely that the change in harvest date will have a substantial effect on the seasonal distribution of harvest in the northern fishery. For the southern area, for up to 5% of the shorebased harvest there would be a contraction in flexibility to harvest, with the season opening moving from April 1 (in southern California) and April 15 (in northern California) to May 15. However, data for 2011 shows no harvest is occurring in this area under the IFQ program. Even though that data shows no harvest is currently occurring, introducing a constraint will reduce the opportunity to take advantage of any newly developing opportunities which may occur with shifts in stock distribution or shifts in other local economic factors.[4]

3.2.2 Impacts on Communities

To the degree the whiting are less available off of California after May 15, as compared to between the status quo April openers and May 15, communities in California into which whiting is landed may be disadvantaged. Fish are more likely to have moved out of the area early in warmer water years than colder water years. While the opportunity to own QS ensures the right to harvest the whiting, if whiting are not available after May 15 in concentrations and conditions that allow economically competitive fishing then any potential opportunity that could arise in the California area might be dampened. As discussed above, it appears that under the IFQ program, the early season whiting fishing off California may have disappeared because of the elimination of the race for fish/

3.3 Impacts on Agencies

The alternative would eliminate the need for agencies to monitor the 5% early season cap on the California whiting fishery and create a more consistent whiting management regime for on the water monitoring (vessels using midwater gear in the RCA between May 15 and June 14 would be allowed to

[4] In the event that extraordinarily favorable conditions occurred in the southern early season, the 5% cap combined with a much larger amount of quota pounds available for harvest, could result in a mini-derby, a race to harvest whiting QP prior the 5% cap being reached.

do so regardless of whether they were delivering to shore or at-sea). Under status quo, from May 15 to June 14 vessels are allowed to use midwater gear in the RCA if they are delivering to motherships but not if they are delivering to shore.

References

Council. (1997). **Pacific Whiting Allocation And Seasons:** Environmental Assessment And Regulatory Impact Review Of The Anticipated Biological, Social And Economic Impacts Of A Proposal To Allocate Pacific Whiting Among Non-Tribal Sectors And To Establish A Framework For Modifying Season Opening Dates. Portland OR: Pacific Fishery Management Council.

NMFS. (2010). Pacific Coast Groundfish Fishery: Chinook salmon bycatch in the shoreside Pacific Whiting fishery. Public Notice. September 8, 2010

Agenda Item I.4.a
Attachment 3
April 2012

TRAWL RATIONALIZATION TRAILING ACTIONS

ISSUE: CHAFING GEAR

Draft Council Decision Analysis Document

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MARCH 2012

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Background

Some midwater trawl vessels that fish in the PFMC management area for Pacific whiting also fish midwater trawl for Alaska pollock in the NPFMC area. The midwater trawl nets used for pollock in the NPFMC area and whiting in the PFMC area are very expensive to purchase or make, thus it is very important to the vessel owners that the trawl gear construction specifications and regulations are in close agreement between the two areas so that the nets used in one area can be used in the other area. Midwater trawl vessel owners have brought it to the Council's and NMFS' attention that some midwater trawl gear restrictions are not consistent between the PFMC and NPFMC management areas and that due to a misinterpretation of the PFMC area regulations some of their nets may not be in compliance with PFMC the midwater trawl gear restrictions, particularly as they relate to chafing gear placement and coverage restrictions (PFMC 2011b).

This analysis evaluates alternative chafing gear regulations for midwater gears. The analyses compare the proposed regulation changes with existing gear restrictions in the PFMC and North Pacific Fisheries Management Council (NPFMC) areas; provide possible rationale for proposed changes; compares groundfish landings data for the two management areas in recent years are (shown in Appendix C, *not provided at this time)* and provide an assessment of potential impacts on the fishery, enforcement efforts, and fishery monitoring and groundfish stock assessment programs.

Purpose and Need

Some PFMC area vessel owners have commented that the most problematic regulatory conflict is between the chafing gear restrictions in the two management areas (Figure 1; Table 1). They report that the nets that they use in the Alaska fishery may not be in compliance with PFMC area regulations as currently worded (PFMC 2011b). In large part this is because the NPFMC regulations are very liberal as they apply to chafing gear placement on the net; they only prohibit "chafe protection attachment" to the footrope or fishing line (Table 1). The PFMC regulations are complex in comparison. For example, the regulations limit chafing gear placement on the codend to the 50 most terminal meshes regardless of codend length and limit chafing gear coverage of the codend to 50% of the net circumference. These latter restrictions are the most difficult for the vessel owners to comply with because the nets they use in the NPFMC area have greater chafing gear coverage on the codend than PFMC regulations allow. According to one industry member, chafing gear used in Alaska is applied to the bottom and sides of the codend and sometimes to a straight tubular netting section ahead of the codend. The purpose of chafer panels is to minimize damage to the codend netting from wear against the stern ramp and trawl alley during net retrieval.

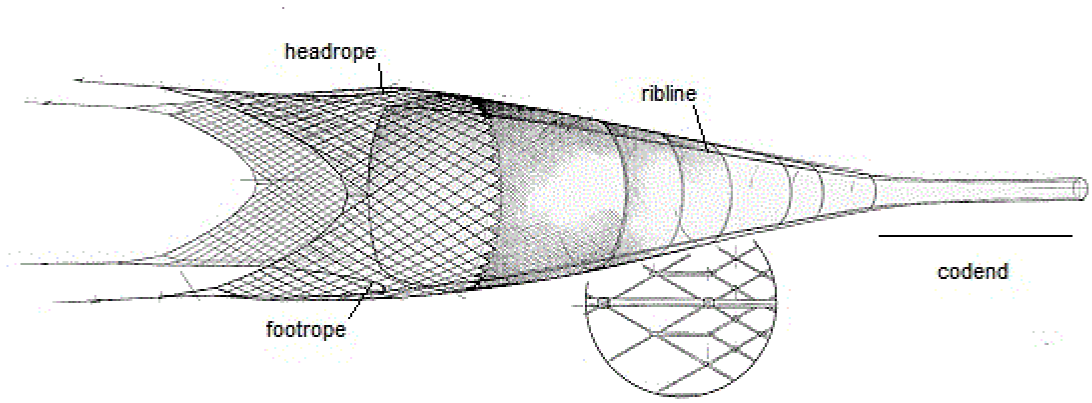

Figure 1: Side view illustration of a typical midwater trawl net used in the NPFMC and PFMC management areas (modified from NET systems web page: http://www.net-sys.com/index.php)

Alternatives

The chafing gear issue has been identified as a high priority for Council action. The following chafing gear alternatives were reviewed by the Council at its March 2012 meeting.

Status Quo:	No Action
Alternative 1:	Eliminate all chafing gear restrictions as they apply to midwater trawl gear.
Alternative 2 (PPA):	Amend midwater trawl gear restrictions to allow for greater chafing gear coverage on the codend - Chafer may cover the bottom and sides of the codend in either one or more sections. Chafers can only be attached at the open end of the codend (end closest to trawl mouth) and sides. The terminal end (end closest to terminal end of codend) or the end of each chafer section if using multiple chafers must be left unattached. The only chafer allowed on the top codend panel would be reinforced netting panels under lifting, and constraining straps. All chaffers will conform to codend mesh size regulations.

Analysis of Action Alternatives

A summary of the potential impacts of the action alternatives compared to status quo restrictions as they apply to chafing gear placement on the codends of midwater trawl nets is provided in Table 2. These assessments (*which have not received advisory panel review*) are based on a worst case application of the respective action alternatives compared to current regulations. For example if a fisher decided to cover the entire codend of their net with chafe gear under Alternative 1 it is projected that there would be an increase in the amount of nonmarketable size fish in the catch resulting in a negative biological impact. At the same time, this same alternative would give greater net protection from onboard abrasion sources, which would increase the useful life of the net, which would result in a positive soci-economic impact.

All comparisons in this table are expressed as relative impacts compared to status quo chafe gear restrictions.

Table 2. Comparison of action alternatives to status quo restrictions as they apply to chafing gear placement on codends of midwater trawl nets.

	No Action (status quo)	Alternative 1: Eliminate all chafe gear restrictions	Alternative 2: Limit chafe gear placement to bottom and side codend panels
Physical resources:	nc [1/]	nc [2/]	nc [2/]
Biological resources:	nc	- [3/]	nc
Soci Economic resources	nc	++ [4/]	+

1/ nc = no change compared to status quo regulations

2/ May be a slightly negative impact if elimination of restrictions allows a shift in targeting strategies with midwater gear (degree of shift would be limited by small footrope requirements and requirements for bare footropes on midwater gear).
3/ '- = potentially minor negative impact

4/ '+ = potentially positive impact

Alternative 1: Eliminate all chafing gear restrictions as they apply to midwater trawl gear (includes not only the cod end but the entire net).

Issue:

The proposal here is to eliminate all chafing gear restrictions for midwater trawl nets used in the PFMC area. This would bring them into close agreement with the comparative midwater fishery regulations in the NPFMC area (Table 1). It would free vessel owners to configure their chafing gear to their own fishery needs.

Physical Resources:

The effect of the proposed regulation change would not be expected to have any sea floor habitat consequences provided the nets are fished well off the sea floor, which is believed to be the case in the West Coast whiting fishery under status quo regulations and would be expected to continue to be the case under the proposed regulation change. This is because whiting is a midwater species and allowing the net to drop to the sea floor would represent an operational inefficiency, as would fishing the net close to the sea floor where whiting are in low abundance or absent compared to midwater depths.

A the same time, it is possible that with increased chafing gear coverage vessels may fish their nets closer to the sea floor to target a different mix of species. However, their ability to do so would be limited by other restrictions on midwater gear, such as the small foot rope requirement and requirement that the foot rope be bare.

Biological Resources:

The change could have biological consequences if expanded chafing gear coverage resulted in increased retention of nonmarketable size whiting stemming from reduced net sorting effect. There could also be increased biological impacts if increased bottom contact and close trawling to the sea floor resulted in increased harvest of non-target species. This would be a particular concern when fishing is conducted within the RCA where overfished groundfish species, which usually live close to the sea floor, are most abundant. Such outcomes would seem to be unlikely because all fish harvested under IFQ management count against vessel QP accounts and harvest of nonmarketable size fish and nontarget species, including overfished groundfish, take away from a vessel's potential fishery harvest, hence fishery revenues. On the other hand, it may be more economical for fishers to increase the harvest (and waste) of nonmarketable sized fish, depending of the operational savings associated with longer net life stemming from greater chafing gear coverage.

Socio Economic Resources:

The projected fishery impact would be to allow vessels owners to use and place chafing gear the entire length of the codend and to cover an unlimited amount (100%) of the net to protect it from onboard abrasion sources. The effect would be to lengthen the effective lifespan of each net, thus reduce average annual net replacement cost. It would also be a step toward allowing them to use the midwater trawl nets that they use in the NPFMC area in the PFMC area reducing costs. Close trawling to the sea floor when fishing in the RCA would be a particular concern because impacts to over fished species could result in vessel tie up, hence reduced fishery income potential, for an extended period of time due to inadequate overfished species QP. Even under the IFQ program, a disaster tow in which large quantities of an overfished species are caught could close segments of the fishery, thereby effecting other vessels. Closer fishing to the sea floor would represent an operational inefficiency for whiting targeting becuase whiting are found at midwater depths and not close to the sea floor. However, a shift in target strategies could result in targeting closer to the sea floor.

The proposed regulation change would allow fishery enforcement efforts currently aimed at chafing gear compliance to be redirected to other fishery issues. No impact would be expected from the proposed regulatory change to other fishery management activities ranging from onboard observer program to states' fishery sampling and data entry programs.

Alternative 2: Amend midwater trawl gear restrictions to allow for greater chafing gear coverage on the codend (status quo chafing gear regulations for the rest of the net) - Chafer may cover the bottom and sides of the codend in either one or more sections. Chafers can only be attached at the open end of the codend (end closest to trawl mouth) and sides. The terminal end (end closest to terminal end of codend) or the end of each chafer section if using multiple chafers must be left unattached. The only chafer allowed on the top codend panel would be reinforced netting panels under lifting, and constraining straps. All chafers will conform to codend mesh size regulations.

Issue:

The alternative presented here is to amend the regulatory language that pertains to chafing gear placement on codends of midwater trawl nets used in the PFMC area. It would not affect the other midwater trawl gear restrictions as they apply to the forward (non-codend) portions of the net. The alternative presented here differs from the previous alternative in that it places restrictions on the placement of chafing gear on the codend, but allows for greater chafing gear coverage compared to current regulations overall (Table 1).

Physical Resources:

The impact of this alternative would be expected to be the same as under the previous alternative and under status quo regulations.

Biological Resources:

The previous alternative would allow for unlimited (100%) chafing gear coverage of midwater trawl nets, including codends, used in the PFMC area. Assuming all codends used in the PFMC area are of four panel design as described under this alternative (also see NMFS 2005 for more gear information) and each panel is equal in size, chafing gear coverage, except at lifting straps, would be limited to 75% of the codend circumference. If the top panel of some nets is smaller than the other panels, the coverage would be >75%. Overall, there would not appear to be much difference in potential biological (or habitat) impact of this alternative compared to the previous alternative as it applies to codend coverage because the difference in allowable chafing gear coverage is about 25% less under this proposal. The major difference between Alternative 2 and Alternative 1 would be with regard to chafing gear coverage of the forward net panels, which under Alternative 2 would be unchanged from current regulations.

If chafing gear placement on the codend is a factor in potential threat to harvest of nonmarketable fish and nontarget species, including overfished groundfish species, the impact under this alternative would seem to be about the same as under the previous alternative. If chafing gear coverage of net panels forward of the codend is important with regard to the potential for increased biological impacts, the threat under this alternative would appear to be the same as under status quo regulations because the proposal here is for no change in chafing gear regulations as they apply to chafing gear placement to net sections forward of the codend. Overall the potential impact of this alternative to biological systems would seem to be intermediate to those of status quo regulations and those projected for the previous alternative.

Socio Economic Resources:

The expected socio-economic impacts under this alternative would be about the same as under the previous alternative except the amount of chafing gear coverage would be limited to about 75% of the codend diameter. The proposed change would be expected to have minimal impact to fishery enforcement efforts because there would be minor change in the number and complexity of chafing gear provisions that apply to the midwater trawl fishery. No impact would be projected from the proposed regulatory change to other fishery management activities ranging from onboard observer program to states' fishery sampling and data entry programs.

Literature Cited

National Marine Fisheries Service (NMFS). 2005. Appendix A: Pacific Coast Groundfish Fishery Management Plan Essential Fish Habitat Designation and Minimization of Adverse Impacts, Final Environmental Impact Statement. National Marine Fisheries Service, Northwest Region 7600 Sand Point Way NE, Seattle, WA 98115.

PFMC. 2011b. Trawl Rationalization Regulatory Evaluation Committee Report On Trailing Actions. Agenda Item E.7.b Supplemental TRREC Report November 2011. Pac. Fish. Mgmt Coun., Portland OR 97220.

Table 1. Comparison of PFMC and NPFMC midwater (pelagic) trawl gear restrictions

	PFMC	**NPFMC**	**More restrictive area**
Codend: 1/	Single-walled webbing only (§660.130(b)(1))	No comparative restriction	PFMC
Mesh size:	3 inch minimum mesh size (§660.130(b)(2)) except for additional midwater trawl gear mesh size restrictions, explained below.	§679.2(14): (iii) Except for the small mesh allowed under paragraph (ix) of this definition (see below): (A) Has no mesh tied to the fishing line, headrope, and breast lines with less than 20 inches (50.8 cm) between knots and has no stretched mesh size of less than 60 inches (152.4 cm) aft from all points on the fishing line, headrope, and breast lines and extending passed the fishing circle for a distance equal to or greater than one half the vessel's length overall (LOA); *or* (B) Has no parallel lines spaced closer than 64 inches (162.6 cm) from all points on the fishing line, headrope, and breast lines and extending aft to a section of mesh, with no stretched mesh size of less than 60 inches (152.4 cm) extending aft for a distance equal to or greater than one-half the vessel's LOA; (iv) Has no stretched mesh size less than 15 inches (38.1 cm) aft of the mesh described in paragraph (14)(iii) of this definition for a distance equal to or greater than one-half the vessel's LOA; (ix) May have small mesh within 32 ft (9.8 m) of the center of the headrope as needed for attaching instrumentation (e.g., net-sounder device).	NPFMC
Chafing (chafe) gear:2/	(1) Chafing gear may encircle no more than 50 percent of the net's circumference (§660.130(b)(3)) (2) No section of chafing gear may be longer than 50 meshes of the net to which it is attached (§660.130(b)(3)).	No comparative restriction No comparative restriction	PFMC PFMC

	(3) Chafing gear (when used on the codend) may be used only on the last 50 meshes, measured from the terminal (closed) end of the codend (§660.130(b)(3)).	No comparative restriction	PFMC
	(4) Except at the corners, the terminal end of each section of chafing gear on all trawl gear must not be connected to the net (the terminal end is the end farthest from the mouth of the net). Chafing gear must be attached outside any riblines and restraining straps (§660.130(b)(3)).	No comparative restriction	PFMC
	(5) There is no limit on the number of sections of chafing gear on a net (§660.130(b)(3)).	No comparative restriction	No
	No comparative restriction	Has no chafe protection gear attached to the footrope or fishing line (§679.2(14)(ii)).	NPFMC
General provisions	(1) Footrope 3/ must be bare (unprotected)(§660.130(b)(6)).	(1) Has no discs, bobbins or rollers (§679.2(14)(i)).	Neither
	(2) Footrope must not be enlarged with the use of chains or any other means (§660.130(b)(6)).	No comparative restriction	PFMC
	(3) Ropes or lines running parallel to the footrope must be bare and not suspended with chains or any other materials (§660.130(b)(6))	No comparative restriction	PFMC
	(4) Sweep lines and the bottom leg of the bridle must be bare (§660.130(b)(6)).	No comparative restriction	PFMC
	(5) For at least 20 ft behind the footrope or headrope, bare ropes or 16 inch minimum stretch mesh must encircle the net (§660.130(b)(6)).	See 679.2 (14) (A and B), above.	NPFMC
	(6) A band of mesh *may* encircle the net under transfer cables, lifting or splitting straps, but must be: over riblines and restraining straps and of the same mesh size and coincide knot-to-knot with the net to which it is attached (§660.130(b)(6)).	No comparative restriction	Optional
	No comparative restriction	(2) Contains no configuration intended to reduce the minimum mesh sizes described above (§679.2(14)(v)).	NPFMC
	No comparative restriction	(3) Has no flotation other than for a net sounder device. (§679.2(14)(vi)).	NPFMC

	No comparative restriction	(4) Has no more than one fishing line and one footrope (§679.2(14)(vii)).	NPFMC
	No comparative restriction	(5) Has no metallic components except for connectors or net sounder (§679.2(14)(viii)).	NPFMC
	No comparative restriction	(6) May have weights on the wing tips. (§679.2(14)(x)).	Optional

1/ Codend is defined as the terminal, closed end of a trawl net (50 cfr 600.10 Definitions)

2/ Chafing gear is defined in PFMC area regulations as webbing or other material attached to the codend of a trawl net to protect the codend from wear (§660.130 (11)(iii)(C). Chafe protection is referred to in NPFMC regulations (see above restrictions), but is not defined.

3/ Footrope is defined in PFMC area regulations as a chain, rope or wire attached to the bottom front end of the trawl webbing forming the leading edge of the bottom panel of the trawl net, and attached to the fishing line.

West Coast Groundfish Trawl Catch Share Program

2012

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For additional information on the electronic monitoring program, please contact Colby Brady, NOAA Fisheries, at: Colby.Brady@noaa.gov or call 206.526-6117

catch shares

2012 Electronic Monitoring Feasibility Plan

Electronic monitoring has the potential to reduce observing costs while simultaneously maintaining compliance and delivering necessary data for the West Coast Groundfish Trawl Rationalization Program. The National Marine Fisheries Service (NMFS) will develop a working electronic monitoring (EM) program in 2012 by building on the lessons learned from the Shoreside Hake Electronic Monitoring Program Pilot Project. This approach will evolve during the 2012 season and it provides an opportunity to expand the program in 2013-2014.

Key components of the EM program include:

1. Developing an initial EM project consistent with biological, conservation, regulatory, enforcement, and industry concerns, and in full compliance with existing statutes and regulations;
2. Determining which vessels shall participate and what data are required; and
3. Working with our partners (industry, NGOs, states, PSMFC) to continually improve the project.

The project will involve agency collaboration between the NMFS Office of Law Enforcement (OLE), Pacific States Marine Fisheries Commission (PSMFC), NMFS Northwest Fisheries Science Center (NWFSC), and NMFS Northwest Region. Each group has a distinct set of responsibilities, described on right. The fishery groups to be addressed initially, on a limited basis, are the Pacific whiting shoreside and mothership sectors, vessels interested in taking advantage of gear switching provisions under the Shorebased Individual Fishing Quota Program, and non-whiting trawl vessels fishing seaward of the Rockfish Conservation Area (RCA) (see Table 1). At the end of 2012, NMFS will analyze and present the results to the Council.

Participating Fishermen Responsibilities:

- Carry cameras and potentially other EM equipment on board their vessels
- Help develop camera Vessel Monitoring Plans
- Help develop standards, including EM catch handling

Pacific States Marine Fisheries Commission Responsibilities:

- Overall program implementation, including working with contractor on camera installation/ maintenance
- Gather hard drives and review video data
- Provide data to NMFS
- Train video analysis review staff
- Help develop standards, including EM catch handling

NMFS Northwest, SFD Responsibilities:

- Approve camera, software, and hardware standards
- Approve standards through council process

Northwest Fisheries Science Center Responsibilities:

- Maintain biological observer training
- Provide discard data

West Coast Groundfish Trawl Catch Share Program

Table 1.

	Whiting, Catcher Vessels	Gear Switching, Non-whiting	Seaward RCA only, Non-whiting
Number of Vessels	• As many as possible, 15-25?	• 4 to 8	• 4 to 8
Full Retention	Yes	Yes	Yes
EM Monitoring Objectives	• Verify 100% of catch is retained and delivered to first receivers. • EM able to estimate unauthorized discarded catch comparable to observer estimates.	• Verify 100% of catch is retained and delivered to first receivers. • EM able to estimate unauthorized discarded catch comparable to observer estimates.	• Verify 100% of catch is retained and delivered to first receivers. • EM able to estimate unauthorized discarded catch comparable to observer estimates.
Observers onboard	Yes	Yes	Yes
Test: Success/Failure determination of camera's ability to detect:	• Codend catch released directly on-deck. • Allowed discards of non-retainable species from deck. • All fish into hold (no video speciation necessary).	• Codend catch released directly on-deck. • Allowed discards of non-retainable species from deck. • All retained fish into hold (no video speciation necessary). • Expanded "pretend" discard speciation possible? • Expanded "pretend" discard fish length possible?	(same as whiting) • Codend catch released directly on-deck. • Allowed discards of non-retainable species from deck. • All fish into hold (no video speciation necessary).
Success	• Cameras detect observer quantification and identification to species and meet or exceeds observer data quality. • Camera detects undocumented observer data. • High data collection rate (close to 100% usable video and sensor data). • Cameras and hard drives are tamper-proof.	• Cameras detect observer quantification and identification to species and meet or exceeds observer data quality. • Camera detects undocumented observer data. • High data collection rate (close to 100% usable video and sensor data). • Cameras and hard drives are tamper-proof. • Speciation & quota pound credit possible.	(same as whiting) • Cameras detect observer quantification and identification to species and meet or exceeds observer data quality. • Camera detects undocumented observer data. • High data collection rate (close to 100% usable video and sensor data). • Cameras and hard drives are tamper-proof.
Failure	• Camera misses allowed non-retainable species discards. • EM unable to ID species allowed discards. • Biased results (best behavior). • Poor data collection/usability ratio.	• Camera misses allowed non-retainable species and "pretend" discards. • EM unable to ID species allowed discards. • Biased results (best behavior). • Poor data collection/usability ratio. • Speciation & QP ***not*** possible = experimental component failure.	(same as whiting) • Camera misses allowed discards. • EM unable to ID species allowed discards. • Biased results (best behavior). • Poor data collection/usability ratio
Potential Industry Partners	• Recruited Feb. 2012	• Recruited Feb. 2012	• Recruited Feb. 2012

Science, Service, Stewardship

Meeting Monitoring Priorities in U.S. Fisheries

Mark C. Holliday, Ph.D.
Director, NMFS Office of Policy
April 4, 2012

NOAA FISHERIES SERVICE

Outline of Presentation

- National context for fishery monitoring discussion.
- Process to develop a nation-wide strategy that includes Electronic Monitoring (EM).
- Short and long-term implications for the Pacific Council.

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Monitoring Purposes in U.S. Fisheries

1. Scientific data collection – assessments, socioeconomic, ecological and ecosystem research.

2. Compliance – are regulations being followed (fishery and protected species).

3. Management – data to support real-time management (quota monitoring, closures, etc.).

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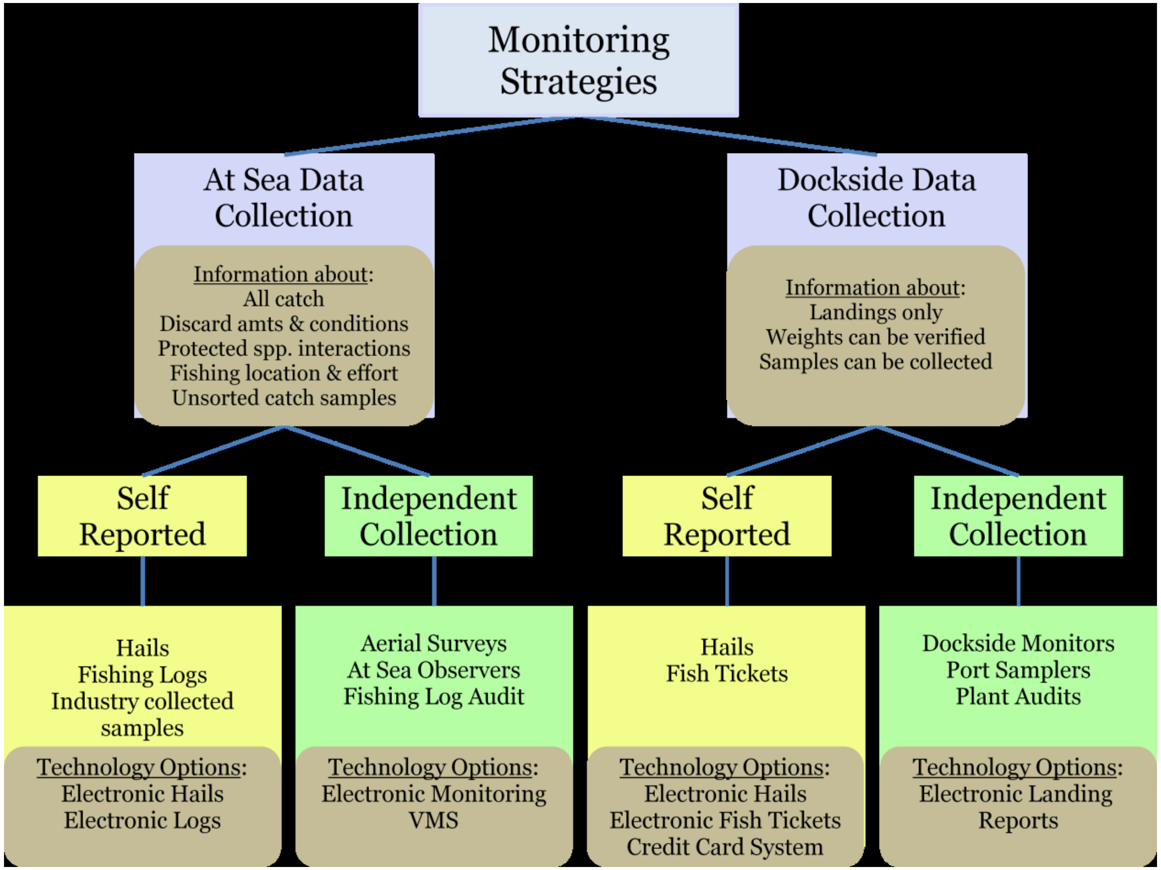
There are a variety of fishery-dependent monitoring strategies…



Source: MRAG, 2010

…Choosing a strategy has implications for data quality, data timeliness, policy, and costs.

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Current Nation-wide Situation…

- Management today (ACLs, AMs, catch shares) has substantially increased the demands for high-quality, real-time fishery data.
- Budgets of NOAA, NMFS and Regional Fishery Management Council are increasingly constrained.
- Increased observer coverage requirements have produced high cost burdens >> Problematic for both industry-funded programs (e.g., AK and catch shares fisheries), and non-catch share fisheries.
- The current strategy of catch monitoring in the U.S. is neither economically viable nor strategic.

Current Nation-wide Situation…

- Use of electronic technology (e-logbooks and cameras) is being suggested to improve cost-effectiveness of data collection.
- Many electronic methodological and case studies occurring in all regions.

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Current Nation-wide Situation…

- Over 20 U.S. EM pilot projects since 2002 (some for multiple years)
  - Accounting for catch, bycatch, discards
  - Monitoring in 100 percent retention fisheries
  - Compliance monitoring for pre-sorting activities
- NW hake trawl fishery discontinued use of EM in 2011
- Ongoing pilot projects in AK, NE, and NW
- Two compliance projects in place in AK

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Current Nation-wide Situation…

- However, many monitoring programs are being developed or revised with little coordination between the respective Councils & without accessible information regarding ‘best-practices’
- Many decisions are being driven by cost-avoidance, without access to latest monitoring technology, and with no guidance on these topics from NOAA.

The Challenge

Why no operational EM programs for science or management?

1. Need to mitigate or resolve policy, technical, budgetary, enforcement/regulatory impediments to a way-forward on EM.
2. In the process, re-examine monitoring requirements in the context of all alternative methodologies that can achieve a more cost-effective and sustainable program.
3. Be prepared to realign regulatory framework that matches management with technical and fiscal constraints on monitoring.
4. Improve nation-wide communications and collaboration.

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NMFS Goal for 2012

Formulate a requirements-based Strategy to improve fishery-dependent data collection programs taking into account:

- Regulatory, management, science and enforcement needs
- Industry support
- Funding sources and sustainability
- Cost-effectiveness
- Electronic technology capabilities

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Strategy Thought Questions

What is the right mix of observers and EM in addressing our monitoring needs? It will depend on the goals and objectives of the monitoring program; technology; and cost.

In what circumstances is EM less expensive? In some cases EM might be more expensive than observers, in others less expensive. Compliance monitoring use? Quota monitoring use?

What is in the critical path to full EM implementation? There have been many pilot projects; why haven't more EM projects been implemented?

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Approach to Goal

NMFS Science Board & Leadership Council

- Discussed EM concepts and specific NWR /NER groundfish issues
- Devised work plan to develop Strategy
- Initiated Six White Papers to evaluate/resolve key impediments
- Focus on the regulatory, policy, and technological implications of each issue.

Councils (incl. SSCs, APs), States/data collection partners

- Input requirements, ideas, best practices, feasibility, new issues

Short term > Fund 2012 WC groundfish, other EM projects

Long Term > By Fall 2012 have a way-forward on Strategy

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Subjects of Six EM White Papers

1. Analysis of Existing EM Technologies/Programs
2. Enforcement Issues/Impediments
3. Legal/Confidentiality Concerns
4. Research & Development Requirements
5. Re-alignment of Management and Monitoring
6. Funding Options

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Implications for Pacific Council

- NMFS will provide 2012 financial support for Electronic Technologies as follows:
  - ✓ **West Coast Groundfish Electronic Monitoring**
  - ✓ New England Groundfish E-logbooks
  - ✓ Gulf Shrimp E-logbooks

Implications for Pacific Council

Added support from **National Fish and Wildlife Foundation** Fisheries Innovation Grants for Electronic Technology

2011 Awards – 6 Grants total for $992K; $719K match (1 GOM, 1AK, **2 Pac**, 2 NE)

2012 Final Proposals under review, 8 for EM totaling $1.15M (4 NE, 1 SA, 1 AK, **2 Pac**)
Awards to be made Apr 30th

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Implications for Pacific Council - Next Steps

- Work with CCC/Councils to set up appropriate opportunities and venues to work on resolution of issues impeding EM adoption.
- Develop guiding principles/best practices for implementing EM in U.S. fisheries.
- Devise more options to help develop and pay for EM.
  - Appropriated funds
  - Set-asides/Industry funds
  - Commercial/value-chain partners
- Incorporate EM results into a cost-effective and strategic approach to sustainably meet data collection requirements.

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Summary

- Electronic monitoring has potential in a comprehensive monitoring strategy that would likely also include observers, logbooks, and dockside monitoring.

- In the short-term, NMFS is supporting research and testing of EM in 2012 for the West Coast Groundfish fishery.

- In the long-term NMFS is producing a strategy for a cost-effective and strategic approach to sustainably meet data collection requirements.

PACIFIC STATES MARINE FISHERIES COMMISSION (PSMFC) REPORT ON ELECTONIC MONITORING

Electronic Monitoring Project

Purpose:
Demonstrate the feasibility of using electronic monitoring (EM) for compliance monitoring on selected commercial fishing vessels as an alternative to human observers.

Short Term Goals:

1. Compare EM to the observer data to determine confidence levels
2. Set up EM review and camera install and maintenance infrastructure
3. Solve the issues through a collaborative group

Long Term Goals:

1. Maintain the biological integrity of the existing system
2. Save some money for the fishermen and taxpayers
3. Insure the confidence of the landing and discard data
4. Integrate with electronic logbooks
5. Look for opportunities to add to stock assessment information

Study Design Elements:

A. Whiting Fishery Sectors
   - Mothership -- 15 boats
   - Shoreside -- 15 boats

1. Motherships will be fishing off Oregon and Washington.
   Target date to being is June 1, 2012.
   Shoreside boats will be fishing out of Newport, Astoria, and Westport.
2. Each of these boats has existing cameras that were part of a previous pilot program.
   Cameras will have full coverage of fish handling areas.
3. All boats will be fishing full retention.
4. Review will compare EM to captains log books and observer data for trip discards and amounts.
5. Review of camera tapes will be done at 100% this year.
6. Cameras go on at the start of the first fishing event and continue until the vessel re-enters port.
7. During the fishing operation, any problems or issues will be solved by a collaborative group.
8. Projected time frame: June 2012 – January 1, 2013.

B. Fixed gear (IFQ program gear switching)
   - 2 boats

1. California boats (Half Moon Bay).
2. Cameras will have full coverage of fish handling areas.
3. Control point camera at catch retrieval area.

4. Review will compare EM to captain's log books and observer data for trip discards and amounts.
5. Review of camera tapes will be done at 100% this year.
6. Cameras go on at the start of the first fishing event and continue until the vessel re-enters port.
7. During the fishing operation any problems or issues will be solved by a collaborative group.
8. Projected time frame: June 2012 – January 1, 2013.

C. Groundfish Trawl Fishing Non-whiting West of RCA

- About 4 boats.

1. Boats will fish off Washington, Oregon and California.
2. Cameras will have full coverage of fish handling areas.
3. Review will compare EM to captain's log book and observer data for trip discards and amounts.
4. Review of camera tapes will be done at 100% this year.
5. During the fishing operation any problems or issues will be solved by a collaborative group.
6. Projected time frame: June 2012 – January 1, 2013.

Electronic Monitoring Timeline

April 3, 2012	• Pacific Fishery Management Council (Council) meeting
April 30, 2012	• Draft monitoring plan design completed
May 1 - 5, 2012	• Contract awarded (NMFS/NOAA) • Boats finalized • Meet with boats
May 15 – June 1, 2012	• Review position advertised • Cameras mounted and operating (whiting) • Pick-up process finalized • Camera maintenance process finalized
June 1 – June 15, 2012	• Review position filled. Training scheduled set • Fixed gear cameras operating • Trawl cameras operating
June 15, 2012	• June whiting review begins • Fixed gear camera review begins
January 1, 2013	• Program design review • Prepare for March Council meeting (February deadline)

Draft Rulemaking Plan

NMFS implemented the trawl rationalization program (program) in January 2011. There continue to be follow-up rulemakings to further implement regulations for the program, as needed. In addition, there are some new rulemakings scheduled to respond to recent litigation (Reconsideration of Allocation of Whiting). NMFS may include other Council trailing actions for the program in these rulemakings, as appropriate. Below is a tentative schedule of rulemakings related to the program for 2012, a summary of what might be included in those rules, and the affected sectors.

- **Whiting Rule 2012**
  1. Timing: Proposed rule – February
     Final rule – late April/early May
     Effective – late April/early May 2012
  2. Includes: Whiting TAC, tribal & non-tribal allocations, and reinstate previous reapportionment authority from tribal to nontribal whiting fisheries
  3. Sectors affected: limited entry (LE) trawl (IFQ/MS/C/P), tribal

- **Correction**
  1. Timing: Final rule & effective – June 2012
  2. Includes: Items needing more immediate correction, such as observer coverage on vessels processing at sea; observer/offload language; MS/CV processor obligations. See Agenda Item F.8.b, NMFS Report 3, March 2012.
  3. Sectors affected: LE trawl (IFQ/MS/C/P), LE fixed gear, open access

- **Cost Recovery**
  1. Timing: Proposed rule – June
     Final rule – November
     Effective – January 1, 2013
  2. Includes: Cost recovery for the trawl rationalization program
  3. Sectors affected: LE trawl (IFQ/MS/C/P)

- **Reconsideration of Allocation of Whiting, Delay of Relevant Regulations**
  1. Timing: Advance Notice of Proposed Rulemaking (ANPR) – March/April 2012
     Proposed rule – April
     Final rule – July
     Effective – September 1, 2012
  2. Includes: Delay of QS transfer, delay of severability of MS/CV endorsements, data review/correction process. Also see Agenda Item I.5, April 2012.
  3. Sectors affected: LE trawl (IFQ/MS)

- **Reconsideration of Allocation of Whiting**
  1. Timing: Proposed rule – November 2012
     Final rule – March 2013
     Effective – April 1, 2013
  2. Includes: reissuance of whiting fishery quota share and mothership catcher vessel catch history assignments. Also see Agenda Item I.5, April 2012.
  3. Sectors affected: LE trawl (IFQ/MS)

- **Whiting Rule 2013 (including chafing gear)**
  1. Timing: Proposed rule – February 2013
     Final rule – late April/early May 2013
     Effective – late April/early May 2013
  2. Includes: Whiting TAC, tribal & non-tribal allocations, chafing gear requirements.
  3. Sectors affected: LE trawl (IFQ/MS/C/P)

NMFS Items for Trailing Actions

This document includes items NMFS is bringing forward to be addressed through a future rulemaking for the Pacific Coast groundfish fishery that are in addition to the Council's list under this agenda item (Agenda Item I.4.a, Attachment 1). NMFS will implement these items through a rulemaking as time and workload allows. Some of these items are a result of the trawl rationalization program actions but affect others sectors as well (i.e., limited entry fixed gear).

1. Revise the first receiver site license application requirements, including site inspection and the expiration date.

   NMFS is reviewing the first receiver site license application and issuance process to look for ways to make the process more efficient, to reduce costs of the program, and to decrease the burden on applicants.

   NMFS suggests continuing to require an application for a first receiver site license each year (with an updated catch monitoring plan, current scale inspection dates, copy of a valid state buyer's license, and application fee), but only requiring a site inspection at least once every three years at the discretion of the NMFS-designated representative.

   In addition, NMFS is considering changing the expiration date on the license from one year from the date of issuance to a specific date each year (e.g., June 30). This would reduce the costs of operating the program because the application review and any corresponding site inspections would largely occur at one time during the year. The Catch Monitor Program could more efficiently review applications (including catch monitoring plans) and could coordinate site inspections in geographic areas, reducing travel costs. Applications for a first receiver site license would continue to be available at any time during the year. However, licenses issued to new applicants (including any previous license holder that let their license lapse past its effective date) could be effective for a period of less than a calendar year (i.e. they would expire on June 30). If the applicant re-registers for their license in the following year in a timely manner and doesn't allow a lapse in their license beyond the effective date, then their license would be effective for an entire calendar year. Because license applications require review by the Fisheries Permits Office in addition the Catch Monitor Program and to stagger workload in the Fisheries Permits Office (limited entry permit renewals happen in the fall of the year), NMFS suggests that the expiration date for first receiver site licenses be June 30 each year.

   An example of how the revised application process might work:

   - *All site licenses would expire on June 30, regardless of issuance date.*
   - *Timeline for re-registering applicants:*

1. *The Fisheries Permits Office would mail application (re-registration) packages on or about February 1 of each year;*
2. *The Fisheries Permits Office would encourage that re-registration packages be submitted by applicants by April 15 to ensure a continuation of ability to receive landings, with no lapse between the expiring license and the new license;*
3. *For all of the applications received by April 15, the Catch Monitor Program would schedule site inspection visits at least once every three years by location between approximately April 15-June 15, and do all of the inspections for licenses at that Port in the same trip. For applications received after April 15, NMFS would not guarantee that the licenses would be issued by July 1 (i.e., there may be a lapse in the effectiveness of their licenses).*
4. *The NMFS-designated inspector would visit the sites at least once every third year (or more frequently at their discretion); if after the site inspection the catch monitoring plan requires revisions, the revised catch monitoring plan would be submitted to the Fisheries Permits Office by June 15th to ensure time to review and mail the license without a lapse.*

- *New entrants could continue to apply at any time. Licenses for new entrants would expire on the same timeline, June 30. Applicants with a lapse in license will be considered "new entrants" at the time they submit their application, and will be required to have a site inspection.*

NMFS is also suggesting revisions to the process to make license holders more accountable and make the requirements more enforceable. NMFS may require the buyer or designated contact as presented in Section A of the license application to be present at the site inspection. This would help ensure that the license holder, as the liable party, is aware of and accountable for any questions or concerns that might arise during the site inspection. In addition, NMFS may clarify the regulations at §660.140(f)(3)(iii)(C) to require the catch monitoring plan to have the applicant's printed name, their contact information, signature, and the date. While the contact information is available on the license application, adding it to the catch monitoring plan itself would be useful because it would be readily available to the catch monitors working at the facilities. Catch monitors receive a copy of the catch monitoring plan, but do not have the license application.

2. Revise the catch monitor certification requirements for briefings to be more broad.
Currently, regulations on catch monitor certification state that certification is maintained if the catch monitor completes annual briefings. The regulatory language should be revised to include hake briefings, as well, which may occur outside the annual briefing.

Suggested regulatory language: "Successfully complete ~~NMFS-approved annual~~ any required briefings as prescribed by the catch monitor program."

3. Revise renewal process for limited entry permits, vessel accounts, and QS permits to start by September 15th each year.

   NMFS recommends moving the date by which permit renewal notices are mailed from September 1st to the 15th for several reasons. Moving the date will allow NMFS' Permits Office to complete any pending transfers (changes in vessel registration or permit ownership) for the start of the September 1 cumulative limit period before sending out permit renewal notices. This will reduce the burden on the Permits Office sending out revised notices due to last minute transfer requests. In addition, moving the date allows more time for submitted EDC forms, which are due to NMFS by September 1, to be reviewed for completeness by NMFS. A complete EDC form is a prerequisite for permit and vessel account renewal in the trawl rationalization program. Finally, it would result in less time that NMFS holds submitted renewal checks before depositing them at the start of the October 1 fiscal year. This is consistent with the FMP at 11.2.12 (2) which states "notice of upcoming [limited entry permit] renewal periods will be sent by September 15 each year…" The FMP should be reviewed to see if any changes to the FMP are needed to reflect this change for the renewal process for limited entry permits, vessel accounts, and QS permits.

4. Remove the end-of-the-year ban on QP transfers between vessel accounts.

   QP transfers between vessel accounts are prohibited from December 15-31 in order to allow any needed end-of-the-year account reconciliation. However, over 2011 and through the PIE 1 rule (effective January 1, 2012), NMFS developed and implemented an end-of-the-year account reconciliation process that doesn't occur during December 15-31, but occurs early the following year once more complete data is available. Therefore, NMFS is considering removing the prohibition at §660.140(e)(3)(iii)(B) on QP transfers between vessel accounts during December 15-31.

5. Implement certification and decertification requirements for observer providers.

   Current regulations allow any observer provider permitted in the North Pacific fishery to deploy observers in the West Coast groundfish fishery. This was done to expedite implementation of the trawl rationalization program for January 2011. For 2013 (two years since implementation of the program), NMFS suggests implementation of a certification and decertification process for observer providers. This will provide a process for new providers to enter the program as well as a process to decertify providers that do not comply with the regulations. This change will also require existing providers since 2011 to apply for a certification. NMFS will review and revise regulations accordingly, including regulations at §660.140(h)(4) on the application process to become an observer provider. Currently, the same companies are both the catch monitor providers and observer providers. In an effort to reduce complexity in the *regulations, where appropriate, NMFS will align these new requirements with the existing certification and decertification requirements for catch monitor providers at §§660.17 and 660.18 (listed below).*

> *§ 660.17 Catch monitors and catch monitor service providers.*
>
> *(d) Catch monitor provider certification. Persons seeking to provide catch monitor services under this section must obtain a catch monitor provider certification from NMFS.*
>
> > *(1) Applications. Persons seeking to provide catch monitor services must submit a completed application by mail to the NMFS Northwest Region, Permits Office, ATTN: Catch Monitor Coordinator, 7600 Sand Point Way, NE, Seattle, WA 98115. An application for a catch monitor provider permit shall consist of a narrative that contains the following:*
> >
> > > *(i) Identification of the management, organizational structure, and ownership structure of the applicant's business, including identification by name and general function of all controlling management interests in the company, including but not limited to owners, board members, officers, authorized agents, and staff. If the applicant is a corporation, the articles of incorporation must be provided. If the applicant is a partnership, the partnership agreement must be provided.*
> > >
> > > *(ii) Contact information.*
> > >
> > > > *(A) The owner's permanent mailing address, telephone, and fax numbers.*
> > > >
> > > > *(B) The business mailing address, including the physical location, e-mail address, telephone and fax numbers.*
> > > >
> > > > *(C) Any authorized agent's mailing address, physical location, e-mail address, telephone and fax numbers. An authorized agent means a person appointed and maintained within the United States who is authorized to receive and respond to any legal process issued in the United States to an owner or employee of a catch monitor provider.*
> > >
> > > *(iii) Prior experience. A statement identifying prior relevant experience in recruiting, hiring, deploying, and providing support for individuals in marine work environments in the groundfish fishery or other fisheries of similar scale.*
> > >
> > > *(iv) Ability to perform or carry out responsibilities of a catch monitor provider. A description of the applicant's ability to carry out the responsibilities of a catch monitor provider is set out under paragraph (e) of this section.*
> > >
> > > *(v) A statement describing any criminal convictions of each owner and board member, officer, authorized agent, and staff; a list of Federal contracts held and related performance ratings; and, a description of any previous decertification actions that may have been taken while working as an observer or observer provider.*
> > >
> > > *(vi) A statement describing each owner and board member, officer, authorized agent, and staff indicating that they are free from conflict of interest as described under §660.18(d).*
> >
> > *(2) Application review.*
> >
> > > *(i) The certification official, described in §660.18(a), may issue catch monitor provider certifications upon determination that the application submitted by the candidate meets all requirements specified in paragraph (d)(2)(ii) of this section.*

(ii) Issuance of the certification will, at a minimum, be based on the completeness of the application, as well as the following criteria:

(A) The applicant's ability to carry out the responsibilities and relevant experience;

(B) Satisfactory performance ratings on any Federal contracts held by the applicant.

(C) Absence of a conflict of interest.

(D) Absence of relevant criminal convictions.

(3) Agency determination. The certification official will make a determination to approve or deny the application and notify the applicant by letter via certified return receipt mail, within 60 days of receipt of the application. Additional certification procedures are specified in §660.18, subpart C.

§660.18 Certification and decertification procedures for catch monitors and catch monitor providers.

(b) Agency determinations on certifications.

(1) Issuance of certifications —Certification may be issued upon determination by the certification official that the candidate has successfully met all requirements for certification as specified in:

(i) §660.17(b) for catch monitors; and

(ii) §660.17(d) for catch monitor providers.

(2) Denial of a certification. The NMFS certification official will issue a written determination identifying the reasons for denial of a certification.

6. Clarify that the processor obligation could be to more than one MS permit.

Given that the Council recommended and NMFS implemented a provision in the MS Coop Program to allow multiple MS/CV endorsements and their associated catch history assignments to be registered to a single limited entry trawl permit (PIE 1 rule, 76 FR 74725, published on December 1, 2011), NMFS may revise regulations on the processor obligation to clarify that a permit with multiple MS/CV endorsements may obligate each endorsement and associated catch history assignment to an MS permit. For example, a trawl permit with 2 MS/CV endorsements could obligate each endorsement to a different MS permit.

This clarification is a logical extension of allowing multiple endorsements to be registered to a single permit and of the regulations at §660.150(c)(2)(i)(A) on annual MS sector sub-allocations and at (g)(2)(iv)(D) on multiple MS/CV endorsements that allow a permit with multiple MS/CV endorsements to be registered to more than one coop or to both the coop and non-coop fishery.

Therefore, regulations at §660.150(c)(7)(i) on processor obligations may be revised as follows:

(i) Processor obligation. Through the annual MS/CV-endorsed limited entry permit renewal process, the MS/CV-endorsed permit owner must identify to NMFS to which MS permit the MS/CV permit owner intends to obligate the catch

history assignment associated with that permit if they are participating in the MS coop fishery. Only one MS permit may be designated <u>*for each MS/CV endorsement and associated catch history assignment*</u>~~*(the obligation may not be split among MS permits)*~~*.*

In addition, regulations at §660.150(g)(2)(iv)(D) may need to be revised to clarify the process for a permit with multiple MS/CV endorsements that intends to participate in the non-coop fishery. The coop permit application may not be the best avenue to notify NMFS of non-coop fishery participation. Therefore, regulations at §660.150(g)(2)(iv)(D) may be revised as follows:

(D) A limited entry trawl permit with multiple MS/CV endorsement registrations may be simultaneously registered to more than one coop or to both a coop(s) and non-coop fishery. In such cases, as part of the coop permit application process, specified at paragraph (d)(iii) of this section, the permit owner must specify on the coop permit application form which MS/CV endorsement and associated CHA is specifically registered to a particular coop ~~*or to the non-coop fishery*~~*.*

7. Review and revise observer program regulations.

The observer program regulations at §660.140 (Shorebased IFQ Program), §660.150 (MS Coop Program), and §660.160 (C/P Coop Program) will be reviewed and revised to make the regulations more clear or more consistent and to improve the program. NMFS will also review the catch monitor program regulations at §§660.17, 660.18, and 660.140 to determine if similar changes should be made for consistency.

For consistency, the requirement for a physician statement should be reviewed. It appears that a cross-references should be at §660.150(j)(5)(iv)(A)(2) for MS and at §660.160(g)(5)(iv)(B) for C/P, however, the cross-reference is missing – the regulations do not appear to have an ongoing certification requirement, which, for C/P, would be at §660.160(g)(6)(iii)(B), currently "Reserved". Missing requirement for signed and dated physician's statement.

For the Shorebased IFQ Program, the changes listed below are being considered (deletions are in ~~*strikeout*~~ *and insertions are* <u>*underlined*</u>*). The MS Coop Program and C/P Coop Program observer requirements will be reviewed to make similar changes, if needed.*

- *§660.140(h)(5)(ii)(B)(*<u>*1*</u>*) regarding observer contracts:*
  (<u>*1*</u>*)* ~~*That all the observer's in-season messages and catch reports required to be sent while deployed are delivered to the Observer Program Office as specified by written Observer Program instructions;*~~ <u>*That the observer will return all phone calls, emails, text messages, or other forms of communication within the time specified by the observer program;*</u>

- §660.140 (h)(5)(vii)(A) on provide observer deployment logistics:
  (A) An observer provider must ensure each of its observers under contract:
  (1) Has an individually assigned mobile or cell phone, in working order, for all necessary communication. An observer provider may alternatively compensate observers for the use of the observer's personal cell phone or pager for communications made in support of, or necessary for, the observer's duties.
  ~~(2) Calls into the NMFS deployment hotline upon departing and arriving into port for each trip to leave the following information: observer name, phone number, vessel departing on, expected trip end date and time.~~
  (2~~3~~) Remains available to NOAA Office for Law Enforcement and the Observer Program until the conclusion of debriefing.
  (3~~4~~) Receives all necessary transportation, including arrangements and logistics, ~~of observers~~ to the initial location of deployment, to all subsequent vessel assignments during that deployment, and to/from the ~~debriefing~~ location designated for an observer to be interviewed by the observer program~~ when a deployment ends for any reason~~; and
  (4~~5~~) Receives lodging, per diem, and any other services necessary to observers assigned to fishing vessels.* * *

- §660.140 (h)(5)(ix) on verify vessel's safety decal:
  This should be changed to require providers to verify that each of their observers completes the pre-deployment vessel safety orientation. Something along the lines of: Ensure observer completes a vessel orientation, including ensuring the US Coast Guard Vessel Safety Inspection Decal is current, prior to embarking on the first trip on all/any vessels.

- §660.140 (h)(5)(xi)(A)(1) on observer training, briefing, and debriefing registration materials:
  (1) Training registration materials consist of the following:
  (i) Date of requested training;
  (ii) A list of observer candidates that includes each candidate's full name (i.e., first, middle and last names), date of birth, and gender;
  (iii) A copy of each candidate's academic transcripts and resume;
  (iv) A statement signed by the candidate under penalty of perjury which discloses the candidate's criminal convictions;
  ~~(v) Projected observer assignments. Prior to the observer's completion of the training or briefing session, the observer provider must submit to the Observer Program Office a statement of projected observer assignments that includes each observer's name, current mailing address, e-mail address, phone numbers and port of embarkation ("home port"); and~~
  (v~~vi~~) Length of each observer's contract.

- §660.140 (h)(5)(xi)(A)(2) on observer training, briefing, and debriefing registration materials:
  (2) Briefing registration materials consist of the following:
  (i) Date and type of requested briefing session;

(ii) List of observers to attend the briefing session, that includes each observer's full name (first, middle, and last names);
~~(iii) Projected observer assignments. Prior to the observer's completion of the training or briefing session, the observer provider must submit to the Observer Program Office a statement of projected observer assignments that includes each observer's name, current mailing address, e-mail address, phone numbers and port of embarkation ("home port"); and~~
(iii~~iv~~) Length of each observer's contract.

- *§660.140 (h)(5)(xi)(B) on physical examination:*
  (B) Physical examination. A signed and dated statement from a licensed physician that he or she has physically examined an observer or observer candidate. The statement must confirm that, based on that physical examination, the observer or observer candidate does not have any health problems or conditions that would jeopardize that individual's safety or the safety of others while deployed, or prevent the observer or observer candidate from performing his or her duties satisfactorily. The statement must declare that, prior to the examination, the physician was made aware of the duties of the observer and the dangerous, remote, and rigorous nature of the work by reading the NMFS-prepared information. The physician's statement must be submitted to the Observer Program Office prior to certification of an observer. The physical exam must have occurred during the 12 months prior to the observer's or observer candidate's deployment. ~~The physician's statement will expire 12 months after the physical exam occurred. A new physical exam must be performed, and accompanying statement submitted, prior to any deployment occurring after the expiration of the statement.~~

- *§660.140 (h)(5)(xi)(G) on observer status report:*
  (G) Observer status report. ~~Each Tuesday, o~~Observer providers must provide NMFS with an updated list of observer deployment per observer program protocol. Deployment information includes provider name, observer last name, observer first name, trip start date, trip end date, status of observer, vessel name, and vessel identification number. ~~contact information for all observers that includes the observer's name, mailing address, e-mail address, phone numbers, port of embarkation ("home port"), fishery deployed the previous week and whether or not the observer is "in service", indicating when the observer has requested leave and/or is not currently working for the provider.~~

- *§660.140 (h)(6)(v) on issuance of an observer certification:*
  The observer program is reviewing observer post-training deployment timelines to assess if any enhancements and improved standards can be realized through redrafting of the observer certification regulations.

- *§660.140 (h)(6)(vi) on maintaining the validity of an observer certification:*
  Revise (D) to read: (D) Successfully complete any required~~NMFS-approved annual~~ briefings as prescribed by the West Coast Groundfish Observer Program.
  Revise (G) to read: (G) Successfully meet all expectations in all debriefings including

reporting for assigned debriefings or interviews and meeting program standards.
Add (J) to read: (J) Pass a fish identification test once every 12 months.
Add (K) to read: (K) Pass safety training once every 12 months.

- *§660.140 (h)(6)(viii) on standards of behavior:*
  Delete (B) because it is not a 'standard of behavior', is already part of observer program protocol and is already stated within previous regulatory sections.
  ~~*(B) Immediately report to the Observer Program Office and the NOAA OLE any time they refuse to board a vessel.*~~

8. Review use of term "permit holder" in regulations and consider changing to "vessel owner."
   In regulation, the term "permit holder" is the owner of a vessel registered to a limited entry permit. While this term is defined as such in regulation, it has caused some confusion with the regulated public. In some cases, the regulated public has used the term permit owner and permit holder interchangeably, which is not accurate. In an effort to make the regulations more clear, NMFS will review the regulations and, where appropriate, consider changing the term "permit holder" to "vessel owner" or "owner of a vessel registered to a limited entry permit."

9. Revise the process for a permit holder (vessel owner) to change their vessel ownership.
   Regulations at §660.25(b)(4)(iv) do not clearly describe the process for a permit holder (vessel owner) to request a change in vessel ownership. NMFS will revise these regulations to clarify the process for a vessel owner to request a change in vessel ownership through the Fisheries Permits Office. The request will include a requirement for a copy of the new vessel registration documentation (USCG or state).

GROUNDFISH ADVISORY SUBPANEL REPORT ON TRAWL RATIONALIZATION TRAILING ACTIONS

Mr. Jim Seger and Ms. Jamie Goen briefed the Groundfish Advisory Subpanel (GAP) on the prioritization of trawl rationalization trailing actions and other actions required under this agenda item. The GAP supports finalizing all of the prioritized items in the Program Improvements and Enhancements (PIE) Rule 2 Council list and all of the items in the PIE Rule 2 National Marine Fisheries Service (NMFS) list. These priorities are in line with GAP recommendations from the March 2012 meeting as being important to implement as quickly as possible and likely to enhance the long-term success of the trawl rationalization program.

The GAP also addressed two other issues: widow rockfish reallocation and electronic monitoring. Both issues remain important priorities for the GAP to be addressed by the Council as soon as is appropriate.

With regard to widow, the GAP notes that Council staff have already developed several potential alternatives for reallocation. Those alternatives, excerpted here from Agenda Item E.7.a, Attachment 1, November 2011 at pages 12-13, would be a good place to begin the discussion.

> **Status quo.** No reallocation. Allow reallocations to occur through quota share (QS) trading among QS holders.
> **Strawdog Alternative 1:** Full Reallocation. Completely reallocate QS based on catch history using the same formulas used for the original allocation of target species QS (based on permit history from 1994 through 2003).
> **Strawdog Alternative 2:** Pounds neutral reallocation. Based on rebuilt status, the trawl allocation for widow will likely increase substantially in 2012. Determine the percentage of the total QS that would result in an individual holding QS in 2013 receiving the same amount of QP they received in 2012. For example, if the 2012 trawl allocation was 600 mt and the new allocation will be 1,200 mt, if everyone keeps 50 percent of their QS then they will receive the same amount of non-adaptive management plan (AMP) quota pounds (QP) in 2013 that they did in 2012. This would leave 50 percent of the nonAMP QS for redistribution based on the allocation formula specified in Alternative 1.
> **Strawdog Alternative 3:** Split the Difference. Same as Alternative 2 but reallocate only one half the difference between full reallocation and pounds neutral reallocation. For the example provided in Alternative 2 this would mean that 25 percent would be reallocated based on the Alternative 1 formula, and everyone would experience a 50 percent increase in the amount of nonAMP QP they receive as compared to 2013, i.e. 75 percent (50 percent plus 25 percent) of the QS would not be reallocated

Note: Because Alternative 1 would reduce the annual amount of QP received by some individuals, as compared to the 2011 and 2012 fisheries, Alternative 1 might entail the need for more rigorous analysis than Alternatives 2 or 3.

With regard to electronic monitoring (EM), the GAP is pleased to see that PSMFC and NMFS beginning to develop a plan to test its efficacy for compliance monitoring. As we have stated previously, this is a major GAP priority and the primary focus should be on reducing costs to the fleet while maintaining accountability. In order to minimize displacement due to monitoring costs, the GAP feels that EM should be fully implemented no later than 2015 when the observer subsidy is scheduled to disappear completely.

PFMC
04/04/12

Agenda Item I.4.c
Supplemental GMT Report
April 2012

GROUNDFISH MANAGEMENT TEAM REPORT ON TRAWL RATIONALIZATION TRAILING ACTIONS

The Groundfish Management Team (GMT) received a briefing from Mr. Jim Seger, Council staff, on trawl rationalization trailing actions, potential suspension of widow quota share (QS) trading and reallocation, and at-sea electronic monitoring.

Only the chafing gear issue generated some discussion. Three alternatives were reviewed by the Council at the March 2012 meeting and are analyzed by Council staff in the current briefing book (Agenda Item I.4.a, Attachment 3, April 2012). Alternative 1 eliminates all codend-chafing gear restrictions. Theoretically, this alternative would allow covering the entire circumference of the codend with chafing gear (i.e., 100 percent coverage). This may increase bycatch of small groundfish and non-groundfish due to increased obstruction of meshes and potential flow reduction caused by the increased chafing gear coverage. The GMT notes that it may be unlikely that the current whiting sector would cover the entire codend circumference with chafing gear, even if allowed, because this gear would be inconsistent with gear restrictions set by the North Pacific Fishery Management Council (NPFMC) and may be unnecessary to protect the codend. The Preliminary Preferred Alternative (PPA; Alternative 2), on the other hand, would ensure that the top panel of midwater-trawl codends would remain unobstructed by chafing gear, thereby resulting in better selectivity for reducing catch of small fishes. This option would also be consistent with the NPFMC chafing gear restrictions.

PFMC
04/03/12

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON TRAWL RATIONALIZATION TRAILING ACTIONS

A study is being developed to evaluate the feasibility of using video monitoring methods as a way to substitute for at-sea observers, due to the high costs of providing at-sea observers. Because no document describing the study design was presented to the Scientific and Statistical Committee (SSC), the SSC cannot comment on the specific details of the design. The results of any study conducted during summer 2012 should be viewed as a pilot project rather than as providing definitive proof of the feasibility of video monitoring as a substitute for at-sea observers.

The SSC offers the following design considerations:

- Results derived from a study of volunteer fishing vessels may not reflect the results that would be experienced with fishing vessels that were randomly chosen.
- Using a video monitoring system to verify that catches were fully retained is a much simpler problem to investigate than using a video monitoring system to identify the species and weights (or lengths) of fish that are discarded, which are the main data provided by the current at-sea observation system.
- Because there are likely to be large vessel-to-vessel differences in operating characteristics, the study will need to use a reasonably large number of vessels to provide an adequate representation of the complete fleet and rare events.
- The presence of an observer may affect the behavior of a vessel's captain and crew. The presence of video monitoring equipment may affect the behavior of both the vessel and the observer. The experimental design and data interpretations should take these possible interactions into consideration.
- In addition to collecting information to verify the accuracy of the video monitoring approach, the study should provide a detailed accounting of the costs of operating and maintaining the equipment and reviewing the video recordings for evidence of violations. This would provide a basis for a cost-benefit analysis of different systems. Also, information should be collected on the time required to process the video data for use in management and enforcement.
- The study should include some trips having at-sea observers with simultaneous video monitoring and deliberate discarding events to measure the ability of both the observer and video to detect the discarding events.
- In analyzing the study data, discarding events recorded on video should be matched with corresponding observer events rather than evaluating the data only at the trip level.

PFMC
04/02/12

Gear Switching in the Trawl Fishery

Paul Kujala
F/V Cape Windy
311 SE Galena
Warrenton, OR 97146

March 19, 2012

Dan Wolford, Chair
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, OR 97220-1384

RE: Agenda Item I.4. Trawl Rationalization Trailing Amendments and Allocation Amendments

Dear Chairman Wolford and Council Members:

I would like to take this opportunity to address an issue that I think is important for the council to be aware of and make sure that Council members fully understand the ramifications of not taking action. While I am aware that there has been some discussion about the effects of the gear-switching component of the Trawl ITQ program, I would like you to consider the problem from a non-whiting trawler's point of view.

What is happening with sablefish in the ITQ program?
As you are already aware, there is an increased amount of sablefish being harvested with fixed gear which has been traditionally accessed and harvested with trawl gear. This is trawl allocation sablefish. And while a limited transfer of allocation was somewhat anticipated to support trawlers utilizing fixed gear – the actual results of this regulation are that large amounts of sablefish are being landed by fixed gear fishermen – not traditional trawlers switching gear. This has the unfortunate and I believe unintended effect of a sector allocation transfer from trawl to fixed gear.

Why is this happening?
In most cases, trawlers cannot afford to pay the lease rates that the owners of fixed-gear vessels can find the funds for. Ex-vessel prices are currently better for fixed gear sablefish than trawl-caught fish, and trawlers in general have higher operating costs such as the cost for fuel. As a result of the qualifying window period and subsequent equal sharing of quota in the initial ITQ allocation, today's trawlers received only a fraction of the quota that they need to continue to trawl year-around. A lot of allocation was issued to permits that had not harvested sablefish (or any other Groundfish species for that matter) in recent years. For these permits there are three options available to use this quota: 1.) Fish sablefish themselves with fixed-gear, 2) Lease the allocation to another fixed gear vessel, or 3) Lease the quota to a trawl vessel. Because these permits have not been participating in the traditional Groundfish fishery and haven't relied on traditional trawl Groundfish income in recent years, and because they aren't concerned with accessing other Groundfish species using the sablefish as incidental catch, they generally make the choice to either fish the sablefish allocation with fixed gear or lease to another fixed gear vessel.

What are the effects of this?
The traditional trawler cannot compete with fixed-gear money for leases, thus is forced to operate with less sablefish. This restricts access to other Groundfish species which in turn reduces the amount of Groundfish coming across the docks in our coastal communities and further removes profit from the trawl sector – certainly NOT a goal of the Trawl IQ program. .

What are the future effects of this transfer of sablefish quota?
The decrease in the overall amount of sablefish available for harvest significantly magnifies the problem of stranding fish in the trawl sector. Increased observer costs also exacerbate the problem. Fixed-gear boats often have lower observer costs per pound of sablefish due to the efficiency of fixed- gear. Often fixed-gear boats can catch sablefish with less fuel and increased speed thus reducing days-at-sea and total observer costs. But remember- fixed-gear vessels harvesting sablefish are not interested (or able) to catch all the other important Groundfish species caught in conjunction with sablefish. It's the other Groundfish species together with sablefish that help secure the infrastructure of the traditional seafood processor. All this transfer of sablefish quota is negatively affecting the traditional trawler, the processor and in turn, the communities. When the purchase of quota shares becomes legal, this will be devastating to the trawl fleet and associated communities and it will be more permanent.

Remedies
In my opinion, action needs to be taken to stem the transfer of trawl sablefish allocation to fixed gear vessels. Remember, the original intent of gear switching was to allow a traditional trawler the opportunity to harvest some of his sablefish allocation with fixed gear if it made sense for his fishing strategy. The intent was not to switch trawl allocation to fixed-gear vessels. As you are well aware, the allocation between trawlers and fixed gear vessels was already settled through a formal council process with included significant stakeholder involvement. And while some interests would like to see more trawlers change gear completely and become fixed-gear fishermen, I would argue that this is not the answer. Eliminating any additional trawl effort will only hurt the harvesters, seafood processors and the communities. Encouraging any further reduction in trawling undermines the Trawl IQ Program and conflicts with the goals and objectives of both the Groundfish Fishery Management Plan and the Magnuson Act.

Recommendation
The Council should start the process to address this issue since it will likely take time to identify and analyze the options. The longer the Council waits to act, the more difficult and challenging it will be to rectify the situation. The range for consideration should include everything from status quo regulations to a ban on fixed-gear harvest of trawl allocation. I suspect the answer lies somewhere in between – but until we begin the process and start identifying and analyzing the options, we are left to speculate on what makes the most sense for the Trawl IQ program – clearly the current regulations are not meeting the needs for traditional trawlers.

Thank you for your consideration.

Sincerely,

Paul Kujala
F/V Cape Windy

Widow Allocation

Paul Kujala
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March 21, 2012

Chairman Wolford and Council Members
Pacific Fisheries Management Council
7700 NE Ambassador Place, Suite 101
Portland, OR 97220-1384

RE: Agenda Item I.4. Trawl Rationalization Trailing Amendments and Allocation Amendments

I want to address the reallocation of Widow rockfish in the trawl IQ program once the stock is no longer considered overfished. I believe using the same formula that was used in the initial allocation of quota species is a mistake for many reasons. Therefore, I propose that we delay the reallocation until proper analysis can be done to identify possible solutions. Unlike all the other target species in the ITQ program, Widow was not allocated using harvest history. Therefore, it is different than anything we have dealt with, and should be treated as such. I would propose that a different approach that recognizes more present participation would make more sense.

Initial Allocation Window Period Does Not Recognize Present Participation
The 1994-2003 window years are obsolete. This is simply too far in the past. Widows were not even targeted in the last few years of the window period, so that brings the history window to about 1994-2000 some 13 - 19 years ago. As you well know, the industry is nothing like it was then. I know we are only into the ITQ program 2 years, however, when we originally set the window years, we never expected the ITQ system to take so long to be implemented. This has created many problems, especially for non-whiting fishermen because of how the industry has changed. Many boats have removed themselves from the fishery for various reasons. Boats that have participated in the fishery all along have had to adapt to changing regulations and markets.

The makeup of the fleet is considerably different than in the 1990's. When allocations don't model current participation, it can be devastating. Allocating quota to history this far in the past hurts the current participators. We have already seen this play out in the trawl fleet after just one year. There were many vessels forced out of business for just this reason. These were boats that stuck it out in the fishery and kept the processors and communities going over the last 10 years. Conversely, permits that quit harvesting non-whiting groundfish to pursue other fisheries received far more quota in many instances than those vessels that had more recent participation. I am not asking to revisit initial other allocations that have been established, just recognize some of the consequences going forward.

Alternative Approach
I do agree with the methodology of using window periods and history to allocate widow rockfish. I just think it needs to be applied a little different going forward so we don't make the same mistakes again. Here’s how I see it:

Widow rockfish are a non-whiting trawl target species and have been treated as such in the past.

We already know how much Widow is needed as bycatch in the whiting fishery and have allocations set for these sectors.

We want to use similar methodology going forward to allocate species as they come off the overfished list. The model used for Widow will likely be replicated for these other species.

I believe we are dealing with a clean slate here where nobody has recent history and we just need to apply catch history to a different measurement than landings of Widow from twenty years ago. This can be done in a few different ways.

Window Years
The window years need to be more recent to model current participation. I would suggest 2006-present. This is long enough to account for abnormal years and boats switching fisheries during certain years.

Allocation
Once the whiting sectors are allocated the amounts they need for bycatch only, the rest needs to be divided among non-whiting trawl vessels. Since we can't use history of Widow, we can use an equal split of active vessels, or better yet, allocate based on history of non-whiting groundfish landed. This can be done by using the amount of buyback fees that each vessel has paid from 2006-present.

I believe this formula (or something similar) is not only fair but has the best chance of achieving the Council's goals. I think it is unfair to punish someone that has continued to stick it out in the non-whiting trawl fishery by not giving them a chance to harvest species once they are rebuilt.

Thank you for your consideration.

Paul Kujala
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Electronic Monitoring:

Lessons Learned and Recommendations for Further Development

A Review of EM Pilot Studies Relevant to U.S. Groundfish Fisheries

Environmental Defense Fund

April 2012

EXECUTIVE SUMMARY

To date, over 30 pilot studies examining the applicability, usefulness and cost of electronic technologies for monitoring commercial fishing activities have been conducted. Many of these projects have produced promising results while also providing feedback on ways in which the application of electronic monitoring (EM) could be improved. This paper attempts to summarize, with some detail, pilot studies that have tested the application of electronic monitoring technologies in groundfish fisheries. The projects highlighted herein encompass 13 individual projects from five fisheries in three different countries, each with their own set of objectives, priorities and timeframe for deliverables. This paper seeks to present the outcomes of those studies, noting that not all of the resulting recommendations can be broadly applied to implementation of EM on groundfish fisheries, especially given the rapid and continuing advancements in monitoring technologies.

Although this paper can only provide a snapshot of findings relevant to the implementation of EM technologies of the studies reviewed herein, it is evident from these studies that continual communication among vessel operators, EM providers and regulatory bodies, including enforcement officials, is key to the success of an EM program. Further, the use of EM technologies in a given fishery must be geared to the specific enforcement and managements needs of that fishery with installation and configuration of systems unique to each vessel. As such, the development and use of Vessel Monitoring Plans, where the catch handling procedures and EM equipment operation obligations are outlined, is highly recommended.

It is our hope that this paper will remain a living document, undergoing revisions as additional research is conducted and recommendations for implementation evolve. While Fishery Management Councils seek to establish regulatory, technical and logistical guidance and infrastructure to implement EM programs, referencing successes and challenges previously encountered will hopefully allow for efficiencies, resulting in savings of time and money for the U.S. government and fishing industry.

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Summary of Findings

Recommendations from EM Pilot Studies Reviewed Herein

On the Vessel

- Vessel specific monitoring plans should be developed.
- Establishment of minimum requirements for deck layout and catch handling are a must.
- Having multiple sorting and discarding areas will increase EM review time and overall costs.
- Crew must work with EM installers to learn how to avoid obstructing camera views of catch handling areas.
- Views of fish measuring areas must combine field of view, frame rate and fish handling procedures to ensure one or more frames of the entire fish in question.
- A timely mechanism to facilitate communication between EM staff and fishers is needed.
- EM data should include video imagery, as well as data from GPS and other vessel activity sensors.

Data Collection

- If appropriate, cameras could remain operational when the vessel returns to port to monitor all catch handling procedures of interest and to ensure no unauthorized landings occur.
- The use of electronic logs, in conjunction with other EM technologies can improve the quality of skipper records or validate logbooks.
- A robust mechanism for linking EM at sea data with dockside and at-sea observer data is needed. Ability to compare data between EM and observers could be facilitated by controlling data formats, catch handling procedures and observer sampling methods.

Data Review

- Viewing times of EM footage are dependent upon gear type, number of camera views, handling procedures and data requirements. Consequently, review times can range from 0.5x to 3x the actual catch handling time.
- Probability of detecting rare events can be improved by increasing the audit rate for temporal and spatial areas of interest. For very rare events, full review of EM data may be necessary.
- Well trained personnel are needed to review EM data- this will reduce the time it takes to review EM data and overall costs as well
- Details regarding why certain EM data could not be collected should be recorded and routinely reviewed for concerns.
- If reviewers are not confident with particular species identification they could list one or more species as being equally likely. Ratio of species in landing data may help determine unidentified species in EM review.

Issues to Consider

- The time to process EM data and return it to fishery managers must be decided beforehand to implement the necessary staffing and infrastructure to meet those deadlines.
- Financial costs and data /management trade-offs in each fishery must be evaluated and maximum thresholds identified; noting that using EM data to audit fishermen's logbooks, as opposed to a full review of EM data, increases cost efficiency but reduces the opportunity to record rare catch events.
- EM data storage and archiving needs (which are affect by the number of cameras, rates of recording etc .) must be determined at the outset of any implementation to identify equipment requirements and associated costs.

Table 1. Summary of electronic monitoring pilot studies reviewed in this report. The "related studies" listed in the last column are summarized in Table 2 at the end of this document.

Fishery	Gear	Primary Author	Source	Report Year	No. of Vessels	Purpose	Summary Results	Suggestions for Improvement	Related Studies
Alaska groundfish	**factory trawler**	McElderry, Howard I.	IPHC Tech Report 51	2008	1	To determine if EM video monitoring could be used to census catch and document catch handling and discard events.	System performed reliably and was useful as a real-time monitoring tool, allowing observers to monitor various parts of the vessel at once. Halibut and other groundfish species were readily detectable throughout the factory, however EM was not suitable for quantitative estimates of catch composition.	More cameras and improved lighting in the fish tank areas are needed to reduce blind spots and improve quality of EM footage. Other gear sensors and GPS should be installed, in addition to cameras. EM data storage issues will need to be resolved either through looping footage or reducing amount of footage collected.	**Conners, M.E., et al.** 2009 NOAA Tech Memo NMFS-AFSC-199
British Columbia Groundfish	**hook and line**	Stanley, Richard D.	ICES Journal of Marine Science	2011	202	To comparre advantages and disadvantage of 100% census of EM data to using 10% of collected EM data to audit logbook records.	Catch and discards estimates from the EM audit approach were sufficiently precise to meet management and operational needs. Differences among data sources were minimal, with the majority (80%) of data from audits varying by 10% or less. EM audit reduces opportunity to confirm rare catch events; however, 100% census costs 2x more than the audit and is less accepted by fishers.	EM audit techniques can be improved by increasing the audit rate for specific temporal and spatial areas of interest- such as recording rare events. Regarding enforcement, robust standards for determining when a violation has occurred are necssary to impose penalities. Details of equipment failures need to be recorded and examined for anomalous patterns.	**Stanley, R., et al.** 2009. Marine Coastal Fisheries: Dynamics, Man and Ecos Sci. vol 1 and **McElderry, H**. 2006. At sea observing using video-based electroni monitoring. ICES Annual Science Conference CM/2006/N:14
Danish Cod	**gillnet, Danish seine, and demersal trawl**	Kindt-Larsen, Lotte	ICES Journal of Marine Science	2011	6	To determine if EM could support a catch quota program by monitoring and documenting catch and discards of cod.	EM provided reliable information on cod discards. Fisher and EM estimates of discarded cod were in agreement 72% of the time. Fishers underestimated cod weight in19% of fishing events. The length distribution of cod landed was signigicantly less in the trial vessels as high grading was common in trawl vessels not participating in the study. EM can support a catch quota program.	Minimum requirements on deck lay-out and catch handling are required. Camera placement and number of discard chutes will influence EM review time. Well trained personnel are needed to review EM data- this will reduce the time it takes to review EM video and overall costs. Electronic weighing equipment and electronic logs would improve the quality of skipper records.	**Dalskov, J. and L. Kindt-Larsen**. 2009, Final report of Fully Documented Fishery. DTU Aqua Report no 204-2009. Nat. Institute of Aquatic Resources, Technical University of Denmark

Table 1 (continued). Summary of electronic monitoring pilot studies reviewed in this report. The "related studies" listed in the last column are summarized in Table 2 at the end of this document.

Fishery	Gear	Primary Author	Source	Report Year	No. of Vessels	Purpose	Summary Results	Suggestions for Improvement	Related Studies
U.S. Pacific Groundfish	**fixed gear**	Bryan, Jason	Archipelago	2011 (phase II)	6	To provide insight on how to develop EM for fixed gear, small vessel fleet and to explore how an audit-based EM system could be implemented to decrease monitoring costs.	Older vessels had to undergo technical/electrical upgrade to be able to run the EM equipment properly. Only 1/329 fishing events had unusable video. Piece counts were the same as logbook records and comparable (1% difference) to human observer data. EM tools can accurately capture fishing effort and catch data.	Future trials should focus on: (1)auditing procedures, including the use of dockside monitors, (2)development of vessel-specific monitoring plans and (3)appropriate frequency of EM data review. Radio frequency identification tags are recommended for pots and traps to better ascertain when this gear is being set and retreived.	**Jose Pria, M. et al**. 2008 Archipelago
U.S. Northeast Groundfish	**gillnet, longline and bottom trawl**	Pria, Maria Jose	NOAA NEFSC Fisheries Sampling Branch 2010 NE EM Report	2011	10	To evaulate the utility of EM as a tool to monitor catch on a real-time basis in the NE groundfish sector, with a particular focus on discards.	18% of trips had insufficent or poor data not usable for catch analysis. EM was successful at detecting incidental takes, but was ineffective for determining weights of discarded species. Occurance of all species, except for flounder and hake were comparable.	The cause of all EM data interruptions needs to be determined and a more robust system is needed to improve accuracy and reliability of species identification. Additional data sources should be used to validate EM in the future, such as logbooks, dealer landings and Corporate Research data.	
Alaska Rockfish	**trawl**	Mamigo	NMFS contract HA133F10SE1558	2010 (phase III)	5	To test machine vison technology, which flags EM video during discard events when a halibut is encountered, and also measures halibut discarded.	Video analytics adds value, improves accuracy (compared to onboard observers), and reduces EM data review time. On average this technology accurately recorded 94.6% of halibut encountered with a 97.2% accuracy in length estimates. In some cases, sensor data alone was insufficient to define haul start and stop times. Weather conditions and camera obstructions required setting the algorithm to a high sensitivity, resulting in a number of "false" halibut detections.	Fish handling has a large effect on performance of video analytic process. Discards should be released (not thrown or stacked) down a single chute marked in 5cm strips for sizing. The chute should be a single flat surface and have a line marker running down the center to allow for width measurements. IR illumination on the chute would help reduce motion blur and improve frame rate. IP cameras should be used instead of analog cameras. Anti-glare lenses also recommended. Camera sensor should be a square pixel. Use a time stamp to syncronize video from different cameras.	**Bonny, J** 2009 NMFS Groundfish Databank EFP-08-01; **Bonney, J and K. McGauley**. 2008. EFP-07-02 Final Report; and **McElderry, H. et al.** 2005 Archipelago

U.S. West Coast
Pacific Groundfish- Fixed Gear
Fishing Years: 2007 - 2010

Purpose of Study
This was a two part study, the second, most recent component was designed to provide further insight on how to develop an objective, reliable and cost effective monitoring program for a fixed gear, small vessel fleet and to explore how an audit-based EM system could be implemented to decrease monitoring costs in this fishery.

Characteristics of the Fishery
The Pacific groundfish fishery is mixed-species fishery with several different species retained and/or released in a given haul. Each species has a different conservation and management priority. Groundfish are managed through a number of measures including harvest guidelines, quotas, trip and landing limits, area restrictions, seasonal closures, and gear restrictions. The west coast groundfish trawl fishery recently implemented a new management program in January 2011, transitioning to a catch share program based on Individual Fishing Quotas (IFQ). Under this program, 100% observer coverage is required for all vessels in this fishery. These new regulations should increase net economic benefit, create individual economic stability, provide full utilization of the trawl sector allocation, and achieve individual accountability of catch and bycatch. It appears the some of these economic benefits were realized during 2011, as the revenue of the fishery was over $53 million, $16 million greater than the historical average. All sectors of the groundfish fishery are currently constrained by the need to rebuild overfished groundfish species (canary rockfish, yelloweye rockfish, darkblotched rockfish, bocaccio, Pacific ocean perch, and cowcod). Rebuilding plans have been developed to help these species recover, but the low available harvest for some of these species has resulted in significant reduction in the overall groundfish harvest.

Evaluation Metrics
Absolute and percent difference in piece counts of retained and discarded catch were compared among three data sources: observer reports, fishing logbooks and EM analysis. Image quality of EM data was evaluated and ranked either: high, medium, low or unusable according to appropriate light levels, lack of obstructions, the amount of fishing activity captured in the video, and ability to assess number and species of discards.

Implementation of EM
All six of the participating vessels carried an observer who filled out a haul-by-haul report. Archipelago software EM Interpret was used to translate vessel speed and hydraulic pressure into either a transit, setting or hauling event. Setting and hauling events were matched to each other based on physical proximity and timing. Haul start and end times from logbooks and observer reports provided an additional reference for when to initiate EM image analysis. EM reviewers counted and identified target and non-target catch to the lowest taxonomic level (28 species and 10 more generalized categories) and noted the disposition of catch: retained, released, or dropped off gear. To eliminate the potential for biased results, image reviewers were not allowed access to logbook or observer data sets until EM analysis was complete. For quality control purposes, a second technician reviewed portions of the EM data when discrepancies between logbooks and EM data occurred.

Economics of Monitoring
The Catch Share Observer Program requires 100% percent human observer coverage as well as 100% monitoring of offloads. The catch share program uses a third-party, or pay-as-you-go, funding approach. The third party system is federally regulated and participants are responsible for making arrangements with an observer provider to ensure observer availability and pay the observer providers directly for the observer costs.

Costs per sea-day for observer coverage were approximately $460 per day prior to implementation of the IFQ program. At that time, coverage was limited to around 20 percent with the goal of collecting scientifically valid data for stock assessment purposes. All of the providers indicate that conversion to the IFQ fishery has created substantial changes in fishing patterns by month and port. In future years, as fishing patterns stabilize, it is expected that contractors will be able to provide services ranging from $365 - $425 per sea-day.

Presently, the majority of monitoring costs (approximately 68-90%) are paid for by the National Marine Fisheries Service; responsibility for the remaining costs fall to individual vessel owners. NMFS recently agreed to continue to financially support monitoring of the Pacific groundfish fleet at comparable levels during 2012, after which time the industry is expected to fund an increasing percentage of the monitoring costs (potentially 50% in 2013 with a complete phase out in 2014 or 2015).

Costs of EM using the 10% audit approach were estimated, based on existing mature EM programs, to be approximately US$200 per day or 3.2% of the landed catch. This cost also includes hail, fishing log and dockside programs as well as data editing and consolidation for all these separate programs. When all cost factors are equal, independent at-sea monitoring program options in order of lowest to highest cost are audit-based EM programs, EM census programs, and observer programs. If the audit-based program was substituted with a 100% EM census program, the EM costs would increase to US$280 per day. This value does not accurately represent total costs as it would be in addition to costs associated with increased agency costs and labor requirements to meet data turnaround timelines.

Results
Piece counts from the three data sources (logbooks, observers and EM) were nearly identical. There was no difference between EM data and logbook reports and only 1% fewer piece counts with EM than observer data. The greatest discrepancy among data sources was in counts for sharks, flatfish and “other fish” with EM underestimating the numbers of sharks and flatfish. EM slightly over-estimated the percent of catch retained, 91% retained versus the observer estimate of 90%.

EM image quality ranked high or medium for 96% of the reviewed hauls. Low image quality was usually due to backlighting or poor pixilation during night sets. Only 1/329 fishing events resulted in unusable video data, which occurred when deck lighting failed during a night set. The average ratio of haul to review time was 0.59.

Technical Challenges
Sensor data collection was robust, and no issues were reported for GPS, drum or pressure sensors. An older vessel had to undergo upgrades to the wiring system after initial problems with power fluctuations to the EM system. A longline vessel also had problems with one of its cameras that had been placed on a swing arm. When the camera was placed in a certain position it hit against the roof of the wheelhouse, compromising the waterproof seal on the camera.

Although detecting hauls from EM data was straightforward for longline gear, pot/trap vessels proved to be more challenging for detecting gear setting and matching it to hauls. If EM detection of setting activity was deemed a necessary component of at-sea monitoring program, experimenting with the use of radio frequency identification (RFID) tags to mark gear is recommended. This would allow video recording to be triggered during setting and would help confirm sensor data.

Proper/appropriate catch handling is important to maintain the integrity of EM data. EM data from one vessel was compromised by crew behavior, specifically their catch handling. There were instances when the camera view of the hopper was partially blocked as well as instances of multiple people sorting catch out of the hopper simultaneously. These particular challenges illustrate the importance of taking into account specific deck layouts and associated catch handling when installing EM equipment on a vessel.

Recommendations
EM auditing procedures that incorporate dockside monitoring are recommended for the Pacific groundfish fishery. To better implement EM, "Vessel Monitoring Plans" that document details of EM system setup, including camera views and accepted catch handling procedures (to ensure they are aligned with EM cameras, deck lighting, etc.) should be developed for each fishing vessel. Such a document would be based on the initial install interviews with skippers, and would serve as the basis for any feedback from EM data analysts. Feedback to captains on the quality of both the logbook and EM data should be strengthened in this, and all EM implementation projects. Rigorous checking of the EM system performance before a trip starts, as well as during trips will decrease the likelihood of data loss and should be considered a regular/ mandatory component of EM programs.

Future EM studies should also include vessels that do not carry human observers. This would allow for a better understanding of how observers may influence logbook reports and will better draw out the ability of auditing procedures to ensure accurate catch accounting. To develop more robust auditing procedures, future EM trials should also include the use of dockside monitors to verify retained catch, and work to identify fishery appropriate frequency and turn-around time of data review. The following catch monitoring needs were highlighted for the Pacific groundfish fishery: (1) catch by species- for both retained and discarded fishes; (2) time and location of fishing activities; and (3) ensuring compliance of full-retention of rockfish.

U.S. Northeast
Groundfish- Gillnet, Longline, and Bottom Otter Trawl
Fishing Years: 2010 - present

Purpose of Study
This is a multi-year project in which EM is being tested on a variety of vessel layouts, fishing gears and fishing locations. The goal for the first year of the study was to assess the applicability of EM technology to collect catch and effort data aboard NE fishing vessels, with a particular focus on identifying and enumerating discarded catch.

Characteristics of the Fishery
This is a multi-species fishery targeting cod, haddock, flounder and other groundfish species. The fleet is comprised of approximately 350 vessels. On 1 May 2010, a new management

program was implemented that consisted of "hard quota" annual catch limits (ACLs) for all 20 of the stocks in the groundfish complex and expanded the use of "sectors", a type of catch share program whereby groups of fishing vessels are each allotted a share (quota) of the total groundfish ACL. Sectors are allocated subdivisions of ACLs called Annual Catch Entitlements (ACE) for nine of the 13 groundfish species, based on the historical fishing effort of the members of that sector. Sector managers are required to submit weekly reports indicating how much of their TAC remains along with any compliance or enforcement concerns. The sector program has led to substantial reduction in the amount of groundfish discarded because, unlike the effort control system under "Days-at-Sea," sectors do not limit the amount of fish they may land in a day or on a particular trip, and are not permitted to discard legal-sized fish. Underutilization of available catch is an on-going challenge in the groundfish fishery. The fishery has under-harvested available quotas for a number of species over the last several years.

Evaluation Metrics
EM system success was determined by: (1) the percent of a trip for which EM data was successfully collected, (2) if EM powered on during the vessel's departure from port, (3) whether or not EM successfully detected individual fishing events, and (4) the difference between observer and EM piece counts of catch. This later point was executed by counting the number of hauls with matching counts for each species, or species group, as well as the number of hauls in which the species was recorded by EM only or observer only.

Implementation of EM
There are a total of 10 fishing vessels, from 5 ports participating in the study: 4 trawl, 3 gillnet and 3 vessels with both gillnet and longline gear. Previous EM pilot studies were referenced to determine how EM data needed to be collected and the specific catch handling protocols appropriate for longline and gillnet gear. Unfortunately, EM has not been widely used for full catch accounting on trawl vessels. Camera placement on trawler was therefore based upon a description of catch handling given by captains during personal interviews.

Sensor data was recorded every 10 seconds and provided continuous feedback to the captain on a user interface. For trawl vessels, video recording started one the vessel was outside their home port and the winch rotated or hydraulic pressure exceeded a predetermined threshold. Video recording stopped once the vessel was inside the vicinity of their home port. All video included a text overlay containing the vessel name as well as the date, time and vessel location. Typical frame rate was 5 frames per second- this can be modified according to resolution and data storage needs. EM technicians visited vessels monthly to service EM equipment and switch out EM data hard drives.

Economics of Monitoring
Presently the U.S. Government is paying for 100% of the monitoring costs of this fishery. There are two programs in place: fisheries observers (NEFO) and at-sea monitors (ASM), which have mainly a catch accounting function. At-sea monitoring programs will be mandatory for all sectors in fishing year 2012 with a minimum of 17 percent ASM coverage in addition to 8% NEFO coverage levels. The NEFO program estimates the fully loaded cost for an ASM is $917.65, while the cost per sea-day for a NEFO is estimated at $1,487.22[1].Costs of monitoring vary among sectors, with an average of 5.3% of ex-vessel revenue.
Regarding future costs, a monitoring program needs to be outlined to allow for an estimation of the costs associated with implementing an EM program in the NE groundfish fishery. Program

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[1] Northern Economics, Inc. *A review of Observer and Monitoring Programs in the Northeast, the West Coast and Alaska*. Prepared by/for the Environmental Defense Fund. September 2011.

design will subsequently determine the amount of data to be reviewed and associated labor needs, which can comprise up to 85% of total EM monitoring costs.

Results

All thirteen groundfish species were recorded by EM and observers during trawl trips. The most abundant groundfish species were yellowtail flounder and Atlantic cod, which together represented 58% of EM pieces and 63% of observer calculated catch weights. Occurrence for Atlantic cod, haddock, redfish, ocean pout and Atlantic wolffish was similar between the two methods. However, counts of all flounder species differed between EM and observers.

Groundfish species comparisons between primary and secondary EM reviewers showed good precision in detecting groundfish pieces (correlations >0.98 and slopes between 0.99 and 1.04). Secondary review results further highlighted the need for consistent catch handling behavior by crew to improve detection of discards by EM. Large differences in piece counts between primary and secondary reviews were due to inconsistent discarding behavior by crew and/or observers. Feedback from captains and vessel monitoring plans are being used to minimize these issues and improve EM implementation.

Comparisons with observer-collected data indicated that EM reviewers were successful at detecting incidental takes, including date, time, location, the gear used when caught (longline, gillnet, or trawl), and general description of the condition of the item. Identification of incidental takes was also good, with nine of the thirteen items identified to species.

Technical Challenges

Poor image quality was reported for 18% of the EM data, which was caused mainly by dirt, salt or condensation blocking the camera view or irregular catch handling that prevented the camera from documenting the disposition of catch. Overall, EM equipment performed well. Data loss was mainly caused by EM systems being manually shut off, which occurred during transits to and from port. Some of the vessels that manually powered down their EM equipment were also carrying observers. Alignment of EM data with observer data for these trips revealed there were four unobserved hauls by ASM's as well as seventeen hauls that had not been captured by EM.

Recommendations

Further work is needed to determine the minimum data quality requirements that will facilitate identification of all groundfish catch to species. It will also be necessary to develop acceptable error tolerances at the trip or haul level for each EM program. Methods for estimating weights of all managed groundfish species, especially discarded catch has yet to be developed. At present the best approach, and one that may need to be further developed, is to include piece counts then apply an average weight either per species, or based on general weight-length conversions. Another option would be to use containers of known dimensions to allow reviewers to make volumetric estimates of catch. It is also recommended that the location of cameras along with catch handling protocols should be detailed and documented for each vessel in a "vessel monitoring plan".

Alaska
Rockfish- Central Gulf of Alaska Shoreside Trawl
Fishing Years: 2005-2010

Purpose of Studies

Four studies have been conducted regarding the feasibility of using EM in the Alaska shoreside rockfish trawl fishery, one each during 2005, 2007, 2008, and 2010:

1. **2005**. Broad feasibility study of using EM to monitor discard behavior on the CGOA rockfish trawl catcher vessels (pre-Rockfish Pilot Program which started in 2007).
2. **2007** Exempted Fishing Permit (EFP) Phase I: EM installed on one vessel to test feasibility of estimating halibut discards (number and lengths to calculate weights) through video analysis; monitor at-sea discards.
3. **2008 EFP Phase II**: Feasibility and effectiveness of using EM to estimate number and weights of halibut discards on a wider subset of the fleet; determine the time lag between vessel arrivals in port and when the halibut mortality data became available to resource managers; cost analysis of EM versus human observer coverage; compare skipper halibut tally to EM estimates for use as a proxy for interim management by the co-op manager.
4. **2010 EFP Phase III**: Feasibility of using automated video analysis to quantify halibut discards.

Characteristics of the Fishery

The catcher vessel sector of the Central Gulf of Alaska Rockfish Program is a multispecies fishery consisting of both primary rockfish species target allocations (Pacific Ocean perch, northern rockfish and pelagic shelf rockfish) and secondary species (sablefish, Pacific cod, and thornyhead rockfish) target species. Catch of target species can be limited by incidental catch of halibut- which must be discarded at sea. Since the implementation of the Rockfish Pilot Program (2007 – 2011) and the new Coastal Gulf of Alaska Rockfish Program (2012), the fishery operates as a series of cooperatives between qualified fishing vessels and a Kodiak processor. Cooperatives are given an allocation of target species, as well as quota for halibut mortality based on the historical catch of their respective vessels. This system of quota allocations required an increase in monitoring (from 30% to 100%) compared to the traditional, limited-access management regime for this fishery prior to 2007. Full retention of quota species (other than halibut) is required for aid in catch accounting which occurs at the shoreside processing plant. Halibut catch varies depending on gear used, species targeted and areas fished. Limits on halibut catch have created incentives for vessels to modify gear, fishing areas and/or times to reduce halibut interactions.

During the Rockfish Pilot Project (RPP) (2007-2011), 47 trawl catcher vessel License Limitation Program(LLP's or licenses)qualified for the program of which 23-25 catcher vessels actually fished. The actual number of participating vessels was identical to the number fishing prior to the Coastal Gulf of Alaska (CGOA) RPP Program. In 2012, the first year of the newly implemented CGOA Rockfish Program, 46 LLP's qualified. The season lasts from May 1 to November 15.

Evaluation Metrics
Estimates of halibut counts and size from observer sampling and EM methods were compared to halibut at-sea discard and total halibut catch estimates to determine the relative accuracy and precision of the two monitoring approaches.

Implementation of EM
Sensor data was used to determine transiting, setting and hauling events, as well as the location of fishing activities. Video data collection from 3 cameras started as soon as the vessel left port. Close-up footage of the discard shoot was recorded at 8 frames per second, while the back deck and stern cameras recorded at 3 and 2 frames per second, respectively. Two independent reviewers examined EM data to determine when and where a discard occurred and to count the number of halibut discards. Crew were required to discard halibut one at a time down the pre-installed discard chute which led from the trawl alley to an outboard portal. The discard chute was pre-marked with a measurement grid of black and white 5cm- thick bars. In an effort to evaluate the use of skipper halibut tallies as a proxy until the EM estimates were available, vessel operators kept tally sheets of how many halibut were discarded and grouped them into a three different size classes: <24cm, 24-32cm and >32cm.

Economics of Monitoring
Estimated costs for this particular monitoring study averaged $5,203/vessel or $612 per trip (trips, including transit time averaged three days). These costs include equipment, materials and labor. Current observer costs for 100% onboard observers is approximately 7% of the ex-vessel value of landed fish. This study explored the option of vessels renting EM equipment as opposed to purchasing EM gear, as a means to reduce costs. When compared to carrying an observer, EM is currently only cheaper for vessels fishing for more than 30% of the rental period (equivalent to one fishing season). Use of EM in other fisheries in the region will allow for the creation of locally based EM staff and could assist in economy of scale, decreasing overall administrative costs to implement EM in this fishery.

The 2010 EFP Phase III study evaluated whether video analysis could be automated to reduce EM costs and speed up data availability. While the technology appears promising additional work is needed.

Results
During phase I (2007) of this study, observer sampling underestimated the actual overall halibut weight by 43% and underestimated the number of halibut by 53%. For quality of data, EM appears to be the preferred option, even when only every 7th halibut is measured. Consistent with the results from phase I, EM was proven to be able to monitor for 100% retention of target species and provide consistent and acceptable estimates of halibut discards in Phase II of the study as well.

On average it took 26.4 days from a vessel arriving in port until the managers received final EM data from the contractor responsible for the EM equipment installation and data analysis. If an analyst was in port, review time decreased to 9.7 days. This is in comparison to observer data, which can be processed within one or two days, allowing quota accounting to be completed within 2-3 days.

There was a 5% difference in halibut counts between skipper tally sheets and EM data. Skipper tally sheets under-estimated the number of larger halibut by 10% and medium halibut by 8%. Small halibut counts were consequently over-estimated. Due to differences in counts, data could not be used to compare size estimates between the skipper and EM analyst.

EM cannot collect the spatially explicit biological and haul-specific species data that human observers do. It should be noted that if EM replaces some of the human observer coverage in this fishery, such haul-specific biological data will be lost although trip-based data could be collected at the plant.

Technical Challenges
The average failure rate of EM equipment was 16.38%, with most failures occurring during the first 6 weeks of the study. Failures included a short in a drum sensor due to a frayed wire, a faulty drum sensor and various hard drive failures in which files were corrupted and unusable. Hard drives failures were of a magnitude that would be unacceptable for full-scale EM implementation. Regarding estimates of halibut lengths, 21.6% of the halibut discards were scored by the EM analyst as difficult to estimate. This was caused mainly by crew members obstructing the view of the camera during their own efforts to measure the halibut themselves to fill out the skipper tally sheet. Similarly, one vessel's discard chute was in a high traffic area of the deck, which meant the chute was often moved or obstructed from the camera's view.

Recommendations
Fisheries where most of the catch is retained are logical candidates for EM to monitor and account for at-sea discards, with dependence on shoreside reporting systems for most quota tracking. An accurate and robust mechanism for linking EM data with fish ticket (landing reports) and observer data is needed to ensure halibut bycatch is accurately estimated. The utility of EM for such monitoring applications in a commercial fishery setting may vary according to vessel configuration and level of cooperation by the crew. The level of human observers required for other purposes, such as the collection of biological data needs to be determined.

Industry cooperation strongly affects the success of an EM-based monitoring program. Crew training on each vessel is recommended to ensure the camera view is not obstructed. Co-ops will need a rapiddata turn-around time to ensure quota accounting and other management goals are met. As such, skipper tally sheets, or some other immediate feedback to the co-op should be developed and implemented in conjunction with EM. To ensure timely processing of EM data for this fleet, two dedicated on-site staff are needed to analyze EM imagery. Software, such as developed by Mamigo Inc. which can automate the process of video review, including estimating the size of discarded fish, will reduce review time and overall costs. Crew behavior, with respect to discard location and accessibility to the camera, will have to be improved for such software to prove useful.

Alaska
Groundfish- Factory Trawler
Fishing Year: 2005

Purpose of Study
To determine how video monitoring could be used to document catch handling and discarding events on a factory trawler.

Characteristics of the Fishery:
Management of Alaskan groundfish is based on seasonal, annual or fishery and vessel specific catch limits. Hauls usually contain a mix of many different species, with at sea observers

estimating catch quantity and species composition through catch sampling. In addition to high species diversity of catch, the nature of fishing operations on factory trawlers such as non-stop fishing operations, complex factory and deck layout, pre-sorting of catch by the crew, and large catch volumes, complicate the work of observers. The accuracy of observer reports is of considerable importance to the industry and resource managers as this fishery is managed in near real time based on industry and observer reports.

In Alaskan flatfish fisheries, halibut is a prohibited species that vessels are required to discard for regulatory and conservation reasons. Although not retained, halibut and other prohibited species count against annual limits and can reduce a vessel's economic yield. Trawl fisheries for flatfish often close before reaching annual catch quotas due to limits on the amount of halibut than can be incidentally caught.

Evaluation Metrics

To determine if cameras along the factor conveyor system would allow for a census of catch, EM data from video imagery recorded during observer sampling was compared to catch composition data collected by observers. EM reviewers also attempted to identify and track tagged halibut as they moved through the vessel's factory. To improve future EM trials, feedback was solicited from crew and study participants regarding EM equipment and its uses.

Implementation of EM

Nine cameras were installed in key fish handling areas, providing a full view of the trawl deck and closer views of the interior factory and discard chute. Image capture rate was set at either 2 or 5 frames per second, depending on the location of the camera. Cameras were high resolution with low light capability, producing color images during the day and clear monochrome images in low light conditions. Prior to installing EM equipment technicians consulted with vessel personnel to determine appropriate positioning of the equipment and identify wiring and onboard electrical supply issues. Video was constantly recording, requiring 3GB of drive space per hour. This meant drives had to be replaced during times when catch was not being processed. Imagery was regularly monitored onboard the vessel to ensure optimum camera placement, to reduce crew blocking the camera view, and to minimize the amount of water on the camera dome.

Economics of Monitoring

In October 2010, the North Pacific Fishery Management Council (NPFMC) approved Amendment 86 to their FMPs for groundfish to 1) Expand observer coverage to smaller groundfish vessels (less than 60') that previously had not been subject to any observer coverage, 2) Extend coverage to all vessels from 60' – 125' that catch and process their fish on board to 100 percent, and 3) Change the way that observers are funded and deployed on catcher vessels trips.

Fishing vessels greater than 60ft, including factory trawlers, pay a contracted observer provider directly for their observer coverage. Deployments to catcher processors and motherships are generally very long—trips generally last from two to four weeks or longer. It is possible that an observer will be assigned to a single catcher processor for their entire field assignment. From a cost perspective, the longer the deployment the less time and money providers spend per observer.

This study was funded by the International Pacific Halibut Commission; however the costs of EM equipment, staff and data analysis were not detailed.

Results
The best locations to detect tagged halibut was at the flow scale and discard chute. While nearly all (98%) of the tagged fish were detected by the cameras, only about 43% were seen in all four factory conveyor cameras. Reviewer time required to spot tagged halibut was 30% of real time, and time to census halibut was 76% of real time. Without tags, the ability of reviewers to follow halibut from camera to camera along the conveyor was reduced as fish density increased.

The two fish tank cameras provided a good view of catch quantity and could help measure catch volume. Species identification and enumerating catch was compromised when conveyors were loaded with layers of fish overlapping one another. Halibut were relatively easy to identify, due to their distinct size and shape, and species like yellowfin sole, arrowtooth flounder, skate, and Pacific cod were generally distinctive, provided other fish were not overlapping. EM footage was useful in characterizing catch but not for quantitative estimates of species composition. Because discard items were fewer and more spaced out, it was possible to census discarded catch with EM.

EM was identified as a tool to improve observer capabilities, not as a replacement for observers on factory trawlers. The EM display monitor, placed in the observer sampling station, was especially valuable as it enabled observers to monitor fish entering the primary lift when samples were being taken and better plan their on deck duties during net retrieval.

Technical Challenges
The main sources of EM data loss were when the vessel shut off the power supply to make repairs and technician error using an unformatted drive. Panoramic views in the fish tank and trawl deck provided a good overall perspective of activities in that area of the vessel, but resolving detail such as individual fish was not possible. Video monitoring was unable to observe all blind spots within the factory, and the quality of imagery was especially poor in the fish tank. Low lighting and wide camera views resulted in poor resolution of fish and catches from individual fishing events were often indistinguishable. Although EM equipment did not appear to physically interfere with the normal duties of vessel crew, there was some indication that cameras might pose a problem on vessels with lower overhead and tighter factory layout. It is conceivable that cameras on such vessels would be physically in the way and get bumped, or regularly blocked by crew.

Recommendations
There was a clear need for more cameras and improved lighting in the fish tank area in the present study. An onboard video technician is very useful to ensure the best possible equipment configuration and is recommended for future pilot studies. As the specific layout of each vessel differs, there is likely no standard set up for video monitoring equipment- each vessel should be considered separately. Data recorded by EM is strongly recommended to include both imagery and data from GPS and other sensors. The addition of vessel sensors such as a winch rotation counter and hydraulic pressure transducer would aid in establishing fishing positions.

Data storage requirements for the fleet need to be projected and a data management plan should be developed. The simplest option for data storage would be to record the most recent events, continuously overwriting older image data. Depending upon hard drive capacities, the loop cycle could be a few days to a few weeks. That said, the storage of image data provides the opportunity for the observer (or vessel personnel) to review factory operations in general as well certain events that cannot be seen in real time, such as fish handling practices, pre-sorting of catch, and observer performance.

British Columbia
Groundfish- Hook and Line
Fishing Years: 2009-2010

Purpose of Study

To describe the usefulness of an EM "audit" (10% of video footage is randomly reviewed and used to audit logbook records) verses a complete "census" or 100% review of EM video footage. This EM audit technique was tested to ensure fishers' logbooks, in conjunction with dockside monitoring, can accurately estimate individual vessel and fleet wide catches.

Characteristics of the Fishery:

The British Columbia hook and line fleet has more than 200 active vessels, landing approximately 12,000t of product with an ex-vessel value over $75 million. This is a multi-species and multi-sector fishery. Of the 140 fish species caught, 16 are presently managed with annual catch quotas. Primary target species for this fishery include lingcod, Pacific halibut, sablefish, spiny dogfish and rockfish. The need for stock specific management, and industry concerns over early fishery closures due to bycatch overages, led the Department of Fisheries and Oceans to bring this fishery, along with the trawl sector fishery, under a catch share system during early 2006. Enhanced monitoring efforts were put in place to ensure reliable catch data for rockfish species that were a conservation concern. Specifically, a monitoring program was designed to provide accurate estimates of catch by species, details of discards, landings and disposals of fish. Discards of all rockfish species are prohibited.

Evaluation Metrics

Evaluation of the EM audit technique was based on the percent relative difference (if total piece count is >30) or absolute difference (if count is <30) between EM piece counts and logbook counts. An error rate between 2-10% was considered acceptable, while greater than 30% error was deemed unacceptable to meet the program objectives. Error greater than 50% was assumed to be indicative of intentional misreporting by harvesters. A scoring system (see Stanley et al. 2011) was established based on the acceptable error rates.

Implementation of EM

Video imagery from up to four cameras was collected for all gear deployment, setting and hauling events. Sensors that distinguish between various vessel activities were also used, in addition to a global positioning system. Upon completion of each fishing trip, EM data was forwarded to a contractor for processing. EM data was examined to confirm the following:

(1) There was a complete record for the trip with no breaks or malfunctions;
(2) All fishing events were recorded in the logbook; and
(3) The times and locations of fishing events were accurately recorded in the logbook.

Finally, 10% of the EM data was randomly selected and compared with the logbook records. Following a satisfactory comparison (less than 10% difference in counts), logbook counts were combined and compared with piece counts from dockside monitoring.

Economics of Monitoring

Annual costs of the catch monitoring program are approximately $12,000 CDN per vessel, or 3.2% of the total landed value of the fishery, with high variability among vessels. EM accounts for 70% of the total cost of the program, while dockside monitoring and logbooks comprise 25% and 5% of the program costs, respectively. Approximately 30% of the total EM costs are covered by the Department of Fisheries and Oceans. In comparison to this monitoring program, whereby 10% of the EM data are reviewed, 100% review of video imagery is estimated to cost $18,500 CDN per vessel and require a 9 fold increase in staff to review EM data and a 4 fold increase in data service costs.

Results
EM catch estimates, including discards, met operational and management needs as they were "sufficiently" precise and unbiased. The majority of audits (>80%) indicated a difference of 10% or less between logbooks, EM data and dockside piece counts. Comparing logbooks with EM data revealed that logbook records showed approximately 5% higher counts than the EM data. Because fishers retain the primary responsibility for accurate catch reporting, rather than a third party/camera, the audit approach has been better accepted by industry and also provides a significant cost savings when compare to 100% census of EM data.

Technical Challenges
On-board EM gear malfunctioned during 2% of the total fishing trips, requiring these vessels to cease fishing and return to port for repairs. Accuracy of estimating discards was lower than those of retained catch, implying that harvesters and video reviewers in this study, had a harder time enumerating discarded fish. The audit (10%) approach reduces the opportunity to confirm or record rare catch events. In this particular study, the scoring system, initially complicated the ability of the review board to impose penalties on vessels with an "unacceptable" level of error (>30%) in their logbooks. Once fleet behavior and reliability of EM data was better understood, penalties for violations were enforced.

Recommendations
To minimize the frequency of unintended video failures, the details of each failure needs to be recorded and routinely examined for anomalous patterns. If there are species or areas of particular enforcement or management concern, the audit rate can be increased for fishing events occurring in specific areas or during certain times of day. Future programs should focus on more value added benefits of EM such as improving catch estimates of non-quota species.

European Union
Denmark Cod Fishery- Gillnet, Seine and Trawl
Fishing Years: 2008-2009

Purpose of Study
To determine if EM can be used to document, monitor and report landings and discards of cod for a new incentive-driven management scheme based on catch quotas.

Characteristics of the Fishery
The Common Fisheries Policy of the European Union includes limitations on catches through the setting of total allowable catches (TACs). TACs are EU wide and dictate the total quantity of catch that can by landed, which is later divided among member states. Cod has been a commercially important species in Denmark since the 15th century. Cod from the Baltic Sea is mainly processed in Poland and sold throughout the EU as either fresh or frozen fillets, frozen loins, or frozen battered/breaded products. The fishery crashed around 2004 and was followed by spatial and temporal restrictions on fishing effort, as well as limits on total allowable catch. Due to concerns over the abundance of discards and biomass of fish lost to high grading, fisheries authorities in Denmark, the UK and Germany signed a joint statement in 2009

agreeing to explore incentive-driven management based on total catch (landings and discards) quotas. These quotas required increased fisheries monitoring efforts to ensure all catch, including discards was accurately accounted for. During April of 2011, this fishery received MSC certification for longline and demersal trawl gear.

Evaluation Metrics
The number of fishing trips and fishing events recorded in logbooks, supplemental logs and EM were compared for consistency. Discard estimates of cod reported by the skipper were compared to those observed in the EM video record. Additionally, the size distribution of cod caught by trawlers participating in the study was compared to the rest of the fleet carrying fisheries observers. In addition to submitting logbooks, skippers participating in the trial were also required to submit additional log sheets detailing weights of total catch, proportion of catch retained by species, as well as total weight and length frequency of discarded cod. Nine weight categories for cod discards were used: 0-5; 5-10; 10-20; 20-50; 50-100; 100-250; 250-500; 500-1,000; and >1,000 kg.

Implementation of EM
This was a one year pilot study developed by Archipelago. Six vessels (1 gillnet, 1 seiner and 4 trawlers) participated voluntarily, but were given additional quota allowances during the study. EM equipment consisted of four cameras to monitor the working deck, catch handling areas and discard chutes as well sensor units for the wench/drum, hydraulic pressure sensors and GPS units. EM cameras began recording at the start of the first fishing operation, initiated by the pressure sensors, and stopped recording when the vessel returned to port. Although details on how EM data was analyzed in the study are not described in Kindt-Larsen *et al.* (2011), Table 2 of that paper outlines costs of the study and implies a 10% audit approach was used. This is similar to the audit technique used by other fisheries, in which a randomly selected portion (10%) of EM data is compared to logbook data and catch data from other sources.

Economics of Monitoring
The Technical University of Denmark, National Institute of Aquatic Resources contracted the 6 fishing vessels and provided/loaned all of the EM gear used during the study. The annual per vessel cost of installing and maintaining EM equipment was approximately US $13,300 with expenses for data analysis averaging and additional US $5,350. As implemented in this study, EM is estimated to cost vessels 1/10 as much as fisheries observers. The average cost of Danish observer for a year, including salary, travel and at-sea allowances is US $261,000.

Results
The EM system provided reliable information on cod discards. It should be noted however, that vessels were given minimum requirements regarding their deck layout and catch handing protocols. Discard estimates from fishers logs and EM image analysis were consistent and "reasonably precise". Although EM reviewers could not provide accurate weights of discarded cod, they were able to, in most instances, provide useful estimates of weight. For estimates of discard weight, 72% of the EM analyzed fishing operations reported the cod discards in the same weight class as the logbooks. For the fishing events in which weight class data did not correspond, estimates were usually higher in fisher reports than in the EM data.

The proportion of small-sized cod landings was greater in the pilot study trawl vessels than in the other trawl vessels fishing in the Danish fleet. In some cases 65% of landings by pilot study vessels were small cod, compared to 25% for the rest of the fleet. This was indicative of extensive high-grading by vessels not involved in the EM trial. Conversely, vessels participating in the trial discarded very few legal sized cod.

As implemented, the EM system was determined to be able to provide the documentation required to support the catch quota management system for cod and created a disincentive to engage in high-grading legal sized fish.

Technical Challenges
EM sensor data was complete on almost all vessels; power failure and missing GPS signals were responsible for total EM data loss of 2.2% and generally only occurred in extreme environmental conditions. The sensor and video data documented fishing events in considerable detail, allowing for verification of the retained and discarded portions of catch.

Recommendations
Skipper records could be improved through the use of electronic logs and/or electronic weighing equipment. Better catch-handling facilities and conveyor belts are also recommended. The overall costs of the EM analysis will depend on the experience and skill of the reviewer. Well trained personnel can reduce the overall time required to review EM images. Camera placement, as well as the number of discards chutes allowed on vessels will also influence the total time needed to complete image analysis.

Table 2. Summary of electronic monitoring pilot studies related to those described in the document above and outlined in Table 1.

Region	Fishery	Gear	Primary Author	Report Year	Purpose	Implementation	Summary Results	Suggestions for Improvement
U.S. West Coast	**groundfish**	**fixed gear**	**Jose Pria, M**	2008	To determine how well EM data corresponded to catch data collected by observers.	Sensor data was analyzed to inform the EM reviewer of haul times. After confirming all hauls were captured by EM, 100% of video footage was analyzed using software that provided synchronised playback of images. Observer and fishing log data were then compared to EM data. A second reviewer analyzed a portion of the EM data to gain further insight on possible reasons for discrepancies between data sources.	Fish catch was 2% lower in observer data than EM data. EM reviewers were not able to speciate thronyhead rockfish. Red rockfish species, were generally hard to speciate due to poor image quality. EM did not account for the full species diversity as compared to observer data. Bycatch species and flatfish accounted for most of the discrepancies.	EM reviewers should undergo special training in identifying rockfish in video footage. However, if full retention of rockfish was required identification could take place at landing. Run-on time for video recording should be extended (past sensor threshold) to ensure all catch handling is recorded. More rigid guidelines are required to encourge fishers to keep EM on at all times. A timely feedback mechanism between EM staff and fishers is needed.
Alaska	**rockfish**	**trawl**	**Bonney, J**	2009 (phase II)	To determine costs associated with EM deployment; if EM can quantify halibut discards; and the expected turn around time for EM data analysis,.	Close-up footage of halibut discard chute was recorded at 8fps. Backdeck and stern cameras recorded at 3 and 2fps, respectively. Two independent reviewers examined EM data to determine when and where a discard occurred. Crew were required to discard halibut one at a time, in a specific location. Discard chute was marked with 5cm-thick black and white bars to faciliate measurements during review. Vessel operators kept tally sheets of numbers and sizes of halibut discarded.	Average EM equipment failure rate was 16.8%- most caused by failed hard drives. Total EM costs were approx $612/trip. EM successfully monitored 100% retention of target species and provided reliable estimates of halibut dicards. On average, it took 26.4 days after a vessel returned to port before managers received final EM data.	Vessel specific crew training is required to collect reliable, high quality EM data. Software that can automate catch and size estimates for a single species are recommended. Skipper tally sheets, or other informal reporting mechanisms can supplement EM and allow for realtime management decisions.
			Bonney, J	2008 (phase I)	To test ability of EM to estimate at-sea discards of halibut and ensure all other catch is retained.	EM images were reviewed by 2 independent analysts. Estimates of the number and weight of halibut discards were compared to data from observer samples. Accuracy of both data types was determined by comparing data to a complete census of halibut numbers and sizes while at sea.	There was no system error caused data loss. There was some distortion of the discard chute necessitating the use of different length conversions for the top and bottom of the chute. Average error of EM was 2.2% for biomass estimates and -1.1% for halibut counts. EM measurements of halibut size/weight were more precise than observer records.	Utility of EM to monitor discards will depend upon the configuration of the vessel and the level of cooperation from the crew. 5cm grid in the discard chute are recommended for EM analysts to accurately estimate size of discards. A highframe speed should be used for discard cameras- apprx 6fps. Some structural adjustments may be necessary to ensure proper camera placement.
			McElderry, H	2005	The utility of EM as a tool to monitor fish sorting and handling across the entire trawl deck.	3 or 4 cameras, GPS, hydraulic and winch sensors, and on-board data storage were deployed to monitor 100% of fishing activities. Vessel captains were consulted regarding positioning of equipment and wiring. After EM video review, observer data were compiled by NMFS and delivered to Archipelago for analysis.	Observers and EM data were consistent in determining discards for 86% of the fishing events. EM could not assess 10% of data due to large discard quantities. EM resolved discards to species level for some, and others to morphological groups (e.g., salmon, rockfish, flatfish) whereas observers typically resolved catch to species. Usefulness of EM data increases as discard volumes decreases.	The wide angle lens distorted images making it difficult to identify flatfish and rockfish to species. Halibut should be discarded one at a time, at a single discard location. The suitability of EM in terms of cost and logistical efficiency will depend on the specific fishery. Ability to compare data between observers and EM could be improved by controlling data formats, catch handling procedures, and observer sampling methods.

Table 2 (continued). Summary of electronic monitoring pilot studies related to those described in the document above and outlined in Table 1.

Region	Fishery	Gear	Primary Author	Report Year	Purpose	Implementation	Summary Results	Suggestions for Improvement
Alaska	**groundfish**	**factory trawl**	**Conners, ME**	2009	EM cameras were used to monitor an automated catch sampling system- with the intent of removing bias while accurately determining the species composition of a haul.	The EM system performed well, but improvements are needed to the automated sampling system. Census of target species was compared to data from the automated sampling.	EM equipment performed well- observers were able to monitor the flow of fish from the holding tanks through the factory to the point of final processing or discard. EM also allowed observers to know when to expect the next haul and prepare to sample. Sample estimates were generally in good agreement with census-based data. EM appears to have the potential to increase compliance with catch-sorting protocols.	The current minimum sampling level (by observers) of 300 kg per haul is adequate. However, large sampling fractions (37% or more of the total haul weight) are needed to obtain accurate data on rare species. Where large sampling fractions cannot be achieved, then combined estimates over a number of hauls are needed.
British Columbia	**groundfish**	**hook and line**	**Stanley, R**	2009	To critically evaulate the effectiveness of B.C.'s groundfish monitoring program, using yelloweye rockfish as a test case.	Full retention of rockfish species required. 10% of EM footage was analyzed within 2 weeks of landing and compared to fisher's logbooks and landing reports. If catch estimates are similar logbooks they became official catch record.	EM estimates of yelloweye rockfish were 13% less than dockside monitors and logbook reports; however all official estimates were within 95% confidence limits of EM estimates.	If reviewers are not confident with a particular species identification they should list one or more species as being equally likely. Observed ratios of species in landings could also be used to aid in difficult EM identifications. If greater accuracy of rare interactions is required fisheries independent surveys or strategic placement of observers should be considered. Details regarding why certain EM data could not be analyzed should be recorded and routinely reviewed for patterns.
			McElderry, H	2006	To summarize results of efforts to develop an at-sea monitoring program for the non-trawl groundfish fishery and determine how EM could be used in the most cost effective manner.	2 cameras were placed on each vessel, in addition to winch sensor and hydraulic pressure transducers. Similar to the above- 10% of the EM video footage was compared to logbooks and reports from dockside monitors.	The 10% audit approach proved useful for monitoring small vessels limited by working and living space and encouraged accurate record keeping. EM was less intrusive than observers and therefore preferred by the fleet. EM creates a permanent record of catch that can be sampled according to research and monitoring needs. Species recognition by EM varies with the complexity of species composition of the catch. In most cases EM review is faster than actual operation time.	Application of EM to new fisheries will require lead time for EM program and software development. Skilled personnel are required for both field and office operations. Data storage requirements- which are affected by the number of cameras, rates of recording etc, need to be considered. The comprehensive nature of data recorded by EM equipment also necessitates consideration of data handling and privacy issues. Industry support will be linked to the intended use of EM data.
European Union	**Danish cod**	**gillnet, Danish seine and demersal trawl**	**Dalskov, J**	2009	To monitor discarding of cod, document catch handling and observe discarding patterns.	Imagery from all fishing events were examined and assessed for image quality as well as the amount of catch. EM catch was compared to catch amounts recorded by the crew. A second EM reviewer was used to confirm EM results.	Number of fishing events differed between crew and EM, as crew failed to report seperate hauls at the same anchor point. EM can estimate discards of cod with significant accuracy, especially if the vessel has a sorting conveyor. For some vessels, cameras failed to properly capture discarding events, making species identification difficult. Costs for EM is significantly less than using an onboard observer. On average less than one hour of EM analysis was requied per fishing event.	It may be necessary to modify deck setups and interior catch handling flow to obtain appropriate image coverage. To properly record discards, the EM reviewer should be informed of all discard points on the vessel. Having multiple sorting and discarding locations will increase EM review time and overall costs. The EM system would work optimally if combined with an e-logbook. Cameras could remain operational during docking and unloading to detect unlawful discards or landings.

Phoenix Processor Limited Partnership

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April 4, 2012

April 2012 Council Meeting, Public Comment, Agenda Item I.3.

Re: Agenda Item I.4, Proposed Change in Shoreside Whiting Primary Season Start Date

Dear Chairman Wolford and Members of the Pacific Fishery Management Council:

This letter is submitted on behalf of Phoenix Processor Limited Partnership (PPLP), which owns two of the floating processor motherships that operate in the Mothership Cooperative Program in the rationalized Pacific whiting fishery. Many of the partners in PPLP also own and operate catcher vessels active in the MS Coop Program. Our comments presented today refer to a trailing action currently before the Council in support of Amendment 20 that would affect the operations of PPLP and the catcher vessels that deliver product to PPLP.

Specifically, PPLP renews its request that the Council to take no action on the proposal to change the primary whiting season start date. As stated at the March 2012 Council meeting, we have serious misgivings about the adequacy of the information presented to the Council to inform any decision other than to maintain Status Quo. The deficiencies of the analysis have not been corrected since that time.

PPLP believes that all of the ten factors currently identified in regulation as criteria to consider when considering a change to the whiting primary season start date must actually be considered and taken into account.[1] The analysis before the Council does not provide sufficient information for the Council's consideration of these factors. In the absence of this review, for the Council's consideration we provide our own review of the factors outlined in regulation.

1. *Size of the harvest guidelines for whiting and bycatch species*:

The amount of whiting available to the shoreside sector, 42% of the US Total Allowable Catch minus set asides and the tribal allocation, is anticipated to be roughly 63,621.8 metric tons.[2] This compares to 92,817.9 metric tons available in 2011, roughly a 30% decline.[3] Seeing how the shoreside sector had no difficulty taking its allocation in 2011 with a June 15 start date, the declining quota implies

[1] 50 CFR § 660.131(b)(2)(ii)
[2] Calculated from amount referenced in April 2012 Council Meeting, Agenda Item I.2, Situation Summary.
[3] Calculated from 76 Fed. Reg. 28908 (May 19, 2011) (Pacific Whiting 2011 Final Rule).

that there would similarly be no difficulty taking a smaller amount of fish in 2012. Under trawl rationalization, bycatch species amounts allocated to the trawl fishery do not affect the ability of the shoreside fleet to catch its Pacific whiting allocation, as the individual accountability provided by IFQs creates the individual vessel incentives to avoid such species (see *Expected harvest of bycatch and protected species*, below). Accordingly, this factor weighs against a change in the start date for the shoreside sector, as the shoreside sector does not need an extra month to harvest its allocation.

2. *Age/size structure of the whiting population*:

Fish get bigger as they get older, and are worth more later in the year as the extra time allows individual fish to grow. This was recognized in the Environmental Assessment prepared for the 1997 action that established the current whiting primary season start dates (1997 EA). The 1997 EA cited scientific analysis of size at-age data for whiting sampled during 1986-1989 that predicted average weight at-age by month in the whiting fishery. As stated in that analysis:

> *A June fishery would increase sustainable yield by 4% relative to an April fishery, resulting in increases in annual yield between 4.7 and 7.3 thousand metric tons, depending on the harvest level. A September fishery would increase sustainable yield by 10% relative to an April fishery, resulting in increases in annual yield between 11,500 and 18,100 metric tons.*[4]

The 1997 EA also cited a study focused on product quality and quantity improvements linked to a delay of harvest until later in the year. The results of that study indicated that society would benefit from harvest plans that regulate the timing of the harvest, and that a later season would dramatically increase the value of the fish "due to greater biological growth and higher product recovery rates associated with improved intrinsic quality of the fish."[5]

These analyses weigh against changing the June 15 start date to May 15. In our review, we found no more recent scientific analysis that state otherwise.

3. *Expected harvest of bycatch and prohibited species*:

No suggestion has been made that a change in the shoreside whiting primary season start date is needed to reduce the expected catch of overfished species bycatch. In fact, experience in the 2011 fishery indicates that catch of overfished species bycatch is less of a concern under rationalization. According to preliminary results analyzed for the 2011 fishery, "declines in rebuilding species bycatch were recorded in the directed whiting fleet within the IFQ fishery, including a 79 percent reduction in canary rockfish, a 73 percent reduction in darkblotched rockfish, and a 96 percent reduction in Pacific ocean perch[.]"[6]

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[4] 1997 EA at B-8 to B10, citing Dorn 1991.
[5] 1997 EA at B-8, citing Larkin, S. and Sylvia, G., *Intrinsic Product Characteristics and Fisheries Management: An Intra season Bioeconomic Analysis of the Pacific Whiting Fishery*, draft manuscript, August 1995.
[6] Matson, S., *West Coast Groundfish IFQ Fishery Catch Summary for 2011: First Look*, 2012 (March 2012 Council Meeting, Agenda Item F.6.b, Supplemental NMFS Report), at Table 21.

However, the situation is different for prohibited species, and a change in the shoreside whiting primary season start date would likely increase impacts to Chinook salmon. As stated in PPLP's March 2012 comment, the draft analysis before the Council overlooks the existing analyses provided in the 1999 Biological Opinion and Incidental Take Statement and in the 2006 Supplemental Biological Opinion. (2006 BiOp). The 2006 BiOp, prepared in response to the reinitiation of Endangered Species Act Section 7 consultation triggered due to excess catch of Chinook salmon in the 2005 whiting fishery, notes that "bycatch rates tend to be highest early in the season[,]" and that the shoreside fishery has higher bycatch rates than the at-sea fisheries since "the shoreside fishery tends to fish closer to shore to reduce operating costs."[7]

These concerns were also noted in the 1997 EA for the whiting season start dates set in current regulation. The 1997 EA acknowledges higher salmon bycatch earlier in the season attributable to the shorebased fishery, stating that "the average salmon bycatch rate drops consistently as the season progressed through the end of June . . . delay in the shore-based fishery would be expected to result in lower bycatch during the first several weeks."[8]

Accordingly, this factor weighs against changing the June 15 start date to May 15. Not only is there no cause to shift the start date to reduce expected bycatch of overfished groundfish stocks, but also, such a move would likely result in considerably increased bycatch of Chinook salmon.

4. *Availability and stock status of prohibited species*:

The 2006 BiOp notes that NMFS had previously considered whether high bycatch events were associated with higher Chinook abundance, but found that there was "no obvious or consistent correlation."[9] Accordingly, at least with regard to Chinook salmon, this factor appears to be neutral.

5. *Expected participation by catchers and processors*:

Expected industry participation is something appropriately addressed by the TRREC or the GAP. However, the TRREC made no mention of how many vessels or how many processors would expect to participate in a May-June shoreside whiting fishery.[10] Moreover, in the March 2012 supplemental GAP report on this issue that preceded the Council's selection of a PPA, there was no mention of any desire of any participant in the shoreside fishery to participate in the May-June, rather it stated that "If it is a relatively easy fix, the GAP recommends analyzing an April or May start."[11] As mentioned above, this analysis has not been done. Failing any indication of an expectation of participation by any shoreside

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[7] NMFS, 2006, *Endangered Species Act Section 7 Consultation - Supplemental Biological Opinion: Reinitiation of Section 7 Consultation Regarding the Pacific Fisheries Management Council's Groundfish Fishery Management Plan*, Northwest Region, Sustainable Fisheries Division, at 17-18.
[8] 1997 EA at B-8, see also B-10 ("An early season . . . has been associated with higher salmon bycatch rates, especially in the shore-based fishery.").
[9] *Id.* at 19.
[10] November 2011 Supplemental TRREC Report, Agenda Item E.7.b.
[11] March 2012, Supplemental GAP Report, Agenda Item F.8.b. (emphasis added).

participant in this period, there has been no demonstrated need for any action on this issue. This factor also weighs against changing the start date.

6. *The period between when catcher vessels make annual processor obligations and the start of the fishery*:

This factor relates to the processor obligation in the MS Coop Program, which was established in the trawl rationalization program and which does not apply to the shoreside fishery. This factor is inapplicable to the shoreside whiting fishery, thus is neutral.

7. *Environmental conditions*:

To our knowledge, no analysis has been conducted upon the environmental conditions relevant to the proposed change in the shoreside whiting primary season start date, despite its potential significance to the risk of increased salmon bycatch, discussed above. The 2006 BiOp notes the dynamic nature of the ocean affects the distribution and abundance of whiting, salmon, and other species, and hypothesizes that "that anomalous ocean conditions affect the distribution of Chinook and whiting in ways we do not really understand, but nonetheless increase the likelihood of high bycatch tows."[12] Because of this correlation with prohibited species bycatch, we consider this factor applicable for the Council's consideration, but are unable to assign a weight (*e.g.*, positive, negative or neutral) due to the lack of information available. Again, the analysis is insufficient to support the proposed change.

8. *Timing of alternate or competing fisheries*:

Notably, the trawl rationalization program opens up the opportunity for vessels to participate in other fisheries without fear of jeopardizing their participation in the shoreside whiting fishery. 2011 saw vessels delaying their trawl participation in order to participate in crab and shrimp fisheries. The 2011 IFQ Review shows that in May, more IFQ vessels participated in the shrimp fishery than in any other month, and the number of IFQ vessels that participated in crab fisheries was nearly twice that which participated in June.[13] Accordingly, this factor weighs against changing the start date from June 15 to May 15, as shoreside whiting fishermen have more alternate fishing opportunities under trawl rationalization, not less.

9. *Industry agreement*:

Industry does not all agree on the proposed change. As stated in the PPLP's comment provided at the March 2012 Council meeting:

> *"[T]he proposal to move the Pacific whiting primary season start date for the Shorebased IFQ Program does not, in fact, enjoy industry consensus. We consider this a contentious issue. Such disagreement underscores the need for thorough analysis.*

[12] 2006 BiOp, at 19-20.
[13] Matson, 2012, at Table 4.

This comment still holds true. There is no unanimous industry agreement. In our view, it would be irresponsible to change the whiting start date for a single entity when such action increases the risks to the entire fishery. This factor weighs against changing the June 15 start date to May 15.

10. *Fishing or processing rates*:

The shoreside whiting season under trawl rationalization has shown a "protracted, uninterrupted season of fishing under IFQ, in contrast to many recent seasons[.]"[14] Processing peaked in August. The experience under the Shorebased IFQ Program differs from that under the non-rationalized fishery, which was characterized by "[e]rratic patterns of monthly landings and short season lengths[.]"[15] Thus, it appears that under rationalization the shoreside sector has chosen to focus its efforts later in the summer, thus this factor weighs against changing the June 15 start date to May 15.

In summary, by our review, none of the factors to be considered as set forth in regulation support a change in the Pacific whiting primary season start date. While we believe all of the applicable factors are important, PPLP is especially concerned over the potential impacts on protected species. While rationalization helps protect against excess bycatch of overfished species, Chinook salmon is not rationalized. The entire whiting fishery – shorebased, mothership, and catcher processor sectors – all operate under an annual threshold limit of 11,000 Chinook salmon, and catch in excess of this limit by any sector triggers reinitiation of Endangered Species Act consultation, which we seek to avoid. The draft analysis before the Council fails to consider the very real conservation risks of the proposed action.

Deferring action on this proposal would provide an opportunity to improve the analysis, incorporating not only information from existing analyses (such as the Biological Opinions identified above), but also improved data from observer information collected under the trawl rationalization program. Given the Council and NMFS' current workload, PPLP urges the Council to postpone consideration of this proposal.

Respectfully Submitted,

James M. Mize

Safety and Compliance Manager, Premier Pacific Seafoods, Inc.
On behalf of Phoenix Processor Limited Partnership

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[14] Matson, 2012, at 5.
[15] *Id.*

RECONSIDERATION OF INITIAL INDIVIDUAL FISHERY QUOTAS IN THE MOTHERSHIP AND SHORESIDE PACIFIC WHITING TRAWL FISHERIES

At the March, 2012 Council meeting, the Council considered matters associated with the December 22, 2011 District Court Judge Thelton E. Henderson decision in the case C10-4829-TEH: Pacific Dawn, LLC, et al. v. John Bryson, et al., referred to here as the Pacific Dawn litigation, including the February 21, 2012 Court Order on Remedy (see full March Council meeting reference materials, including public comment at http://www.pcouncil.org/resources/archives/briefing-books/march-2012-briefing-book/#groundfish). This order remands "for further consideration" the regulations addressing the initial allocation of whiting for the shoreside individual quota fishery and the at-sea mothership fishery. In response, the Council adopted a three-meeting process to meet the court-ordered deadline. Under that process, the Council is scheduled to adopt alternatives for analysis in April, select a preliminary preferred alternative in June, and a final preferred alternative by September 2012.

In a February 29, 2012 letter from Mr. Frank Lockhart (Agenda Item I.5.a, Attachment 1), National Marine Fisheries Service (NMFS) indicated they would provide the Council at this meeting with what it believes may be an appropriate range of alternatives for consideration, and announced the intent to publish an advance notice of rulemaking (ANPR) that would deal with necessary adjustments to the trawl rationalization program as a result of this litigation. Agenda Item I.5.a, Attachment 2, details the suggested appropriate range of alternatives for consideration at this meeting. The ANPR covers a number of related issues including providing notice to the public of the court order, the Council/NMFS schedule for reconsideration, the need for members of the industry to ensure that their post 2003 fishery data is correct, a potential extension on the quota share trading moratorium (currently scheduled to expire at the end of 2012), and potential delay of implementation of the transferability of the at-sea catch history assignments (Agenda Item I.5.b, Supplemental NMFS Report). NMFS also intends to provide a schedule of trawl rationalization-related rulemakings, including the ANPR and rulemakings in response to the court order, in Agenda Item I.4.c, NMFS Draft Rulemaking Plan.

At this meeting, working from the range of alternatives provided by NMFS, the Council should decide on the alternatives to be analyzed and brought back to the Council for selection of a preliminary preferred alternative at the June 2012 Council meeting. As part of the scoping on this issue, the Council should also highlight potential impacts and other criteria that need to be covered in the analysis of alternatives.

Council Action:

1. **Identify preliminary alternatives responsive to litigation requiring reconsideration of the allocation of catch shares for the shoreside and mothership whiting fisheries.**
2. **Provide other guidance and direction on analysis criteria, as appropriate.**

Reference Materials:

1. Agenda Item I.5.a, Attachment 1: February 29, 2012 Letter from Frank Lockhart
2. Agenda Item I.5.a, Attachment 2: March 16, 2012 Letter from Frank Lockhart
3. Agenda Item I.5.b, Supplemental NMFS Report. ANPR.

Agenda Order:

a. Agenda Item Overview Jim Seger
b. Reports and Comments of Advisory Bodies and Management Entities
c. Public Comment
d. **Council Action**: Consider Preliminary Alternatives Responsive to Litigation Requiring Reconsideration of the Allocation of Catch Shares for the Shoreside and Mothership Whiting Fisheries

PFMC
03/16/12

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Sustainable Fisheries Division F/NWR2
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Agenda Item I.5.a
Attachment 1
April 2012

FEB 29 2012

Mr. Dan Wolford, Chairman
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, Oregon 97220-1384

Dear Mr. Wolford:

As you are aware, on February 21, 2012, Judge Henderson issued the remedy order in Pacific Dawn, LLC v. Bryson, No. C10-4829 THE (N.D. Cal.). The Order remands the regulations addressing the initial allocation of whiting for the shorebased individual fishing quota (IFQ) fishery and the at-sea mothership fishery "for further consideration" consistent with the court's December 22, 2011 summary judgment ruling, the Magnuson-Stevens Fishery Conservation and Management Act (MSA), and all other governing law. Further, the Order requires that the National Marine Fisheries Service (NMFS) implement revised regulations before the 2013 Pacific whiting fishing season begins on April 1, 2013. In the interim, the existing regulations remain in effect.

Judge Henderson, in response to plaintiffs' suggestion that revised regulations could be adopted by emergency action under the MSA, noted that the agency, on remand "should consider whether use of this mechanism is appropriate." NMFS does not believe that use of the emergency authority of the MSA is appropriate in this situation. As stated in the Policy Guidelines on the Use of Emergency Rules, generally controversial actions with serious economic effects should not be taken pursuant to emergency authority. Further, we do not believe that the immediate benefits of an emergency rulemaking in this situation outweigh the value of advance notice, public comment, and deliberative consideration. *See* 62 Fed. Reg. 44,421-22 (August. 21, 1997).

By this letter, NMFS requests that the Pacific Fishery Management Council (Council) initiate the reconsideration of the initial allocations for quota share (QS) of whiting in the shorebased IFQ fishery and for whiting catch history assignments in the at-sea mothership fishery. An important step in this reconsideration is revising the Council's current agenda by scheduling the appropriate items for the April, June, and September meetings. The Council will also need to commit to submission of any revised recommendations to the agency as soon as practicable following the September Council meeting.

NMFS will also need to revise its workplan over the coming months and commit to helping the Council work through the additional workload, as follows.

Given the limited amount of time available, and in order to facilitate the Council's reconsideration of the issues, for the April meeting, NMFS will provide the Council with what we believe is an appropriate range of alternatives for reconsideration.

In addition, NMFS intends to publish an Advanced Notice of Proposed Rulemaking (ANPR) to inform the public of the Court Order and the schedule that the Council and NMFS intend to follow to comply with the Court Order. In the ANPR, we will advise the public of the appropriate process to correct data that may be used for initial allocation; this process will be similar to that undertaken in early 2010 prior to the implementation of the trawl rationalization program. In the ANPR, we will also highlight the relevant aspects of the trawl rationalization program that may need to be suspended or adjusted, including the issues identified below.

NMFS has preliminarily concluded that, pending the reconsideration of the initial whiting allocation, it is necessary to initiate a rulemaking to delay at least two elements of the existing regulations—

1) Transfer of QS or Individual Bycatch Quota (IBQ) between QS accounts[§ 660.140(d)(3)(ii)(B)(2)]; this rule would need to be completed before at least December 1, 2012, and;
2) the ability to change mothership catcher vessel (MS/CV) endorsement and associated catch history assignment from one limited entry trawl permit to another [§ 660.150(g)(2)(iv)]; this rule would need to be completed by at least August 1, 2012.

Delaying these existing regulations is necessary due to the increased complications that would be caused by allowing transfer of QS or MS/CV endorsements, since these are all based on initial whiting allocations which may be subject to change.

Because quota shares for whiting may be revised, on January 1, 2013, NMFS may need to hold back sufficient quota pounds for whiting and all associated bycatch species in order for QS holders to receive the appropriate final amounts. In addition, for the at-sea mothership fishery, NMFS may need to consider impacts on the processor obligation and coop formation, both of which occur before April 1, 2013. We will work with the Council to consider and address these potential issues, as well as any additional issues that may arise.

We appreciate the Council setting aside the time to discuss these issues at the March meeting.

Sincerely,

Frank Lockhart

Frank D. Lockhart
Assistant Regional Administrator

UNITED STATES DEPARTMENT OF COMMERCE
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Agenda Item I.5.a
Attachment 2
April 2012

MAR 16 2012

Mr. Dan Wolford, Chairman
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, Oregon 97220-1384

Dear Mr. Wolford:

The National Marine Fisheries Service (NMFS) appreciates the prompt consideration of the procedural consequences of the remedy order in Pacific Dawn, LLC v. Bryson, No. C10-4829 TEH at the March 2-7, 2012 meeting of the Pacific Fishery Management Council (Council).

As discussed in our February 29, 2012 letter to you, the order remands the regulations addressing the initial allocation of whiting for the shorebased IFQ fishery and the at-sea mothership fishery "for further consideration" consistent with the court's December 22, 2011 summary judgment ruling, the Magnuson-Stevens Fishery Conservation and Management Act (MSA), and all other governing law.

In that same letter, NMFS committed to providing the Council a potential range of alternatives for reconsideration that NMFS believes is appropriate. They are listed in the table below, with an explanation of our rationale for including these alternatives. While NMFS believes it is important for the Council to consider the full range of years contained within these alternatives, the Council is free to consider additional alternatives within this range, provided there is sufficient rationale.

Initial Allocation Group	Years used for Allocation formula			
	Alternative 1: Status Quo	Alternative 2: 2003 Only	Alternative 3: 2007	Alternative 4: 2010
Shoreside Harvesters	1994 through 2003	1994 through 2003	1994 through 2007	1994 through 2010
Shoreside Whiting Processors	1998 through 2004	1998 through 2003	1998 through 2007	1998 through 2010
Mothership Catcher Vessels	1994 through 2003	1994 through 2003	1994 through 2007	1994 through 2010

Alternative 1: Status Quo

Rationale for inclusion: Reconsidering the initial allocation of whiting for the shorebased IFQ and the at-sea mothership sectors requires an analysis of the status quo, or "no action" alternative to serve as a baseline from which to judge the impacts of the action alternatives. A comparison of the status quo and the action alternatives will help ensure that any outcome of the reconsideration complies with the MSA, the court's order, and other applicable law.

Alternative 2: 2003 Only

Rationale for inclusion: The Court's December 22, 2011 Summary Judgment Order found that the administrative record failed to provide an adequate rationale for extending the qualifying period to 2004 for processors. Accordingly, NMFS recommends analyzing an alternative that limits the years for the initial allocation of whiting to the original control date of 2003 for processors as well as harvesters.

Alternative 3: 2007

Rationale for inclusion: An alternative that explores using history through 2007 would allow the Council and NMFS to thoroughly assess whether basing initial whiting allocations on an intermediary time period that ends after the control date, but before the implementation of the trawl catch share program, would result in fair and equitable allocations in light of conditions in the fishery at that time. The Council took final action on the trawl rationalization program in 2008, and 2007 was the last full year of fishing prior to the Council's decision.

Alternative 4: 2010

An alternative of 2010 would allow the Council and NMFS to incorporate all history prior to the 2011 start date of the trawl catch share program.

Ultimately, NMFS believes that analyzing the range of alternatives described above will allow the Council to determine fair and equitable allocations of whiting in the shorebased IFQ and at-sea mothership sectors, including consideration of the factors enumerated in Section 303A(c)(5) of the MSA, [1] National Standard 4, the Court's order, and other applicable law.

Sincerely,

Frank Lockhart

Frank D. Lockhart
Assistant Regional Administrator

[1] Section 303A(c)(5) of the MSA states that when developing a limited access privilege program, the Council and NMFS must consider the following to ensure fair and equitable initial allocations: (1) current and historical harvest; (2) employment in the harvesting and processing sectors; (3) investments in, and dependence upon, the fishery and; (4) the current and historical participation of fishing communities. 16 USC § 1853a(c)(5).

Agenda Item I.5.a
Supplemental Attachment 3
April 2012

**GUIDANCE FOR MAKING ALLOCATION DECISIONS
RELATED TO CATCH SHARES**

This document contains guidance on allocation issues that the Council should take into account in its reconsideration of the quota share allocations for the shorebased whiting fishery and the catch history allocations to catcher vessel permits the mothership whiting fishery. The guidance is drawn from the Magnuson Stevens Act (MSA), related NOAA/NMFS guidance, and the groundfish FMP.

Contents

MSA

MSA § 303(b)(6) 16 U.S.C. § 1853(b)(6)

> **[**Any FMP may] establish a limited access system for the fishery in order to achieve optimum yield if, in developing such a system, the Council and the Secretary take into account—
> (A) present participation in the fishery;
> (B) historical fishing practices in, and dependence on, the fishery;
> (C) the economics of the fishery;
> (D) the capability of fishing vessels used in the fishery to engage in other fisheries;
> (E) the cultural and social framework relevant to the fishery and any affected fishing communities;
> (F) the fair and equitable distribution of access privileges in the fishery; and
> (G) any other relevant considerations

The phrase "take into account" means only that the council and NMFS must consider the factors listed in section 303(b)(6) and must balance the factors against each other and against any other relevant considerations. *Sea Watch Int'l v. Mosbacher*, 762 F. Supp. 370, 379 (D.D.C. 1991).

MSA § 303A—LIMITED ACCESS PRIVILEGE PROGRAMS - 16 U.S.C. §1853a

(c)(5) ALLOCATION.—In developing a limited access privilege program to harvest fish a Council or the Secretary shall—

(A) **establish procedures to ensure fair and equitable initial allocations, including consideration of—**

(i) current and historical harvests;

(ii) employment in the harvesting and processing sectors;

(iii) investments in, and dependence upon, the fishery; and

(iv) the current and historical participation of fishing communities;

(B) consider the basic cultural and social framework of the fishery, especially through…

(C) include measures to assist, when necessary and appropriate, entry-level…

(D) ensure that limited access privilege holders do not acquire and excessive share…

(E) authorize limited access privileges to harvest fish to be held, acquired, used by, or issued under the system to persons who substantially participate in the fishery, including in specific sector of such fishery, as specified by the Council.

MSA National Standards

An allocation must be consistent with:

National Standard 2: Conservation and management measures shall be based on the best scientific information available.

National Standard 4: Conservation and management measures shall not discriminate between residents of different States. **If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocations shall be (A) fair and equitable to all such fishermen**; (B) reasonably calculated to promote conservation; and (C) carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

National Standard 8: Conservation and management measures shall, consistent with the conservation requirements of this Act…take into account the importance of fishery resources to fishing communities by utilizing economic and social data that meet the requirements of paragraph (2), in order to (AP provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.

Agency Guidance

National Standard Guidelines

600.325 National Standard 4 – Allocations

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(c)(2) ***Analysis of allocations.*** Each FMP should contain a description and analysis of the allocations existing in the fishery and of those made in the FMP. The effects of eliminating an existing allocation system should be examined. Allocations schemes considered but rejected by the Council, should be included in the discussion. The analysis should relate the recommended allocations to the FMP's objectives and OY specification, and discuss the factors listed in (c)(3) of this section.

(c)(3) ***Factors in making allocations.*** An allocation of fishing privileges must be fair and equitable, must be reasonably calculated to promote conservation, and must avoid excessive shares. These tests are explained in paragraphs (c)(3)(i) though (c)(3)(iii) of this section.

(i) ***Fairness and equity***.

(A) An allocation of fishing privileges should be rationally connected to the achievement of OY or with the furtherance of legitimate FMP objectives. Inherent in an allocation is the advantaging of one group to the detriment of another. The motive for making a particular allocation should be justified in terms of the objectives of the FMP; otherwise, the disadvantaged user groups would suffer without cause. For example, an FMP objective to preserve the economic status quo cannot be achieved by excluding a group of longtime participants in the fishery. On the other hand, there is a rational connection between an objective of harvesting shrimp at their maximum size and closing a nursery area to trawling.

(B) An allocation may impose a hardship on one group if it is outweighed by the total benefit received by another group or groups. An allocation need not preserve the status quo in the fishery to qualify as "**fair and equitable,**" if a restructuring of fishing privileges would maximize overall benefits. The Council should make an initial estimate of the relative benefits and hardships imposed by the allocation, and compare its consequences with those of alternative allocation schemes, including the status quo. Where relevant, judicial guidance and government policy concerning the rights of treaty Indians and aboriginal Americans must be considered in determining whether an allocation is fair and equitable.

(ii) ***Promotion of conservation.*** Numerous methods of allocating fishing privileges are considered “conservation and management” measures under 303 of the Magnuson-Stevens Act. An allocation scheme may promote conservation by encouraging a rational, more easily managed use of the resource. Or, it may promote conservation (in the sense of wise use) by optimizing the yield in terms of size, value, market mix, price, or economic or social benefit of the product. To the extent that rebuilding plans or other conservation and management measures that reduce the overall harvest in a fishery are necessary, any harvest restrictions or recovery benefits must be allocated fairly and equitably among the commercial, recreational, and charter fishing sectors of the fishery.

(iii) ***Avoidance of excessive shares*.** An allocation scheme must be designed to deter any person or other entity from acquiring an excessive share of fishing privileges, and to avoid creating conditions fostering inordinate control, by buyers or sellers, that would not otherwise exist.

(iv) ***Other factors.*** In designing an allocation scheme, a Council should consider other factors relevant to the FMP’s objectives. Examples are economic and social consequences of the scheme, food production, consumer interest, dependence of the fishery by present participants and coastal communities, efficiency of various types of gear used in the fishery, transferability of effort to and impact on other fisheries, opportunity for new participants to enter the fishery, and enhancement of opportunities for recreational fishing.

§ 600.345 National Standard 4—Communities.

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(b)(2) This standard does not constitute a basis for allocating resources to a specific fishing community nor for providing preferential treatment based on residence in a fishing community.

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(c)(3)To address the sustained participation of fishing communities that will be affected by management measures, the analysis should first identify affected fishing communities and then assess their differing levels of dependence on and engagement in the fishery being regulated. The analysis should also specify how that assessment was made. The best available data on the history, extent, and type of participation of these fishing communities in the fishery should be incorporated into the social and economic information presented in the FMP. The analysis does not have to contain an exhaustive listing of all communities that might fit the definition; a judgment can be made as to which are primarily affected. The analysis should discuss each alternative’s likely effect on the sustained participation of these fishing communities in the fishery.

(4) The analysis should assess the likely positive and negative social and economic impacts of the alternative management measures, over both the short and the long term, on fishing communities. Any particular management measure may economically benefit some communities while adversely affecting others. Economic impacts should be considered both for individual communties and for the group of all affected communities identified in the FMP….

(5) A discussion of social and economic impacts should identify those alternatives that would minimize the adverse impacts on those fishing communities within the constraints of conservation and management goals of the FMP, other national standards, and other applicable law.

NOAA Guidance on LAPP Programs

Selected portions relevant to the "reconsideration of the qualifying time periods for the initial allocations of whiting" from *The Design And Use Of Limited Access Privilege Programs*, NOAA Technigcal Memoradum NMFS-F/SPO-86, November 2007

> **In summary, the allocations must be fair and equitable and they should consider the cultural and social framework of the fishery**. However, given the use of term "including consideration of" there is some allowable flexibility beyond the four required considerations in determining exactly how the harvest privileges will be distributed. The discussion here will not attempt to list all of the things that cannot be done other than to say any distribution that showed blatant favoritism or utter disregard to the "fair and equitable" standard in the law would likely not be approved nor would it withstand legal challenge. Similarly there will be no attempt to make a list of all the permissible procedures or formulae that could be used. Rather the discussion will focus on procedures and lessons learned. The goal will be to assist the Councils as they use their ingenuity and inventiveness to develop allocation procedures that support their objectives, taking into account the recent changes in the Act.
>
> The initial allocation task can be broken down into two parts.[7] Note however that the material under (B) has more to do with restrictions on the use of the harvesting privilege than it does with initial allocation, but the two are related. First, it is necessary to select the pool of entities that will be eligible to receive harvest privileges. The basics of this step have already been discussed in the section on "Eligibility." It is possible however, that the pool of potential recipients can be a subset of those who are qualified to own privileges. The Council may approve of certain types of entities being able to acquire privileges in the open market, but may feel that they do not merit an initial allocation. Congress has placed RFAs in this category.
>
> The second step is to determine how the privileges will be distributed among those in the designated pool. Under the reauthorized MSA, there are two ways that this can be accomplished. As has been done in the past, the privileges can be given away according to specified allocation formulae. It is also possible to use auctions to sell the initial privileges as long as the auctions are constrained such that they meet the "fair and equitable" standards specified in the Act. If auctions are to be used, they would be most appropriate in traditional IFQ programs, but Councils may also wish to use them in more general LAP programs as well. The two possible ways of allocating the privileges will be discussed in turn. The revised MSA also allows rent collection with formula-based allocations, and this will be treated in a separate section.

B. Free Formula-Based Allocations

There are literally an infinite number of allocation formulae that are acceptable under the MSA. It is possible, however, to list some of the attributes upon which the formulae can be based. In the IFQ programs that have already been adopted under the MSA, the attributes were related to various aspects of participation in the fishery, primarily catch, capital investment, and number of years fished over a reference period.

In response to suggestions to expand the pool of eligible recipients that lead to some of the most recent revisions in the Act, characteristics of entities have become other attributes to consider. Examples are size, ownership characteristic (owner-operated), and operating location of the firm, various measures of dependence on the fishery including percent of revenue or opportunities to participate in other fisheries, and inter-relations with other fishery related business especially with respect to employment.

The participation attributes, though not without controversy, are relatively easy to handle both conceptually and with respect to data availability. For example, in the surf clam and ocean quahog program, the allocation formula was based on a weighted average of a relative catch index and a relative investment index. Working with characteristic attributes will likely be a different story. Coming up with appropriate measures of the specific characteristics that can be calculated given existing or readily available data, and then using several of them to come up with an actual allocation formula will be more difficult. Nonetheless it is a task that will have to be accomplished by those Councils who choose to broaden the potential range of eligible entities.

The following discussion starts of with a consideration of the relatively easy participation attributes in the context of traditional IFQ fisheries. Using that as a base, the discussion will turn to a preliminary assessment of the consideration of both types of attributes in the context of more general LAP programs.

Traditional IFQ Programs.

If the eligible group is restricted to vessel owners, the allocation formula could be based on equal shares (for all individuals satisfying some minimum requirements), vessel size, catch history, the number of consecutive years of participation in the fishery, or some combination of two or more of these factors. One problem with equal shares is that part-timers will have their relative shares increased, and highliners (those who have historically accounted for a disproportionate share of the landings) will be brought down to the level of the average fisherman. If the eligible group also includes crew members, it might be difficult to use catch histories for logistic reasons (turnover rates of crew are high and there may be no records of who was on which boat when catches were taken). Allocations to crew members could be based on either equal shares or the number of years of participation in the fishery or both.

If both vessel owners and crew members are considered to be eligible to receive an initial allocation, it would probably be necessary to include several of the above categories in the allocation formula. For example, 30 percent of the total quota could be divided equally among all eligible parties, 30 percent could be divided on the basis of the number of years of full-time participation in the fishery, and 40 percent could be split among vessel owners on the basis of vessel size. Strategies of this nature (with the percentages split out differently) should be explored with the industry as alternatives to strategies that rely on catch histories especially where catch documentation is weak or missing. An alternative that avoids the necessity of deriving an allocation formula is to use a lottery system.

Identified options for allocations:

1. Allocate shares equally among eligible recipients.
2. Allocate shares on the basis of vessel size.
3. Allocate shares on the basis of catch histories.
4. Allocate shares on the basis of historical participation.
5. Use a lottery to allocate shares.
6. Allocate shares using combinations of two or more of the above.

General LAP Programs.

There is little new in the above discussion for those individuals who have watched the current IFQ programs being developed. It is all second nature. However, to consider how to approach more complicated cases where LAPs are given to both traditional recipients and to FCs and may be available for purchase by RFAs, it will be useful to go back and recreate the mental process through which the above potential options were developed.

Given the laws and accepted views on who were potential recipients, historically the main concern was to set up an allocation that would change the fishery from the *status quo* to an IFQ fishery with a minimum disruption of the current distribution between the recipients. When that was the goal, the question became what sorts of things could be used to quantitatively compare allocations among the potential recipients? Looking at participation characteristics was a good way to do this. Catch histories are a way to compare the relative success of various participants. Comparing the financial investments shows, albeit imperfectly, relative commitments to a fishery, and at the same time, relative differences in amounts that will have to be earned to support the capital equipment. It is interesting to note that the two measures will provide different rankings. A smaller older boat operated by a high-liner could have a very good catch record but could be way low on the financial investment ladder. Which measure is best? That is a judgment call. At the same time, others may not like either of these measures and would argue for years of participation. Finally, others would suggest that the notion of maintaining the existing distribution is not appropriate and would argue for an equal distribution. The allocation formulae actually used in U.S IFQ programs were usually based on more than one of these measures (see the initial allocation entries in the LAP Program Spotlights in Appendix 1).

Consider now the problem of coming up with an allocation formula or procedure for a more general LAP program. It would certainly be permissible to use the same type of measures that have been used in IFQ programs. However, such measures may miss some of the elements or issues that are being addressed by allowing FCs to receive harvesting privileges. It may be possible to correct for this by only using a subset of the measures or to use different weights to make weighted averages.

If Councils want to do more, it may be useful to go through the same type of exercise as described above. For example, what are the motivations for choosing to use a RFA-type organization in a particular case? Assume that it is the ability to look at the full range of fishery related businesses including processing, supply companies, and downstream marketers. In that case it will be necessary to find some measures that capture the specific issues that are being addressed, and can be quantitatively measured. Some possibilities include total employment, employees per unit of fish, percentage of net revenue that remains in the area, etc. The final step would be to turn these measures into an allocation formula. This is but one example of many options, and simply demonstrates a process that the Councils can use to expand the standard ways of calculating allocation formula if they choose to do so.

It would also be possible to use different types of formulae within the general LAP program. The Council may split the TAC into two parts and allocate one part as IFQs according to more or less traditional methods and allocate the second part to other entities with other methods.

Even with this vast array of choices, it is probably impossible to devise a system that will be perceived as equally fair by all eligible entities. To improve the perceived fairness it would be essential for the Council to repeatedly consult with the members of the selected pool and the broader suite of stakeholders.

FMP Goals, Objectives, and Guidance on Allocations

The guidelines for National Standard 4 state with respect to analysis of allocation

> **"The analysis should relate the recommended allocations to the FMP's objectives and OY specification ...." 600.325(c)(2)**

To that end, the Council FMP goals and objectives and the goals and objectives for Amendment 20 are provided here.

Section 2.1 Goals and Objectives for Managing the Pacific Coast Groundfish Fishery

The Council is committed to developing long-range plans for managing the Washington, Oregon, and California groundfish fisheries that will promote a stable planning environment for the seafood industry, including marine recreation interests, and will maintain the health of the resource and environment. In developing allocation and harvesting systems, the Council will give consideration to maximizing economic benefits to the United States, consistent with resource stewardship responsibilities for the continuing welfare of the living marine resources. Thus, management must be flexible enough to meet changing social and economic needs of the fishery as well as to address fluctuations in the marine resources supporting the fishery. The following goals have been established in order of priority for managing the west coast groundfish fisheries, to be considered in conjunction with the national standards of the Magnuson-Stevens Act.

Management Goals

Goal 1 - Conservation. Prevent overfishing and rebuild overfished stocks by managing for appropriate harvest levels and prevent, to the extent practicable, any net loss of the habitat of living marine resources.

Goal 2 - Economics. Maximize the value of the groundfish resource as a whole.

Goal 3 - Utilization. Within the constraints of overfished species rebuilding requirements, achieve the maximum biological yield of the overall groundfish fishery, promote year-round availability of quality seafood to the consumer, and promote recreational fishing opportunities.

Objectives. To accomplish these management goals, a number of objectives will be considered and followed as closely as practicable:

Conservation

Objective 1. Maintain an information flow on the status of the fishery and the fishery resource which allows for informed management decisions as the fishery occurs.

Objective 2. Adopt harvest specifications and management measures consistent with resource stewardship responsibilities for each groundfish species or species group. Achieve a level of harvest capacity in the fishery that is appropriate for a sustainable harvest and low discard rates, and which results in a fishery that is diverse, stable, and profitable. This reduced capacity should lead to more effective management for many other fishery problems.

Objective 3. For species or species groups that are overfished, develop a plan to rebuild the stock as soon as possible, taking into account the status and biology of the stock, the needs of fishing communities, recommendations by international organizations in which the United States participates, and the interaction of the overfished stock within the marine ecosystem.

Objective 4. Where conservation problems have been identified for non-groundfish species and the best scientific information shows that the groundfish fishery has a direct impact on the ability of that species to maintain its long-term reproductive health, the Council may consider establishing management measures to control the impacts of groundfish fishing on those species. Management measures may be imposed on the groundfish fishery to reduce fishing mortality of a non-groundfish species for documented conservation reasons. The action will be designed to minimize disruption of the groundfish fishery, in so far as consistent with the goal to minimize the bycatch of non-groundfish species, and will not preclude achievement of a quota, harvest guideline, or allocation of groundfish, if any, unless such action is required by other applicable law.

Objective 5. Describe and identify EFH, adverse impacts on EFH, and other actions to conserve and enhance EFH, and adopt management measures that minimize, to the extent practicable, adverse impacts from fishing on EFH.

Economics

Objective 6. Within the constraints of the conservation goals and objectives of the FMP, attempt to achieve the greatest possible net economic benefit to the nation from the managed fisheries.

Objective 7. Identify those sectors of the groundfish fishery for which it is beneficial to promote year-round marketing opportunities and establish management policies that extend those sectors fishing and marketing opportunities as long as practicable during the fishing year.

Objective 8. Gear restrictions to minimize the necessity for other management measures will be used whenever practicable. Encourage development of practicable gear restrictions intended to reduce regulatory and/or economic discards through gear research regulated by EFP.

Utilization

Objective 9. Develop management measures and policies that foster and encourage full utilization (harvesting and processing), in accordance with conservation goals, of the Pacific Coast groundfish resources by domestic fisheries.

Objective 10. Recognize the multispecies nature of the fishery and establish a concept of managing by species and gear or by groups of interrelated species.

Objective 11. Develop management programs that reduce regulations-induced discard and/or which reduce economic incentives to discard fish. Develop management measures that minimize bycatch to the extent practicable and, to the extent that bycatch cannot be avoided, minimize the mortality of such bycatch. Promote and support monitoring programs to improve estimates of total fishing-related mortality and bycatch, as well as those to improve other information necessary to determine the extent to which it is practicable to reduce bycatch and bycatch mortality.

Social Factors.

Objective 12. When conservation actions are necessary to protect a stock or stock assemblage, attempt to develop management measures that will affect users equitably.

Objective 13. Minimize gear conflicts among resource users.

Objective 14. When considering alternative management measures to resolve an issue, choose the measure that best accomplishes the change with the least disruption of current domestic fishing practices, marketing procedures, and the environment.

Objective 15. Avoid unnecessary adverse impacts on small entities.

Objective 16. Consider the importance of groundfish resources to fishing communities, provide for the sustained participation of fishing communities, and minimize adverse economic impacts on fishing communities to the extent practicable.

Objective 17. Promote the safety of human life at sea.

[Amended; 7, 11, 13, 16-1, 18, 16-4]

FMP Allocational Guidelines

Section 6.2.3 Non-biological Issues—The Socioeconomic Framework

From time to time, non-biological issues may arise that require the Council to recommend management actions to address certain social or economic issues in the fishery. Resource allocation, seasons, or landing limits based on market quality and timing, safety measures, and prevention of gear conflicts make up only a few examples of possible management issues with a social or economic basis. In general, there may be any number of situations where the Council determines that management measures are necessary to achieve the stated social and/or economic objectives of the FMP.

Either on its own initiative or by request, the Council may evaluate current information and issues to determine if social or economic factors warrant imposition of management measures to achieve the Council's established management objectives. Actions that are permitted under this framework include all of the categories of actions authorized under the points of concern framework with the addition of direct resource allocation.

If the Council concludes that a management action is necessary to address a social or economic issue, it will prepare a report containing the rationale in support of its conclusion. The report will include the proposed management measure, a description of other viable alternatives considered, and an analysis that addresses the following criteria: (a) how the action is expected to promote achievement of the goals and objectives of the FMP; (b) likely impacts on other management measures, other fisheries, and bycatch; (c) biological impacts; (d) economic impacts, particularly the cost to the fishing industry; (e) impacts on fishing communities; and (f) how the action is expected to accomplish at least one of the following, or any other measurable benefit to the fishery:

1. Enable a quota, HG, or allocation to be achieved.
2. Avoid exceeding a quota, HG, or allocation.
3. Extend domestic fishing and marketing opportunities as long as practicable during the fishing year, for those sectors for which the Council has established this policy.
4. Maintain stability in the fishery by continuing management measures for species that previously were managed under the points of concern mechanism.
5. Maintain or improve product volume and flow to the consumer.
6. Increase economic yield.
7. Improve product quality.
8. Reduce anticipated bycatch and bycatch mortality.
9. Reduce gear conflicts, or conflicts between competing user groups.
10. Develop fisheries for underutilized species with minimal impacts on existing domestic fisheries.
11. Increase sustainable landings.
12. Reduce fishing capacity.
13. Maintain data collection and means for verification.
14. Maintain or improve the recreational fishery.

The Council, following review of the report, supporting data, public comment, and other relevant information, may recommend management measures to the NMFS Regional Administrator accompanied by relevant background data, information, and public comment. The recommendation will explain the urgency in implementing the measure(s), if any, and reasons therefore.

The NMFS Regional Administrator will review the Council's recommendation, supporting rationale, public comments, and other relevant information, and, if it is approved, will undertake the appropriate method of implementation. Rejection of the recommendation will be explained in writing.

The procedures specified in this chapter do not affect the authority of the Secretary to take emergency regulatory action as provided for in Section 305(c) of the Magnuson-Stevens Act if an emergency exists involving any groundfish resource, or to take such other regulatory action as may be necessary to discharge the Secretary's responsibilities under Section 305(d) of the Magnuson-Stevens Act.

If conditions warrant, the Council may designate a management measure developed and recommended to address social and economic issues as a routine management measure, provided that the criteria and procedures in Section 6.2.1 are followed.

Quotas, including allocations, implemented through this framework will be set for one-year periods and may be modified inseason only to reflect technical corrections to an

ABC. (In contrast, quotas may be imposed at any time of year for resource conservation reasons under the points of concern mechanism.)

Section 6.3.1 Allocation Framework

Allocation is the apportionment of an item for a specific purpose or to a particular person or group of persons. Allocation of fishery resources may result from any type of management measure, but is most commonly a numerical quota or HG for a specific gear or fishery sector. Most fishery management measures allocate fishery resources to some degree, because they invariably affect access to the resource by different fishery sectors by different amounts. These allocative impacts, if not the intentional purpose of the management measure, are considered to be indirect or unintentional allocations. Direct allocation occurs when numerical quotas, HGs, or other management measures are established with the specific intent of affecting a particular group's access to the fishery resource.

Fishery resources may be allocated to accomplish a single biological, social or economic objective, or a combination of such objectives. The entire resource, or a portion, may be allocated to a particular group, although the Magnuson-Stevens Act requires that allocation among user groups be fair and equitable, reasonably calculated to promote conservation, and determined in such a way that no group, person, or entity receives an undue excessive share of the resource. The socioeconomic framework described in Section 0 provides criteria for direct allocation. Allocative impacts of all proposed management measures should be analyzed and discussed in the Council's decision-making process.

In addition to the requirements described in Section 0, the Council will consider the following factors when intending to recommend direct allocation of the resource.

1. Present participation in and dependence on the fishery, including alternative fisheries.
2. Historical fishing practices in and historical dependence on the fishery.
3. The economics of the fishery.
4. Any consensus harvest sharing agreement or negotiated settlement between the affected participants in the fishery.
5. Potential biological yield of any species or species complex affected by the allocation.
6. Consistency with the Magnuson-Stevens Act national standards.
7. Consistency with the goals and objectives of the FMP.

The modification of a direct allocation cannot be designated as routine unless the specific criteria for the modification have been established in the regulations.

Amendment 20 Goals and Objectives

Section 1.2.3 Purpose of the Proposed Action

In 2003, the Council established a Trawl Individual Quota Committee (TIQC), which was charged with assisting the Council in identifying the elements of a trawl individual quota program and scoping alternatives and potential impacts of those alternatives in support of the requirements of the MSA and NEPA. At its first meeting in October 2003, the TIQC drafted a set of goals and objectives, which another Council-established committee, the Independent Experts Panel (IEP), subsequently recommended modifying. The Council adopted this list in June 2005, but at their March 2007 meeting, the Council adopted a further revision of the goals and objectives. The participation of the TIQC, the IEP, and other entities in the scoping process is described below in Section 1.6. To pursue the goal thus developed and shown below, the Council considered alternatives that would rationalize the west coast trawl fishery and provide incentives to reduce bycatch, either through an IFQ program for all groundfish LE trawl sectors and/or through cooperatives for the fishery sectors targeting Pacific whiting. Under either alternative, allocations would be made to eligible fishery participants as a privilege to harvest a portion of fish, and not as a property right. Though structurally different, the Council's intention is that both the IFQ and co-op alternatives fulfill the goal of the program.

The following goal objectives outline the purpose of the proposed action:

Goal

Create and implement a capacity rationalization plan that increases net economic benefits, creates individual economic stability, provides for full utilization of the trawl sector allocation, considers environmental impacts, and achieves individual accountability of catch and bycatch.

Objectives

The above goal is supported by the following objectives:

1. Provide a mechanism for total catch accounting.
2. Provide for a viable, profitable, and efficient groundfish fishery.
3. Promote practices that reduce bycatch and discard mortality and minimize ecological impacts.
4. Increase operational flexibility.
5. Minimize adverse effects from an IFQ program on fishing communities and other fisheries to the extent practical.
6. Promote measurable economic and employment benefits through the seafood catching, processing, distribution elements, and support sectors of the industry.
7. Provide quality product for the consumer.
8. Increase safety in the fishery.

Constraints and Guiding Principles

The above goals and objectives should be achieved while the following occurs:

1. Take into account the biological structure of the stocks including, but not limited to, populations and genetics.
2. Take into account the need to ensure that the total OYs and allowable biological catch (ABC) are not exceeded.
3. Minimize negative impactsresulting from localized concentrations of fishing effort.
4. Account for total groundfish mortality.
5. Avoid provisions where the primary intent is a change in marketing power balance between harvesting and processing sectors.
6. Avoid excessive quota concentration.
7. Provide efficient and effective monitoring and enforcement.
8. Design a responsive mechanism for program review, evaluation, and modification.
9. Take into account the management and administrative costs of implementing and oversee the IFQ or co-op program and complementary catch monitoring programs, as well as the limited state and Federal resources available.

GROUNDFISH ADVISORY SUBPANEL REPORT ON RECONSIDERATION OF INITIAL INDIVIDUAL FISHERY QUOTAS IN THE MOTHERSHIP AND SHORESIDE PACIFIC WHITING TRAWL FISHERIES

Mr. Frank Lockhart and Mr. Jim Seger briefed the Groundfish Advisory Subpanel (GAP) on the need to select a range of alternatives to be analyzed based on the recent remedy order in the Pacific Dawn litigation. The GAP believes that the four alternatives described by NMFS in agenda item I.5.a, Attachment 2 encapsulate the broadest possible range, and as such are more than adequate. The only other guidance the GAP offers at this time is that it may be difficult to separate the analysis of allocation from many other program components that were carefully vetted by the Council. As such, the analysis should be careful to describe potential repercussions from other aspects of the program that may arise due to changes in the qualifying years.

PFMC
04/04/12

Market Street, Wilmington, DE 19898, requests to establish a tolerance in 40 CFR part 180 for residues of the chlorantraniliprole, 3-bromo-*N*-[4-chloro-2-methyl-6-[(methylamino)-carbonyl]phenyl]-1-(3-chloro-2-pyridinyl)-1*H*-pyrazole-5-carboxamide, in or on oilseed, rapeseed, subgroup 20A at 2.0 ppm; oilseed, sunflower, subgroup 20B at 2.0 ppm; oilseed, cottonseed, subgroup 20C at 0.3 ppm; soybean, aspirated grain fractions at 300 ppm; vegetable, legume, group 6 at 2.0 ppm; vegetable, foliage of legume, group 7 at 30 ppm; and forage, vegetable, foliage of legume, group 7 at 90 ppm. An analytical residue method has been submitted to EPA which permits determination of trace residues of the parent compound on various food and feed commodities. Contact: Jennifer Urbanski, (703) 347–0156, email address: *urbanski.jennifer@epa.gov.*

Amended Tolerances

1. *PP 1E7951.* (EPA–HQ–OPP–2011–1011). Interregional Research Project Number 4 (IR–4), 500 College Road East, Suite 201 W, Princeton, NJ 08540, requests to amend the tolerances in 40 CFR 180.117 for residues of the herbicide *S* -ethyl dipropylthiocarbamate (EPTC), including its metabolites and degradates, determined by measuring only the sum of *S* -ethyl dipropylthiocarbamate, *S* -ethyl (2-hydroxypropyl) propylcarbamothioate, *S* -(2-hydroxyethyl)dipropylcarbamothioate, and *S* -ethyl (3-hydroxypropyl)propylcarbamothioate, calculated as the stoichiometric equivalent of *S* -ethyl dipropylthiocarbamate, by removing the following established tolerances: Fruit, citrus, group 10 at 0.1 ppm; safflower, seed at 0.08 ppm; and sunflower, seed at 0.08 ppm, as these commodities are included in updated crop groups or subgroups listed under ''New Tolerances'' for PP *1E7951.* Contact: Sidney Jackson, (703) 305–7610, email address: *jackson.sidney@epa.gov.*

2. *PP 1E7958.* (EPA–HQ–OPP–2012–0107). Interregional Research Project Number 4 (IR–4), 500 College Road East, Suite 201 W, Princeton, NJ 08540, requests to amend 40 CFR 180.641 for residues of the insecticide spirotetramat, cis-3-(2,5-dimethlyphenyl)-8-methoxy-2-oxo-1-azaspiro[4.5]dec-3-en-4-yl-ethyl carbonate and its metabolites BYI 08330-enol cis-3-(2,5-dimethylphenyl)-4-hydroxy-8-methoxy-1-azaspiro[4.5]dec-3-en-2-one, BYI 08330-ketohydroxy cis-3-(2,5-dimethylphenyl)-3-hydroxy-8-methoxy-1-azaspiro[4.5]decane-2,4-dione, BYI 08330-enol-Glc cis-3-(2,5-dimethylphenyl)-8-methoxy-2-oxo-1-azaspiro[4.5]dec-3-en-4-yl beta-D-glucopyranoside, and BYI 08330-mono-hydroxy cis-3-(2,5-dimethylphenyl)-4-hydroxy-8-methoxy-1-azaspiro[4.5]decan-2-one, calculated as spirotetramat equivalents, by removing the established tolerances: Onion, bulb, subgroup 3A–07 at 0.30 ppm; fruit, citrus, group 10 at 0.60 ppm; fruit, pome, group 11 at 0.70 ppm; okra at 2.5 ppm; and vegetable, fruiting, group 8 at 2.5 ppm, as they will be superseded by inclusion in updated crop groups or subgroups listed under ''New Tolerances''. Contact: Laura Nollen, (703) 305–7390, email address: *nollen.laura@epa.gov.*

New Tolerance Exemptions

1. *PP 1E7912.* (EPA–HQ–OPP–2012–0014). ICR, Inc., 1330 Dillon Heights Ave, Catonsville, MD on behalf of Triton Systems, Inc., 200 Turnpike Road, Chelmsford, MA 01824, requests to establish an exemption from the requirement of a tolerance for residues of 1,2-Ethanediamine, N1-(2-aminoethyl)-, polymer with 2,4-diisocyanato-1-methylbenzene, with number average molecular weight greater than 10,000 daltons, (CAS No. 35297–61–1) under 40 CFR 180.960 when used as a pesticide inert ingredient microencapsulation in pesticide formulations. The petitioner believes no analytical method is needed because this information is generally not required when all criteria for polymer exemption under 40 CFR 723.250 are met. Contact: Anthony Britten, (703) 308–8179, email address: *britten.anthony@epa.gov.*

2. *PP 1E7938.* (EPA–HQ–OPP–2012–0043). Honeywell International, Inc., 101 Columbia Road, Morristown, NJ 07962–1053, requests to establish an exemption from the requirement of a tolerance for residues of trans-1,3,3,3-tetrafluoroprop-1-ene, (CAS No. 29118–24–9) under 40 CFR 180.910, 180.930, and 180.940 when used as a pesticide inert ingredient propellant in pesticide formulations. The petitioner believes no analytical method is needed because this is a petition for exemption from the requirement of a tolerance. Contact: Lisa Austin, (703) 305–7894, email address: *austin.lisa@epa.gov.*

3. *PP 1F7960.* (EPA–HQ–OPP–2012–0152). Enerfab, Inc., 4955 Spring Grove Avenue, Cincinnati, OH 45232, requests to establish an exemption from the requirement of a tolerance for residues of the antimicrobial gaseous chlorine dioxide, on tomato. EPA Method 300, Ion Chromatography, was used for measuring chlorite and chlorate residues rinsed from surface of produce treated with chlorine dioxide gas. Contact: Jaclyn Carl, (703) 347–0213, email address: *carl.jaclyn@epa.gov.*

Amended Tolerance Exemption

PP 1F7857. (EPA–HQ–OPP–2012–0109). Syngenta Seeds, Inc., Field Crops NAFTA, P.O. Box 12257, 3054 E. Cornwallis Road, Research Triangle Park, NC 27709–2257, requests to amend an exemption from the requirement of a tolerance in 40 CFR 174.532 for residues of the plant-incorporated protectant (PIP), *Bacillus thuringiensis* eCry3.1Ab protein in corn, in or on the food and feed commodities of corn; corn, field; corn, sweet; and corn, pop. The petitioner believes no analytical method is needed because an exemption from the requirement of a tolerance is being sought. However, in response to an Agency request, the Petitioner has submitted an immunoassay method for determination of eCry3.1Ab protein in corn tissues. Contact: Mike Mendelsohn, (703) 308–8715, email address: *mendelsohn.mike@epa.gov.*

List of Subjects in 40 CFR Parts 174 and 180

Environmental protection, Agricultural commodities, Feed additives, Food additives, Pesticides and pests, Reporting and recordkeeping requirements.

Dated: March 16, 2012.

Lois Rossi,

Director, Registration Division, Office of Pesticide Programs.

[FR Doc. 2012–8095 Filed 4–3–12; 8:45 am]

BILLING CODE 6560–50–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 660

[Docket No. 120312181–2228–01]

RIN 0648–BC00 and 0648–BC01

Fisheries Off West Coast States; Pacific Coast Groundfish Fishery; Advance Notice of Proposed Rulemaking Regarding the Reconsideration of the Allocation of Whiting

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Advance notice of proposed rulemaking; request for comments.

SUMMARY: A court order issued February 21, 2012, remands for agency reconsideration the regulations addressing the initial allocation of whiting for the shorebased individual fishing quota (IFQ) fishery and the at-sea mothership fishery of the Pacific Coast Groundfish Trawl Rationalization Program (Program) and requires that NMFS implement revised regulations before the 2013 Pacific whiting fishing season begins on April 1, 2013. The purpose of this advanced notice of proposed rulemaking (ANPR) is to announce that the Pacific Fishery Management Council (Council) will be reconsidering the initial allocation of whiting at its April, June, and September 2012 meetings, and that NMFS is considering two rulemakings in response to the court order. The affected public should be aware of potential reallocation of whiting, as well as potential reallocation of a portion of the initial allocation of Quota Share (QS) for some incidentally caught, nonwhiting species. Additionally, this ANPR announces that the affected public should review, and if necessary, correct their data, which may be used for reconsideration and any reallocation that may occur.

DATES: Comments on this ANPR must be received no later than 5 p.m., local time on May 4, 2012.

ADDRESSES: You may submit comments on this document, identified by NOAA–NMFS–2012–0062, by any of the following methods:

- *Electronic Submissions:* Submit all electronic public comments via the Federal e-Rulemaking Portal, at *http://www.regulations.gov.* To submit comments via the e-Rulemaking Portal, first click the ''submit a comment'' icon, then enter NOAA–NMFS–2012–0062 in the keyword search. Locate the document you wish to comment on from the resulting list and click on the ''Submit a Comment'' icon on the right of that line.
- *Fax:* 206–526–6736; Attn: Ariel Jacobs.
- *Mail:* William W. Stelle, Jr., Regional Administrator, Northwest Region, NMFS, 7600 Sand Point Way NE., Seattle, WA 98115–0070; Attn: Ariel Jacobs.

Instructions: All comments received are a part of the public record and will generally be posted to *http://www.regulations.gov* without change. All Personal Identifying Information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly accessible. Do not submit Confidential Business Information or otherwise sensitive or protected information. NMFS will accept anonymous comments (if submitting comments via the Federal e-Rulemaking portal, enter ''N/A'' in the relevant required fields if you wish to remain anonymous). Attachments to electronic comments will be accepted in Microsoft Word or Excel, WordPerfect, or Adobe PDF file formats only.

FOR FURTHER INFORMATION CONTACT: Ariel Jacobs, 206–526–4491; (fax) 206–526–6736; *Ariel.Jacobs@noaa.gov.*

SUPPLEMENTARY INFORMATION:

Background

On February 21, 2012, Judge Henderson issued a court order in *Pacific Dawn, LLC* v. *Bryson,* No. C10–4829 TEH (N.D. Cal.). The court order remands the regulations addressing the initial allocation of whiting for the shorebased IFQ fishery and the at-sea mothership fishery ''for further consideration'' consistent with the court's December 22, 2011, summary judgment ruling, the Magnuson-Stevens Fishery Conservation and Management Act (MSA), and all other governing law. Further, the court order requires that NMFS implement revised regulations before the 2013 Pacific whiting fishing season begins on April 1, 2013. In the interim, the existing regulations remain in effect, unless suspended or revised by NMFS.

In light of the court order, the Council will be reconsidering the initial allocation of whiting at its April, June, and September 2012 meetings. The Council is scheduled to select a range of alternatives at its April meeting, a preliminary preferred alternative at its June meeting, and a final preferred alternative and recommendation to NMFS at its September meeting. Depending on Council recommendations and NMFS actions, some of the nonwhiting QS issued for the shorebased whiting fishery in proportion to the whiting allocations, could also be affected by the reallocation of whiting. Further information regarding the Council meetings may be found at *http://www.pcouncil.org/council-operations/council-meetings/.*

NMFS plans to publish at least two rulemakings in response to the court order, referred to as Reconsideration of the Allocation of Whiting, Rules 1 and 2 (RAW 1 and RAW 2). The rulemaking for RAW 1 would delay at least two elements of the current regulations until reconsideration of the initial allocation has concluded, including the transfer of QS or Individual Bycatch Quota (IBQ) between QS accounts and the ability to change mothership catcher vessel (MS/CV) endorsement and associated catch history assignment from one limited entry trawl permit to another. In addition, NMFS may need to hold back sufficient quota pounds for whiting and all other incidentally caught species from the annual allocation of quota pounds (QPs) to QS accounts made on or about January 1, 2013 in order to allocate the appropriate final amounts based on recalculation of QS allocations. NMFS may also need to consider whether it is necessary to restrict limited entry trawl permit transfers for a period of time during this reconsideration. For the at-sea mothership fishery, NMFS may need to recalculate the whiting catch history assignments which may have an impact on processor obligations and coop formation, both of which occur before April 1, 2013.

In the proposed rule for RAW I, NMFS will announce further details on the process for data review and corrections. As occurred in 2009–2010, prior to the implementation of the current Program, the affected public will be advised to review, and if necessary, correct their data that may be used for initial allocation, or reallocation. NMFS anticipates publishing the proposed rule for RAW 1 in late April, and the final rule in July 2012.

The rulemaking for RAW 2 would take in to account the Council's September 2012 recommendation and reconsideration of the dates used for initial allocation of whiting for the shorebased IFQ and at-sea mothership fisheries. The proposed rule for RAW 2 is scheduled to publish in November 2012, and the final rule in March 2013. This rule would be effective by April 1, 2013, consistent with the court order.

This advance notice of proposed rulemaking has been determined to be not significant for purposes of Executive Order 12866.

Authority: 16 U.S.C. 1801 *et seq.*

Dated: March 29, 2012.

Alan D. Risenhoover,

Acting Deputy Assistant Administrator for Regulatory Programs, National Marine Fisheries Service.

[FR Doc. 2012–8106 Filed 4–3–12; 8:45 am]

BILLING CODE 3510–22–P

NRC
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March 23, 2012

Mr. Dan Wolford, Chairman
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, Oregon 97220-1384

Re: Remedy Alternatives Pacific Dawn, LLC v. Bryson

Dear Chairman Wolford:

Subsequent to my testimony to the Pacific Fishery Management Council (PFMC) on March 3, 2012, regarding the above manner, I have on behalf of the plaintiffs developed suggested remedy alternatives. On March 21, 2012, I met with Kevin Duffy and Mariam McCall at NMFS to discuss the remedy alternatives that I developed as well as NMFS's range of alternatives provided to you in a letter dated March 16, 2012.

In addition to the required "status quo" alternative, I request that alternatives #2 and #3 below with their respective options be approved for analysis by the PFMC. I also request that results of the analysis of alternatives #2 and #3 below be made available to the Council process for further consideration in June 2012 or at a date when the PFMC moves to choose a preferred alternative:

Alternative 1: Status Quo. The "status quo or no action alternative" is not in my opinion consistent with Judge Henderson's Orders but following Council policy this alternative must be included as it provides the base line from which to measure changes that would result from action alternatives.

Alternative 2: History years updated to include recent years for the allocation period as per options below. Update bycatch/overfished species data to match allocation period end date. Increase number of dropped years from two to four.

Option 1 harvesters: 1994-2010
Option 2 harvesters: 1994-2009
Option 3 harvesters: 1994-2008

Option 1 processors: 1998-2010
Option 2 processors: 1998-2009
Option 3 processors: 1998-2008

Alternative 3: For both harvesters and processors, delete oldest history years and add recent history years to provide for an updated decade of harvesting and processing history upon which allocations will be based (most recent decade, a consistent time period). Retain two "drop years". Update bycatch/overfished species data to match the allocation period end date.

Option 1 harvesters and processors: 2001-2010
Option 2 harvesters and processors: 2000-2009
Option 3 harvesters and processors: 1999-2008

I have structured alternatives 2 and 3 with their respective options in a manner that I believe provides for an efficient analysis of harvesting and processing data and that provides alternatives that are reasonable, fair, objective and in keeping with Judge Henderson's Order of 12/22/2011, and his Remedy Order of 02/21/12.

In my reading of Judge Henderson's Order of 12/22/2011, I believe it is most reasonable for us to conclude that a time period of three years between the end of the qualifying period and the promulgation of the regulations "pushes the limits of reasonableness." Accordingly, a period of less than three years between the end of the new qualifying period and the December 2010 date when the final regulations were promulgated by NMFS is likely more reasonable, and in building our alternatives, we should update the history years to conform with the above. Also given Judge Henderson's Order, together with an updated qualification period, I see no reason not to recommend a single cut-off date for harvesters, for processors and for bycatch management purposes. Uniformly utilizing the most recent information across the board, without exception, seems most fair, most objective and would provide the most extensive and the best scientific information for management of bycatch.

From Judge Henderson's ORDER ON REMEDY, some remedy concepts were sited from both plaintiffs and from defendants. These concepts first point to the adding of recent history years to the existing history years providing an extended history period and adding additional "drop years". The second concept addresses deleting early history years and adding recent history years resulting in an updated decade of history years for harvesters and processors and for bycatch management. I believe that these concepts are key to selecting remedy alternatives that will meet all requirements and that will stand the test of time. These concepts were important to my drafting of suggested alternatives and their respective options.

Thank you Mr. Chairman for receiving these suggested remedy alternatives and the rationale that I believe is important to having a successful management program.

Sincerely,

NATURAL RESOURCES CONSULTANTS, INC

Steve Hughes

Steve Hughes
President

CC. Frank Lockhart, NMFS
Kevin Duffy, NMFS
Mariam McCall, NMFS
Jim Seger, PFMC

SEADAWN FISHERIES, INC.
P. O. Box 352
Newport, Oregon 97365

March 25, 2012

Mr. Dan Wolford, Chairman
Pacific Fisheries Management Council
7700 NE Ambassador Place, Suite 200
Portland, OR 97220-1384

RE: Agenda Item I.5 Reconsideration of the Initial Individual Fishing Quota Allocation in the Whiting Fishery

Dear Chairman Wolford and Council Members:

I am the managing owner of the 124 foot trawler F/V Seadawn which has been engaged in the Whiting fishery every year (except for 2) beginning in 1990 through 2011. The Seadawn has fished Whiting primarily in the Mothership fishery although it has some history in the Shorebased fishery.

I am writing because I support the Trawl Rationalization Program implemented in 2011 in its entirety. The benefits we achieved in just the first year by slowing down the fishery thereby achieving significant bycatch reduction and increased value of the directed Whiting fishery have been astounding to say the least. Now we are all faced with a court decision as a result of the efforts of a small minority who have asked the court to terminate the Rationalization program, as it relates to Whiting, if they don't get what they want. This program has been remanded to the Council and NMFS for reconsideration.

The Plaintiffs will most likely contend they won something by their efforts in court, but they have won nothing yet. All they have achieved is convincing a judge that the Council and NMFS should reconsider its decision on the years it used to allocate catch shares of Whiting and better explain the rationale for the final decision. It will be up to you, the Council and NMFS, to decide if the Plaintiffs "win" something as a result of their ignoring the control date and increasing their participation after that date.

The Plaintiffs and their attorneys are going to try and give you their version of the law and they are going to contend you must use catch history past the control date to allocate Whiting. I am certain you will ignore their legal ramblings and take your legal advice from the NOAA/NMFS attorneys. NMFS has already given you options for consideration (including status quo), any one of which will stand up in court if adequately supported in the record or they would not be on the list.

The Court did not say the dates the Council used to allocate shares were necessarily unlawful or could not be used, but rather ruled that NMFS did not present a reasonable explanation for relying on the 2003 control date for some purposes and not for others. I believe your attorneys will advise the Council that status quo is still a reasonable option as long as the Council considers all the other alternatives and gives good rational reasons for its final determination. I support status quo or in the alternative changing the date for Processors to 2003 so that the primary inconsistency that concerned the judge is eliminated.

In the final analysis for this process to have integrity, those who played by the rules and respected the control date must not be allowed to end up losers in this process. Additionally, those who callously ignored the Council's control date and continued the race for fish cannot be allowed to benefit by their court action and willingness to throw this entire program under the bus if they don't get what they want.

Sincerely,

Fred A. Yeck

MTC

MIDWATER TRAWLERS COOPERATIVE

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NEWPORT, OREGON
PHONE: 541-265-9317 FAX: 541-265-4557
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Agenda Item I.5
Supplemental Public Comment
April 2012

March 25, 2012

Mr. Dan Wolford, Chairman
Pacific Fisheries Management Council
7700 NE Ambassador Place, Suite 200
Portland, OR 97220-1384

Re: Agenda Item I.5 Reconsideration of the Initial Individual Fishing Quota Allocation in the Whiting Fishery

Dear Chairman Wolford and Council Members:

I'm the President of MTC (Midwater Trawlers Cooperative) myself and MTC members were involved in every step taken in the development and implementation of FMP Amendment 20 and 21. MTC members have participated in both shoreside whiting and mothership whiting for many years, and recognized the need for a rationalized fishery years in advance of amendment 20 and 21. The shoreside whiting harvest had gone from a small fleet in 1991, to overcapacity by 1994, and has struggled with over capacity problems through limited entry and buyback.

MTC was one of the Industry representatives that went to the Council in 2003 asking the Council to begin developing an IQ program. The goals of the trawl IQ were to increase regional and national net benefits including improvements in economic, social, and environmental objectives. And achieve capacity rationalization through market forces and create an environment for decision making that can rapidly and efficiently adjust to changing conditions.

In the infancy of any rationalization program the most continuous element is allocation, and this program was no different. I think the approach taken was very responsible, it was agreed that this programs intent shouldn't be done in a way to harm anyone that had participated in the fishery from limited entry through buyback 1994 – 2003. It was determined that at the time of implementation

David Jincks, President
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those with latent permits having little history, and those looking to retire would be able to leave the fishery with money in their pocket. It was also determined that using a long period of history years would give the ability to capture true dependency, and the historical values to the participants and communities.

The approach to the longstanding capacity issues was to be addressed through consolidation which is consistent in any rationalization program. Consolidation needs to have controls so the full resource doesn't migrate to what's called the deepest pockets of large corporations. To achieve the amount of consolidation and address the capacity issue and not see the accumulation of excessive shares ownership and control caps were developed.

The only non-work period in the IQ development stage was in 2004, this was brought on by a lack of funding and the need to get approval to use outside financing. Once the finance issue was addressed this program was under constant development, ***The work scope is an area that NMFS failed to document to the Judge, the length of time to develop relates directly to the lengthy regulatory process, and time allotted at Council meetings. It was obvious the Judge had no idea of how the Council operates, and the need to manage all other west coast fisheries and issues while developing the largest IQ program ever.***

Throughout the development of this program the consideration of allocating to more recent years was always there. But when recent history was discussed then so was the problem statement and goals of reducing capacity, ***Why would you add more capital to a fishery that was seriously overcapitalized?*** The capacity issues in the whiting fishery magnified when the Bering Sea Pollock stocks started to decline in 2006-09. This brought in new entrants that now had available time to enter the shoreside fishery that ran later in the year. ***Why would you consider recent history allocated to capital from another rationalized fishery that was suffering from loss fishing time, and had now increased the capacity problems in the whiting fishery.***

Drop years was a part of the IQ plan that was included to offset hardships, and a benefit to those with variable history at a cost to consistent participants, tends to level out distribution. ***The plaintiffs in the Pacific Dawn case not only received initial allocation but also benefited from having the ability to drop two worst years.***

Now the Council is faced with a few greedy fishermen and processors that didn't follow the rules of the Federal Register, and now either want compensated or threaten to destroy what took years to

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build. MTC's request of the Council is to work closely with NMFS in analyzing the alternatives prepared by NMFS. It's obvious to us what the outcome will be, seven years of paying attention to detail will show that status quo will be the preferred alternative and the record will prove it.

The record is there, everything the Judge questioned has answers and the truth is well documented unlike that of the plaintiffs and their lawyer.

Throughout the development of this program we were told over and over that we need to take our time and get this right that the eyes of the nation and other countries are watching us. Now it's our turn to say take your time, recreate the record, and show we did it right because the same eyes are still watching.

Thank you for all of your hard work, this program has proven its value in one short year.

Sincerely,

David Jincks
President Midwater Trawlers Cooperative

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March 26, 2012

Via Electronic Mail and Overnight Delivery

Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, Oregon 97220-1384

Re: Comments for Supplemental Briefing Book for March 31-April 6, 2012 Meeting

Dear Sir or Madam:

We are submitting the enclosed materials to be included in the supplemental briefing book for the Pacific Fishery Management Council's March 31-April 6, 2012 meeting, relating to Agenda Item I.5. Enclosed please find:

- Letter dated March 26, 2012 to Dr. Jane Lubchenco from James Walsh re: Remand of *Pacific Dawn LLC et al. v. Bryson*, Case no. C10-4829 THE, including attachment

Thank you for your consideration. Please let me know if you have any questions or would like additional information.

Very truly yours,

Davis Wright Tremaine LLP

James Walsh

James P. Walsh

Enclosure

DWT 19272759v1 0092855-000001

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March 26, 2012

Dr. Jane Lubchenco
Administrator
National Oceanic and Atmospheric Administration
Room 5128
1401 Constitution Avenue, N.W.
Washington, D.C. 20230-0002

Ms. Lois Schiffer
General Counsel
National Oceanic and Atmospheric Administration
1401 Constitution Avenue, N.W.
Washington, D.C. 20230-0002

RE: Remand of *Pacific Dawn LLC, et al. v. Bryson*, Case No. C10-4829 THE; Northern District of California (Judgment entered Feb. 22, 2012)

Dear Dr. Lubchenco and Ms. Schiffer:

Our firm represents fishing vessel owners and processors who have long been active in the Pacific whiting fishery on the West Coast. As you know, your agency approved in 2010 the conversion of the West Coast Pacific Groundfish Fishery to an Individual Fishing Quota (IFQ), or "catch share", Program. The final rule creating this Program was published on October 1, 2010, after completion of the Secretarial Review required by the Magnuson-Stevens Fishery Conservation and Management Act ("Magnuson-Stevens Act"). 75 Fed Reg. 60868 ("Final Rule"); 16 U.S.C. § 1854 (Secretary must determine that Fishery Management Plan ("FMP") is consistent with the national standards, the other provisions of the Act, and other applicable law). The IFQ Program began on January 1, 2011 and IFQ shares were allocated to permitted vessels based on their relative fishing history between 1994 and 2003 and to processing plants based on their relative processing history between 1998 and 2004. All of our clients had significant fishing and processing history in the Pacific whiting fishery after the history cut-off dates contained in the FMP and Final Rule and they successfully challenged the FMP and Final Rule in Federal Court. Judge Thelton Henderson has now remanded the regulations to the National Marine Fisheries Service ("NMFS") for reconsideration. The Pacific Fishery Management

Council is set to begin this "reconsideration" at its meeting on March 31-April 6, 2012 in Seattle, Washington.

We are writing to you because the procedural and substantive "reconsideration" of this very important IFQ Program raises significant legal and policy issues that require clear direction from those in a leadership position in the agency. We believe that the Regional Office of NMFS, which failed to identify and resolve an obvious legal flaw in the FMP and Final Rule during Secretarial Review in 2010, may be unwilling to truly reexamine the reallocation of Pacific whiting IFQ in a complete and responsible manner. We understand that it is the practice of Regional Directors of NMFS not to vote on issues of allocation in FMPs and that they try to be "neutral" with regard to allocation choices relating to IFQ Programs. At this point, we are not certain that the agency is in fact "neutral"; having approved the flawed Program, NMFS officials may retain some allegiance to it. We are also concerned that the Regional Office may not be willing to act at an early stage if the Council is clearly going in the wrong direction.

Furthermore, NMFS has very few guidelines that assist in making allocation choices, relying instead on the broad general provisions of the Magnuson-Stevens Act and procedural devices, such as "control dates" or dates when the Council gave final consideration to an issue, in order to avoid the tough choices associated with allocation. In addition, we could find no publicly available legal opinion from the agency that provides additional guidance as to how the relevant IFQ allocation standards of the Magnuson-Stevens Act are to be applied in a real case, such as the Pacific Groundfish Fishery. Some even seem to believe that all a Council has to do is "consider" the factual information with regard to history, both past and most recent, then issue allocations anyway it sees fit, particularly if there is "political" support for the allocation on the Council.

Your Administration has issued a NOAA Catch Share Policy, the purpose of which is to "encourage well-designed catch share programs to help maintain or rebuild fisheries, and sustain fisherman, communities and vibrant working waterfronts." Although the primary focus of that Policy appears primarily to encourage the wider application of "catch share" programs, the Policy also includes the following statement:

> "NOAA will work with Councils and stakeholders to review guidance to ensure allocations result in the greatest overall benefit to the Nation, including the evaluation of biological, economic and social criteria in such decision making. For existing catch share programs this evaluation of allocations should be part of the MSA-mandated 5-year review. For new catch share programs this evaluation of allocations should precede the final design and distribution of catch shares to ensure the requirements of the MSA and the objectives expressed by the Council in the FMP are met."

The moment has arrived to apply this Policy to ensure that the requirements of the Magnuson-Stevens Act are met in the "reconsideration" of the IFQ Program for Pacific whiting.

It has now been established that one of the most important IFQ Programs approved by your Administration was significantly flawed in its allocation methodology, was inconsistent with your own adopted Catch Share Policy, and violated the Magnuson-Stevens Act. It is our view that the IFQ Program was clearly flawed in that the FMP contained absolutely no discussion of any of fishing history in the fishery after 2003 nor the processing history after 2004 and no analysis as to why the substantive requirements of the Magnuson-Stevens Act were satisfied in the FMP when later fishing and processing history was excluded from the allocation formula.

We believe that the "reconsideration" ordered by Judge Henderson gives the agency the opportunity to fashion the Pacific whiting IFQ allocation in a manner that is not based on politics within the Council but on the basis of objective standards that ensure that the allocation is fair and equitable, rewards those who have made the commitment to (and are dependent on) the long-term health of the fishery, and otherwise complies with the mandate of the Magnuson-Stevens Act. We ask your intervention in this particular situation because we want to make certain that the Pacific Council and the Regional Office of NMFS are headed in the right direction.

We offer the following background and analysis to support our request for your personal attention to the issues raised in this important fishery management issue.

First, the Pacific whiting fishery is one of the best managed in the nation, if not the world. Pacific whiting is the most abundant commercial fish species on the West Coast and one of the largest by volume in the United States, and it is not being overfished nor subject to overfishing. The Marine Stewardship Council certified the fishery as sustainable in October 2009. Our clients participated not only in making this fishery sustainable, but they have also been successful making the Pacific whiting products competitive in world markets. It is definitely one of the success stories in the management of our nation's fisheries and in the globalized business of selling quality American-made products. Entry into the fishery is strictly limited under special licensing requirements applicable only to the Pacific whiting fishery. Although control dates applicable to the entire Pacific Fishery were published in 2003 and 2004, these became irrelevant in the Pacific whiting fishery when other restrictive licensing actions and fishery practices (such as cooperatives) were applied to the fishery. Moreover, Congress amended the Magnuson-Stevens Act in 2007. Control dates are generally intended to limit entry by late comers to an overcapitalized fishery. Here, other actions, and a change in the law, made them "out of date" for use as appropriate history cut-off years.

Second, recent court precedents make quite clear that the Secretary may not simply sit back and let the Councils do something that violates the Magnuson-Stevens Act. On March 9, 2012, Judge Gladys Kessler of the D.C. Federal Court ruled that NMFS improperly deferred to the New England Fishery Management Council in a determination as to what constituted the stocks to be included in the herring fishery. *Michael S. Flaherty, et al. v. Bryson*, Civil Action No. 11-660 (GK) (Sl. Op. at 27-30).

During our meetings with the Regional Office of NMFS, agency officials stressed how difficult it was to make allocation decisions. Judge Kessler had an answer for this excuse for not taking a lead on the allocation question as well: "an agency may shirk a statutory responsibility simply because it is difficult", citing *NetCoalition v. SEC*, 615 F.3d 525, 539 (D.C. Cir. 2010).

Third, it is well established that an agency cannot allow the development of a regulation that is the "product of pure political compromise." *Midwater Trawlers Co-Operative v. Dept. of Commerce*, 282 F.3d 710, 720-21 (9th Cir. 2002); *Hadaja v. Evans*, 263 F. Supp. 2d 346, 353-54 (D. Rhode Island 2003) (rejecting limited access scheme "born of a political compromise" without consideration of any scientific evidence). In our view, the history cut-off dates in the FMP and Final Rule were based purely on political compromise within the Council. While that compromise brought forth a "catch share" program for your approval, it was not one that met the requirements of the Magnuson-Stevens Act.

Fourth, the Regional Office of NMFS has just sent a list of "alternatives" to the Pacific Council for their "reconsideration" of the IFQ allocation of Pacific whiting. Exhibit 1 (Frank Lockhart letter to Dan Wolford dated March 16, 2012). We believe that Alternatives 1, 2, and 3 are legally questionable, in light of the requirements of the statute, although Alternative 1 must be included as a matter of practice. Should the Council spend limited time and money considering alternatives that might not gain legal and policy approval from the Secretary at the end of the process? This list of alternatives lends some credibility to a Council presumption that the Regional Office of NMFS may be willing to approve any one of them if the Council adopts one of the Alternatives, regardless of whether the once chosen fails to meet the substantive requirements in the Magnuson-Stevens Act. Given that the issue of which Alternative best complies with the law and agency policies remains open, we believe that legal and policy direction will assist in clarifying now what will be acceptable to the Secretary at the end of the process. The agency must not simply do what is politically expedient, and then leave it up to Judge Henderson to decide the issue all over again at the end of the process.

Fifth, the issue of the substantive legal bounds on IFQ Program allocations needs to be examined. Three particular provisions in the Magnuson-Stevens Act must be considered and given effect, in addition to the other general features of the statute:

(1) The National Standards (16 U.S.C. § 1851), including paragraph (a)(2) (best available scientific information); paragraph (a)(4)(allocation requirements, including being fair and equitable); and paragraph (a)(8) (fishing communities);

(2) Discretionary Provisions; Fishery Management Plans (16 U.S.C. § 1853(b)), including paragraph (b)(6) relating to what the Council and the Secretary must take into account in developing a limited access system, including "dependence on the fishery"[1]; and

(3) Limited Access Privilege Programs (16 U.S.C. § 1853a), including paragraph (c)(5) dealing with allocation.

All these provisions bear upon the question at issue and each must be given effect in coming up with a "legal" IFQ allocation plan.

Finally, developing the proper guidance for how to allocate IFQ given the policies and requirements of the Magnuson-Stevens Act, rather than staying on the sideline, will assist in the preparation of other "catch share" programs in the future. Otherwise, the flaw found in the Pacific whiting IFQ allocation could continue to crop up in other fishery management plans.

We urge you to give consideration to our request.

Sincerely,

DAVIS WRIGHT TREMAINE LLP

James P. Walsh

Attachment
cc: Chairman, Pacific Fishery Management Council (w/Attachment)

[1] See *Charter Operators of Alaska v. Blank*, Case No. 11-cv-00664 (RCL) Sl. Op. at 12, issued February 24, 2012 by Judge Royce C. Lamberth (final rule attempted to include those fishermen who are more likely to depend on the fishery).

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Sustainable Fisheries Division F/NWR2
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115-0070

MAR 16 2012

Mr. Dan Wolford, Chairman
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, Oregon 97220-1384

Dear Mr. Wolford:

The National Marine Fisheries Service (NMFS) appreciates the prompt consideration of the procedural consequences of the remedy order in Pacific Dawn, LLC v. Bryson, No. C10-4829 TEH at the March 2-7, 2012 meeting of the Pacific Fishery Management Council (Council).

As discussed in our February 29, 2012 letter to you, the order remands the regulations addressing the initial allocation of whiting for the shorebased IFQ fishery and the at-sea mothership fishery "for further consideration" consistent with the court's December 22, 2011 summary judgment ruling, the Magnuson-Stevens Fishery Conservation and Management Act (MSA), and all other governing law.

In that same letter, NMFS committed to providing the Council a potential range of alternatives for reconsideration that NMFS believes is appropriate. They are listed in the table below, with an explanation of our rationale for including these alternatives. While NMFS believes it is important for the Council to consider the full range of years contained within these alternatives, the Council is free to consider additional alternatives within this range, provided there is sufficient rationale.

Initial Allocation Group	Years used for Allocation formula			
	Alternative 1: Status Quo	Alternative 2: 2003 Only	Alternative 3: 2007	Alternative 4: 2010
Shoreside Harvesters	1994 through 2003	1994 through 2003	1994 through 2007	1994 through 2010
Shoreside Whiting Processors	1998 through 2004	1998 through 2003	1998 through 2007	1998 through 2010
Mothership Catcher Vessels	1994 through 2003	1994 through 2003	1994 through 2007	1994 through 2010

Alternative 1: Status Quo

Rationale for inclusion: Reconsidering the initial allocation of whiting for the shorebased IFQ and the at-sea mothership sectors requires an analysis of the status quo, or "no action" alternative to serve as a baseline from which to judge the impacts of the action alternatives. A comparison of the status quo and the action alternatives will help ensure that any outcome of the reconsideration complies with the MSA, the court's order, and other applicable law.

Alternative 2: 2003 Only

Rationale for inclusion: The Court's December 22, 2011 Summary Judgment Order found that the administrative record failed to provide an adequate rationale for extending the qualifying period to 2004 for processors. Accordingly, NMFS recommends analyzing an alternative that limits the years for the initial allocation of whiting to the original control date of 2003 for processors as well as harvesters.

Alternative 3: 2007

Rationale for inclusion: An alternative that explores using history through 2007 would allow the Council and NMFS to thoroughly assess whether basing initial whiting allocations on an intermediary time period that ends after the control date, but before the implementation of the trawl catch share program, would result in fair and equitable allocations in light of conditions in the fishery at that time. The Council took final action on the trawl rationalization program in 2008, and 2007 was the last full year of fishing prior to the Council's decision.

Alternative 4: 2010

An alternative of 2010 would allow the Council and NMFS to incorporate all history prior to the 2011 start date of the trawl catch share program.

Ultimately, NMFS believes that analyzing the range of alternatives described above will allow the Council to determine fair and equitable allocations of whiting in the shorebased IFQ and at-sea mothership sectors, including consideration of the factors enumerated in Section 303A(c)(5) of the MSA, [1] National Standard 4, the Court's order, and other applicable law.

Sincerely,

Frank Lockhart

Frank D. Lockhart
Assistant Regional Administrator

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[1] Section 303A(c)(5) of the MSA states that when developing a limited access privilege program, the Council and NMFS must consider the following to ensure fair and equitable initial allocations: (1) current and historical harvest; (2) employment in the harvesting and processing sectors; (3) investments in, and dependence upon, the fishery and; (4) the current and historical participation of fishing communities. 16 USC § 1853a(c)(5).

PFMC Comments <pfmc.comments@noaa.gov>

Briefing Book Materials for Agenda Item I.5

Hobbs, Tim <tim.hobbs@klgates.com> Mon, Mar 26, 2012 at 4:31 PM
To: "pfmc.comments@noaa.gov" <pfmc.comments@noaa.gov>

On behalf of the Environmental Defense Fund (EDF) and Midwater Trawlers Cooperative (MTC), we request that you include the attached materials in the briefing book for the next Council meeting under Agenda Item I.5, Reconsideration of Initial Individual Fishery Quotas in the Mothership and Shoreside Pacific Whiting Trawl Fisheries.

The attached materials are copies of court filings made by EDF and MTC in *Pacific Dawn, LLC, et al. v. Bryson*, the litigation causing the Council to reconsider the allocations in the Pacific whiting trawl fisheries. Because they believe the existing quota allocations are supported by rational bases, EDF and MTC urged the court provide the Council and NOAA with an opportunity to justify the existing allocations before having to reallocate quota shares. EDF and MTC were supported in this effort to defend the existing allocations and to preserve status quo by declarations from other stakeholders in the fishery, including Trident Seafoods Corp., Pacific Seafood, Inc., California Shellfish Co., Inc., *dba* Point Adams Packing Company, and Arctic Storm Management Group. The parties' proposed *amici curiae* brief on remedy as well as the supporting declarations are attached.

We look forward to working with the Council as it considers alternatives to address issues raised by the *Pacific Dawn* litigation.

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2 attachments

Amici Brief on Remedy (As Filed).pdf
126K

Supporting Declarations (As Filed).pdf
3052K

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Attorneys for *Amici Curiae* Midwater Trawlers Cooperative and Environmental Defense Fund

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN FRANCISCO DIVISION

PACIFIC DAWN, LLC, et al., Plaintiffs, vs. JOHN BRYSON, in his official capacity as Secretary of the United States Department of Commerce; et al., Defendants.	Judge: Thelton E. Henderson Case No: 3:10-cv-4829 **[PROPOSED] BRIEF ON REMEDY OF *AMICI CURIAE* MIDWATER TRAWLERS COOPERATIVE AND ENVIRONMENTAL DEFENSE FUND**

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I. INTRODUCTION

A coalition of fishing industry and environmental interests urges the Court to adopt a limited remedy in this case in order to preserve the substantial economic and environmental benefits achieved by the regulatory program at issue. *Amici curiae* Midwater Trawlers Cooperative ("MTC") and Environmental Defense Fund ("EDF") (collectively, "Amici") were intimately involved in the development of the program and seek to minimize its disruption. Amici are supported in this effort by declarations from several major stakeholders in the program, including Pacific Seafood, Inc., Trident Seafoods Corporation, California Shellfish Co., Inc., and Arctic Storm Management Group.

A limited remand is appropriate in this case. The agency should be given the opportunity to articulate a reasoned explanation for its actions or, if it cannot, to adopt a different action with a reasoned explanation that supports it. Amici join the unanimous view of both parties in urging the Court to keep all existing regulations in effect and retain the current quota allocations pending remand.

II. BACKGROUND

Plaintiffs Pacific Dawn, LLC, et al. (collectively, "Plaintiffs") challenge the individual fishing quota ("IFQ") allocations of Pacific whiting under the Trawl Rationalization Program implemented by Amendments 20 and 21 to the Pacific Coast Groundfish Fishery Management Plan (the "IFQ Program") developed by the Pacific Fishery Management Council ("Council") and approved by the Secretary of Commerce and subordinate agencies (collectively, "Defendants"). Specifically, Plaintiffs allege that the qualifying periods and permit history used to allocate IFQ shares violated the Magnuson-Stevens Fishery Conservation and Management Act's ("MSA") requirement to consider "current and historical harvests" when making such allocations and was arbitrary and capricious. *See* 16 U.S.C. § 1853a(c)(5).; 5 U.S.C. § 706(2)(A).

In its Order Granting in Part and Denying in Part Plaintiffs' and Defendants' Motions for Summary Judgment (Dkt. # 49) ("Order"), the Court found that the Defendants "have failed to present a reasonable explanation for relying on the 2003 control date for some purposes but not others." Order at 12. The Court asked for briefing on the appropriate remedy. *Id*. at 13-14.

III. DISCUSSION

A. A Limited Remand is Appropriate Here.

Plaintiffs' request that the Court direct Defendants to reallocate whiting IFQ shares is premature. The Court should remand to the Defendants to provide additional explanation for the qualifying periods used to allocate IFQ shares or, if they cannot, adopt new allocations with sufficient justification.

1. Where an Agency Fails to Provide Sufficient Explanation for its Action, a Limited Remand for Additional Explanation is Appropriate.

Supreme Court and Ninth Circuit precedent require a reviewing court to remand regulatory action to an agency for additional justification where, as here, the agency "fail[ed] to explain" or "failed to present a reasonable explanation for" its decision. Order at 10, 12. *See Nat'l Ass'n of Home Builders v. Defenders of Wildlife*, 551 U.S. 644, 657 (2007) ("[I]f the [Agency's] action was arbitrary and capricious, as the Ninth Circuit held, the proper course would have been to remand to the Agency for clarification of its reasons."); *Humane Soc'y of the United States v. Locke*, 626 F.3d 1040, 1053 (9th Cir. 2010) (finding "NMFS's explanation…incomplete and inadequate" and "remand[ing] to NMFS to afford the agency the opportunity either to articulate a reasoned explanation for its action or to adopt a different action with a reasoned explanation that supports it"); *see also* 3 Charles H. Koch, Jr., Administrative Law and Practice, § 8:32 (3d ed. 2010) ("Remand is particularly appropriate where the agency justification is inadequate…<u>the agency should be given every opportunity to justify its decision</u>." (emphasis added)).

Consistent with these precedents, in a prior case involving quota allocations in the same whiting fishery at issue in this case, the Ninth Circuit remanded for the agency to provide the necessary justification for its allocation decisions. *Midwater Trawlers Coop. v. Dep't of Commerce*, 282 F.3d 710, 721 (9th Cir. 2002). In that case the court found that an allocation of whiting quota to the Makah Tribe was the result of a pure political compromise and not supported by the best available science as required by the MSA. The court concluded that "a remand to the NMFS is required to either promulgate a new allocation consistent with the law and based upon the best available science, <u>or to provide further justification for the current allocation that conforms to the requirements of the Magnuson-Stevens Act</u> and the Treaty of Neah Bay." *Id*. (emphasis added).

In *Midwater*, it was "undisputed" that the allocation was based on nothing more than a pure political compromise; the Defendants did not even attempt to provide a justification for their decision other than political expediency. 282 F.3d at 720. Yet the court's remedy nevertheless allowed the Defendants to retain the existing quota allocation and provide an adequate justification for it after the fact. *Id*. , 282 F.3d at 721.

Unlike the situation in *Midwater*, the Defendants and Amici assert that there are legitimate bases here for the allocation decisions made by the Council. *See* Mem. In Supp. of Fed. Defs.' Cross-Mot. for Summ. J. (Dkt. # 39) at pp. 11-16; Reply in Supp. of Fed. Defs.' Cross-Mot. for Summ. J. (Dkt. # 42) at pp. 1-6; *see also infra*, Section III(A)(2). The Court did not hold that the qualifying periods upon which the IFQ allocations were based were per se unreasonable, only that the Defendants failed to provide sufficient explanation to support them. *See* Order at 9-10.

Before being required to modify the existing allocations, the agency should be afforded every opportunity to justify its prior allocation decisions. *See* Koch, Admin. Law and Prac. § 8.32. The Court's remedy should go no further than what the Ninth Circuit required of the Defendants in the *Midwater* case. The Court should thus order the Defendants to adequately explain their allocation decisions or, if they cannot, adopt new allocations with sufficient justification.

2. The Defendants Should be Afforded An Opportunity to Articulate a Reasonable Explanation for the Qualifying Periods Used to Allocate Whiting IFQ Shares.

The Court held that Defendants "failed to present a reasonable explanation for relying on the 2003 control date for some purposes but not others." Order at 10. On remand, the agency must supply a reasonable explanation for its actions. A review of the administrative record demonstrates that Defendants possessed rational bases for their prior decisions that can be sufficiently amplified on remand.

a. On remand, the agency can explain why its adherence to the 2003 control date was necessary and consistent with the fundamental purpose of the IFQ Program.

The Defendants considered fishing history more recent than 2003 as required,[1] but

[1] *See, e.g.*, H374:*37 (minutes from June, 2008 Council meeting where a Council member noted shifts in fishing and processing effort, expressed concern about the time lag from the control dates, and requested public feedback on these issues); H305 (tables summarizing 1995-2005 historical catch data by fishing sector prepared for Council); B22:A-152 ("The expected initial redistribution among communities resulting from the initial allocation, as compared to the 2004 to 2006 harvest patterns are shown in Table A-71 on page A-209….There has been a northward shift in the groundfish harvest in more recent years….A more recent allocation might result in an initial geographic allocation more reflective of the current fishery."). The Court also acknowledged that the Defendants considered fishing history more recent than 2003. Order at 10-11 (citing D45:*64-68 (Decision Memorandum to W. Stelle); M379:6, 8 (comments of one plaintiff's expert on proposed rule noting shifts in whiting fishing effort after 2003)). *See also* Declaration of David Jincks (Att. 1) ("Jincks Decl.") ¶ 7.

expressly declined to allocate IFQ shares to harvesters based upon that more recent history because they did not want to reward speculative investment (i.e., capacity increases) in the fishery after the announced control date.[2] An important purpose of the IFQ Program was to address overcapacity in the harvesting sector of whiting fishery – the situation of "too many boats chasing too few fish."[3] A failure to adhere to the 2003 control date would have rewarded those who increased their effort in the fishery after the control date was announced, thus undermining a central purpose of the program – a reduction in fishing capacity.[4]

The Defendants attempted to explain in the Final Environmental Impact Statement ("FEIS") why they decided against allocating IFQ shares to harvesters based upon fishing history after 2003. In response to a comment that the 1994-2003 qualifying period for harvester allocations was too stale to comply with MSA requirements, the agency responded as follows:

> The Council believes it very important that the 2003 control date be used in order to prevent future fishery disruptions. The purpose of announcing a control date in advance of developing a[n IFQ program] is to discourage speculative entry into a fishery and increased harvest while the Council goes through the process of developing the program details. <u>If the Council develops a pattern of announcing and abandoning control dates, then the announcement of control dates will become a signal to harvesters</u>

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[2] *See* B22:637-639; B22:A-151 (the "most effective way to address these changes [in fishing effort] would be to include years after 2003 in the allocation period. However, doing so would reward those who disregarded the control date announcement, create perceptions of inequity, and encourage fishermen to ignore such dates in the future, negatively affecting the Council's ability to credibly use control dates.").

[3] *See* B22:85 ("If fishing capacity increases (becomes further overcapitalized), the intensity of fishing may rise such that fishermen strive to catch as much Pacific whiting as possible as quickly as possible (also referred to as a derby fishery or the race for fish)"); B22:498 (quoting study stating that "an IFQ is a fishery management tool put in place to protect the resource, as well as reduce overcapacity…"); B22:A-140 (noting "a continued harvester overcapacity problem"); Jinks Decl. ¶ 7; Declaration of Johanna Thomas (Att. 2) ("Thomas Decl.") ¶ 7; Declaration of Joe T. Plesha (Att. 3) ("Plesha Decl.") ¶ 4; Declaration of Tom Libby (Att. 5) ("Libby Decl.") ¶ 4; Declaration of Donna Parker (Att. 6) ("Parker Decl.") ¶ 4. *See also Alliance Against IFQs v. Brown*, 84 F.3d 343, 344 (9th Cir. 1996) ("The result is lower profits for the too many fishermen investing in too much capital to catch too few fish.") (citation and internal quotation marks omitted).

[4] *See* Jincks Decl. ¶ 7; Plesha Decl. ¶ 4; Libby Decl. ¶ 4; Parker Decl. ¶ 4.

> to intensify their efforts to catch fish in order to increase their odds of qualifying for greater initial allocations. Such a response would be disruptive to fisheries and exacerbate the challenges of meeting conservation objectives. Additionally, abandoning the original control date would reduce the perceived fairness of the program by rewarding those who fished speculatively after the control date (fishing primarily on the chance that the control date would be abandoned and they would acquire more quota as a result of their post control date fishing) at the expense of those who heeded the control date.[5]

The record also shows that the Council considered whether to use fishing history after 2003 for allocating IFQ shares, but ultimately concluded that the balance of factors favored maintaining the 2003 control date.[6] In addition, members of the Council's Transferable Individual Quota Committee and other panels who advised the Council during the development of the IFQ Program believed it was critical that the Defendants adhere to the 2003 control date, both for this IFQ Program and for future IFQ programs in other fisheries.[7] On remand the Defendants can provide further justification for their decision to adhere to the control date and not allocate IFQ shares to harvesters based upon fishing history after 2003.

b. On remand, the agency can explain why its selection of different qualifying years for target species and overfished species was rational.

The Defendants' use of later (2003-2006) data for IFQ allocations of *overfished* species was appropriate for two reasons. First, due to low observer coverage and frequent discarding of fish at sea, the Defendants had insufficient data for landings of overfished species between 1994 and 2003 in order to allocate IFQ shares for overfished species based

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[5] B22:638 (emphasis added).

[6] *See, e.g.*, H374:*46 (Council meeting minutes from June, 2008 meeting) (Council members expressing support for the 2003 control date because "[p]eople have been making business decisions based on those dates," that "based on the notice provided and other factors the balance favors maintaining the existing [2003 end] date," and noting "public testimony which indicated that many have relied on the 2003 date and that the Council's [sic] has been working hard and continuously on this project" and to "change the date would not be fair."). *See also* Parker Decl. ¶ 4.

[7] *See* Jincks Decl. ¶¶ 7, 16; Plesha Decl. ¶ 7; Libby Decl. ¶ 4; Parker Decl. ¶ 4.

on that period.[8] Instead, Defendants used data from 2003-2006 to determine a bycatch "rate" in eight spatial areas defined by latitude and ocean depth, which they then applied to each participant's target IFQ allocations to determine the appropriate IFQ allocations for overfished species.[9] In other words, data for overfished species were used in a different way than catch history data for target stocks: rather than using catch history to directly designate each participant's quota share, the overfished species data were used to set a ratio of target catch to bycatch in each spatial area. Using logbook data, those rates were then applied to each participant's target species allocations, apportioned among the spatial areas where that participant fished.

Second, IFQ allocations of overfished species had a distinct purpose – i.e., to distribute the quota for those potential "choke stocks" in a manner that did reflect current fishing patterns so as to maximize harvests of target stocks given the current distribution of the fleet.[10] In fishing for target species, fishermen also incidentally catch overfished species that they would rather avoid. Such "bycatch" of overfished species can prevent fishermen from maximizing their target catch, because fishermen must cease fishing for target species if they use all of their IFQ allocations of overfished species.[11] Allocating IFQ shares for

[8] *See* D45:*65 ("[B]ecause overfished species were managed on a fleetwide basis using observer data, only a small percent of vessels actually carried observers, and many vessels discarded overfished species caught incidentally, insufficient data exists to determine actual harvest patterns of overfished species.").

[9] *See* D45:*65-66. Specifically, the Council determined the ratio of target species catch to overfished species catch in each of these zones using more recent data (to reflect more recent fishing patterns) and then applied these ratios to each participant's total holdings of IFQ shares for target species to determine IFQ allocations for overfished species. Logbook data were used to determine the zones in which each participant had fished during 2003-2006 so the appropriate combination of bycatch ratios could be applied.

[10] *See* Jincks Decl. ¶ 8; Plesha Decl. ¶ 5; Libby Decl. ¶ 5.

[11] *See, e.g.*, H313:*11 (discussion paper presented to Council noting that "overfished species will be a constraint to the access of target species, so an argument can be made for a more refined and equitable distribution of overfished species in order to allow permits to gain access to target species…").

overfished species based only upon the 1994-2003 period used for whiting allocations would have resulted in less efficient allocations of bycatch quota than also using more recent 2003-2006 data. Some participants would have received more bycatch quota of overfished species than they needed to maximize target catches; others would have received too little.[12] Inaccurate data of overfished species landings from 1994-2003 would have further exacerbated the potential mismatch between target and overfished species allocations.[13] Using less recent data for allocating bycatch quota may have frustrated efforts to achieve optimum yield in the fishery, a result incongruous with other requirements of the MSA.[14]

Because allocations for target and overfished species had distinctly different purposes, the use of 2003-2006 data for overfished species allocations does not demonstrate that the use of 1994-2003 data for whiting allocations was arbitrary. The Defendants attempted to explain this distinction in the record. *See, e.g.*, B22:639 ("…the 2003-2006 logbooks are used to determine the amount of overfished species an entity would need to take its target species. In this fashion, more recent information for the fishery is used without rewarding post control date increases in effort" which was the purpose of the 2003 cutoff for harvester allocations) (emphasis added).[15] Other courts have determined that using different qualifying periods in the same fishery is permissible as long as each is supported by adequate justification. *See, e.g., City of New Bedford, et al. v. Locke*, No. 10-cv-10789, 2011 WL

[12] *See id*. ("[T]hose permits not receiving enough overfished species quota would be forced to essentially buy-in to the fishery again at high cost, or leave the fishery altogether. Allocating overfished species based on a bycatch rate is an attempt at making the initial allocation more equitable and avoiding such negative consequences."); D45:*64 ("In other words, some fishermen would have too much of certain overfished stocks and not enough of others.").

[13] *See* D45:*65.

[14] *See, e.g.*, 16 U.S.C. §§ 1851(a)(1), (a)(2), (a)(4).

[15] *See also* D45:*65 ("using the same allocation formula for overfished species as for non-overfished stocks would have penalized those fishermen who were most able to avoid them.").

2636863 at *7 (D. Mass. June 30, 2011) (appeal pending) (upholding allocations based on different qualifying periods for different sectors based upon stated purposes for dates selected). On remand the Council can further explain the purposes for using different periods of fishing history to allocate IFQ shares for target and overfished species.

Moreover, speculative increases in fishing effort were less of an issue for overfished species than they were for target species. There were other controls in place during the development of the IFQ Program that discouraged fishermen from intensifying efforts to catch overfished species.[16] In particular, low catch limits for overfished species threatened to shut down fishing for target stocks, creating an incentive to avoid catching overfished species.[17] Therefore, basing IFQ allocations for overfished species on fishing history after 2003 had a distinct regulatory purpose and did not undermine the purpose of the 2003 control date for allocations of target species.

c. On remand, the agency can explain why its decision to use different dates for purposes of allocating IFQ shares among fish harvesters and fish processors was rational.

Under the IFQ Program, processors were allocated fishing privileges based upon their processing history between 1998 and 2004 (specifically, the amount of first deliveries of fish to each processor from harvesting vessels).[18] The MSA contains no express requirement to consider current processing history like it does for current harvesting history when allocating IFQ shares. *See* 16 U.S.C. § 1853a(c)(5).

The Court was concerned with the different control dates for harvesters and processors, *see* Order at 11, but a critical distinction is that allocating IFQ shares to fish processors served an entirely different purpose: to preserve processing capacity in areas

[16] *See* Jincks Decl. ¶ 8; Plesha Decl. ¶ 5; Libby Decl. ¶ 5.
[17] *See id.*

where it had historically existed and thereby protect fishing communities,[19] in contrast with an important purpose of allocating IFQ shares to harvesters to reduce fishing capacity. *See* Section III(B)(1), *supra*. Thus, the period of processing history upon which IFQ allocations were made to processors served a different function and did not need to match the period used for harvester allocations.

The purpose of extending the qualifying period to 2004 was to take account of substantial investments in shoreside processing facilities in northern regions made in 2002 and 2003 – before the control date for harvesters – but for which no processing history was earned until 2003 and 2004 when these new processing facilities came online.[20] In addition, processors are not mobile like harvesters, and so not recognizing these pre-control date investments would have jeopardized processing jobs that were established as a result of these investments and thereby undermined the Council's objective to mitigate community impacts resulting from the IFQ Program.[21]

Finally, the Court held that the agency's "failure to consider fishing history beyond 2003 for harvesters and 2004 for processors was arbitrary and capricious." Order at 10 (emphasis added). This holding is unclear because processors do not harvest fish – they

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[18] *See* 50 C.F.R. § 660.140(d)(8)(iv)(G)). *See also* Declaration of Tim Horgan (Att. 4) ("Horgan Decl.") ¶ 4.

[19] *See, e.g.*, B22:A-42 (noting that "allocating to processors" was a way to "address concerns about community stability"); B22:A-43 (noting concerns about "impact of the program on smaller processors," that "not to allocate to processors might cause more consolidation and a further decline in the number of buyers," that "the size of the shoreside whiting fleet was expected to be very small (only 20 vessels), providing the fleet with greater market power relative to the three major whiting buyers" and that under an IFQ program "the amount of processing capital needed in the whiting fishery would decline by 30 to 50 percent"); B22:A-43 n. 13 ("”an IFQ program will slow the pace of the fishery resulting in substantial unneeded processor capital"). *See also* Horgan Decl. ¶ 5.

[20] *See* B22:A-214; Jincks Decl. ¶ 9; Plesha Decl. ¶ 6; Libby Decl. ¶ 6.

[21] *See* Jincks Decl. ¶ 9; Horgan Decl. ¶ 5.

process it – and thus have no "fishing history" that could have been considered.[22] Amici therefore urge the Court to clarify its holding. Specifically, it would be helpful on remand for the Court to explain the extent to which the MSA's requirement to consider "current harvests" when allocating IFQ shares applies to the Defendants' decision to allocate IFQ shares to shoreside processors based on their processing history.

B. The Remedy Proposed By Plaintiffs Would Cause Unnecessary Disruption in the Fishery.

Even assuming Defendants cannot articulate a reasoned explanation for their prior actions, the appropriate remedy here is not, as Plaintiffs suggest, as simple as tweaking a mathematical formula and generating revised IFQ allocations. *See* Pls.' Mem. In Supp. of Request for Relief (Dkt. # 51 at p. 3) ("Plaintiffs' Remedy Brief") ("Essentially, all that is required is a new calculation of the IFQ taking the expanded historical fishing years into account.").

As Defendants have recognized, "[a]llocation is a difficult issue under any fishery management regime, but is an especially charged issue when considering a catch share program." D45:*64. As the record demonstrates, the current allocations were the result of a comprehensive multi-year process involving many different stakeholders. *See* Jincks Decl. ¶¶ 5-6; Plesha Decl. ¶ 11; Libby Decl. ¶ 11; Parker Decl. ¶ 7. This process cannot simply be discarded. Any reconsideration of the allocations under the IFQ program would require a substantial effort consistent with the MSA and other applicable law. *See* Declaration of Frank Lockhart (Dkt. # 52-1) at ¶¶ 5-12.

Plaintiffs' suggestion that Defendants need only "adjust the formula to re-run the numbers" is a pretext for a reallocation of IFQ shares based on new criteria where Plaintiffs

[22] *See, e.g.*, E29:*9-10 (Memorandum from L. Lindeman, NOAA General Counsel, to North Pacific Fishery Management Council (Sept. 20, 1993)) (finding that on-shore fish processing

gain and others lose. *See* Jincks Decl. ¶ 11. Plaintiffs grossly overreach by attempting to dictate the specific criteria upon which IFQ shares must be reallocated. Plaintiffs essentially seek to obtain by Court order that which they were unable to achieve from the public regulatory processes: a different range of qualifying years that gives them a larger slice of the pie. Yet the MSA vests the Council and the Defendants – not the Plaintiffs – with authority to manage fisheries. *See* 16 U.S.C. §§ 1852, 1854. To the extent any "revision" of the IFQ allocations is necessary, it is the prerogative of the Council and the Defendants to determine in the first instance what that would entail. *See Vermont Yankee Nuclear Power Corp. v. Natural Res. Def. Council*, 435 U.S. 519, 544-45 (1978).

Finally, revising the IFQ allocations would be extremely disruptive to the fishery and the Court should only entertain such relief as a last resort. Reopening the deliberative process to determine new qualifying years upon which IFQ allocations would be based is likely to be extremely contentious with an uncertain outcome. *See id.*; Jincks Decl. ¶ 15; Plesha Decl. ¶ 11; Libby Decl. ¶ 11; Parker Decl. ¶ 7. Amici are concerned that a mandate to revise the IFQ allocations could be so contentious that it could jeopardize the IFQ Program itself. *See id*; *see also* Thomas Decl. ¶ 9.

C. The Court Should Maintain the Existing Regulations and Preserve the Status Quo Pending Remand.

Remand to an agency without vacating the challenged regulations is appropriate in this case. Neither Plaintiffs nor Defendants seek vacatur. *See* Pls.' Remedy Br. at 4; Defs.' Supplemental Br. on the Appropriate Remedy at 1-2.

In determining whether to set aside a challenged agency action pending remand, courts in this Circuit often apply a two-prong test, which requires courts to consider "the seriousness of the order's deficiencies (and thus the extent of doubt whether the agency chose

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is not "fishing" as defined under the MSA).

correctly) and the disruptive consequences of an interim change that may itself be changed." *Center for Food Safety v. Vilsack*, 734 F. Supp. 2d 948, 952 (N.D. Cal. 2010) (quoting *Allied-Signal, Inc. v. U.S. Nuclear Regulatory Comm'n*, 988 F.2d 146, 150-51 (D.C. Cir. 1993)); *see also Natural Resources Def. Council (NRDC) v. U.S. Dep't of Interior*, 275 F. Supp. 2d 1136, 1144 (C.D. Cal. 2002). Other relevant factors include the purpose of the enabling statute and the potential prejudice resulting from preserving the status quo. *Id.*

Both prongs of this test militate against setting aside the challenged regulations in this case. First, this Court found the challenged regulations arbitrary and capricious because the agency failed to "present a reasonable explanation" for its decisions. *See* Order at 12. Where, as here, it is likely the agency can supply a reasoned explanation on remand, an interim change would be impractical and unnecessary. *See Center for Food Safety*, 734 F. Supp. 2d at 952. *See also* Section III(A)(2), *supra*.

Second, setting aside the challenged regulations pending remand would be extremely "disruptive." *See id.* Holders of IFQ shares have already made business decisions and committed resources based upon their 2012 IFQ allocations, and such commitments would be jeopardized if the IFQ allocations are vacated. *See* Jincks Decl. ¶ 12; Plesha Decl. ¶ 8; Horgan Decl. ¶¶ 5-8; Libby Decl. ¶¶ 8, 10. Moreover, the environmental benefits of the IFQ Program are already materializing; bycatch of overfished species has been reduced to 1% of overcall catch. *See* Thomas Decl. ¶ 9. In a fishery that has been plagued by bycatch for years, this result is remarkable. At the same time, the whiting fleet has been able to harvest nearly its entire allocation of whiting (98%) without exceeding annual catch limits for any overfished species. *See id.* Vacatur would jeopardize these achievements and undermine the purpose of the MSA by "forfeit[ing] the environmental and economic benefits of the IFQ Program." Jincks Decl. ¶ 14; *see also* Horgan Decl. ¶ 8; Thomas Decl. ¶ 9; *NRDC*, 275 F.

Supp. 2d at 1143-44 (observing that the Ninth Circuit has "expressed special concern for the potentially one-sided and irreversible consequences of environmental damage prompted by vacating defective rules during remand"). Furthermore, requiring the agency to develop interim rules to temporarily govern the fishery during remand would be an inefficient use of government resources. Accordingly, the costs of vacatur would significantly outweigh any potential prejudice associated with preserving the status quo. *See NRDC*, 275 F. Supp. 2d at 1144.

IV. CONCLUSION

For the foregoing reasons, the Court should: (1) remand to the Defendants to adequately explain the rational bases for the control periods used to allocate whiting IFQ shares to harvesters and processors; and (2) maintain all existing regulations and allocations in effect pending remand.

DATED: February 2, 2012

K&L GATES LLP

By: /s/
Rachel Chatman
John L. Boos
Michael F. Scanlon (*pro hac pending)*
J. Timothy Hobbs (*pro hac pending)*
Attorneys for Proposed Amici Curie
Midwater Trawlers Cooperative and
Environmental Defense Fund

ATTACHMENT 1

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

PACIFIC DAWN, LLC, et al., Plaintiffs, vs. JOHN BRYSON, in his official capacity as Secretary of Commerce, et al., Defendants.	Judge: Thelton E. Henderson Case No: 3:10-cv-4829 **DECLARATION OF DAVID JINCKS**

DECLARATION OF DAVID JINCKS

DAVID JINCKS declares under penalty of perjury the following:

1. My name is David Jincks and I am the President of the Midwater Trawlers Cooperative ("MTC"). I have personal knowledge of the facts stated herein, and I could and would competently testify thereto if called as a witness.

2. MTC is an association founded in 1982 to represent U.S.-flag fishing vessel owners engaged in the whiting and other groundfish fisheries off the Pacific coasts of California, Oregon, Washington and Alaska. MTC currently represents 19 fishing vessels that are active in the Pacific groundfish fisheries, having approximately 31 individual owners. These vessels support on average four captain and crewmember jobs for a total of 124 living wage jobs in addition to supporting the owners and their families. MTC's mission is to promote measures to manage stocks of Pacific groundfish that will provide for long-term productivity and sustainable yields.

3. I have been a member of MTC since 1982 and have served as the President of MTC since 2001. My professional responsibilities as President include representing the interests of MTC before federal and state agencies and other bodies responsible for the conservation and management of the groundfish species harvested by MTC members. In my capacity as President, I regularly attend meetings of these management bodies, provide oral and written public testimony on various management issues, and work with government officials to promote the interests of MTC's members.

BACKGROUND

4. The Plaintiffs challenge certain aspects of the Defendants' approval and implementation of Amendments 20 and 21 to the Pacific Coast Groundfish Fishery Management Plan developed by the Pacific Fishery Management Council ("Pacific Council"). Those amendments implemented an individual fishing quota ("IFQ") program ("IFQ Progam") for the shorebased trawl fleet that targets Pacific whiting and groundfish, and cooperative programs for the at-sea mothership and catcher/processor trawl fleets that target Pacific whiting. Specifically, the Plaintiffs challenge the qualifying periods and permit history used to allocate IFQ shares to harvesters and shorebased processors. I have read the Court's December 22, 2011 Order Granting in Part and Denying in Part Plaintiffs' and Defendants' Motions for Summary Judgment.

PARTICIPATION OF MTC IN THE DEVELOPMENT OF THE IFQ PROGRAM

5. MTC was extensively involved in the development of the IFQ Program. The Pacific Council formally began development of the IFQ Program in 2003. From 2003 through 2010, MTC members regularly attended meetings of the Pacific Council where the details of and options for the IFQ Program were discussed and voted upon. As President of MTC, I served on the Transferable Individual Quota Committee ("TIQC") that guided the Pacific

Council in considering and evaluating alternatives for the IFQ Program. MTC members also attended and provided input at meetings of the Groundfish Allocation Committee of the Pacific Council and at meetings of the California, Oregon and Washington state fish and game commissions where the IFQ Program was discussed. MTC and its members submitted testimony to the Pacific Council during comment periods on the IFQ Program at various stages of its development and also at public hearings and town hall meetings held by the Pacific Council outside of its routine meeting schedule to discuss and solicit public input on the IFQ Program. MTC views the implementation of the IFQ Program as a significant achievement towards the long term conservation and sustainable utilization of stocks of Pacific groundfish.

6. The Council faced a number of challenges during the development of the IFQ Program that took time to resolve. First, the fishery is extremely complex. The IFQ Program regulates the trawl sector, which is comprised of shoreside, mothership and catcher/processor subsectors. There are also fixed gear and recreational sectors. These sectors catch over 90 species of groundfish managed by the Council off the entire Pacific coast from San Diego, California through Bellingham, Washington. To my knowledge this is the most complex IFQ program – in terms of numbers and subsectors of participants, species covered and geographic range – ever implemented in the United States. Second, Congress changed the governing legal standards for this program right in the middle of its development. In 2007 Congress added an entire section to the Magnuson-Stevens Act setting forth detailed requirements for IFQ and other catch share programs. At first, Congress expressly exempted this IFQ Program from the new requirements, but then about a year later Congress rescinded that exemption.[1] Congress also required the Council to

[1] *See* 16 U.S.C. § 1853a(i)(2) (2007) (exempting from certain requirements a proposal authorized under § 302(f) of Pub. L. No. 109-479 (Jan. 12, 2007), which required the Pacific Council to "develop a proposal for the appropriate

consider specific management options and submit a report to Congress on its efforts in developing this specific IFQ Program, which was an unusual legislative intrusion into the Council's affairs.[2] Third, the Council struggled to mitigate community impacts that were uncertain, but anticipated to result from the IFQ Program. The Council considered multiple alternatives to address such impacts, some of which – like allocating IFQ shares to shoreside processors based upon their processing history – were unprecedented in the United States to my knowledge. These and other factors took substantial time to debate and resolve. The Council ultimately voted to submit its plan to NOAA for approval in November, 2008. After that, it took nearly two years for NOAA to evaluate and approve the IFQ Program, and to propose and finalize the necessary regulations after taking even more public comment.

7. Despite the substantial time it took to work through these complex issues, MTC urged the Council not to allocate IFQ shares to harvesters based upon fishing history after the 2003 control date because a fundamental objective of the IFQ Program was to reduce overcapacity in the harvesting sectors. Although the Council examined fishing history after 2003, MTC was concerned that allocating IFQ shares to harvesters based upon fishing history after the 2003 control date would reward those who speculatively increased their fishing capacity after the control date, which would have contravened the very purpose of the IFQ Program to reduce overcapacity in the fishery. MTC therefore testified to the Council in opposition to using catch history after 2003 for IFQ allocations to harvesters. MTC was also concerned that breaching the 2003 control date for this program would cause problems in developing future IFQ programs.

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rationalization program for the Pacific trawl groundfish and whiting fisheries"); Pub. L. No. 110-161 (Dec. 26, 2007), Div. B, § 529 (striking 16 U.S.C. § 1853a(i)(2)).

[2] *See* Pub. L. No. 109-479, § 302(f).

8. By contrast, MTC urged the Council to allocate IFQ shares for overfished species based upon more recent logbook data from 2003 through 2006 because the motivation for allocations of overfished species was different than for target species. Because the available harvests of overfished species are low, those species can operate to constrain catches of target species like whiting and fishermen therefore use every effort to avoid catching these species. Because there were controls in place that caused fishermen to avoid catching overfishing species, adhering to the 2003 control date for IFQ allocations of overfished species was not as critical as it was for target species. These controls included, for example, regulations that prohibited vessels from profiting from the sale of overfished species which fishermen were required to retain. In addition, if the harvest of a given overfished species reached a certain level it could result in the closure of the fishery for the target species. These controls created significant disincentives to catch overfished species and in fact resulted in fishermen maximizing their effort to avoid overfished species, which was just the opposite for the target species where the effort was to maximize harvest. MTC supported different qualifying periods for the IFQ allocations of overfished species due to a lack of speculative increases in fishing activity for those species resulting from these controls. MTC therefore urged the council to allocate IFQ shares for these constraining overfished species based on more recent data to more closely correspond with current fishing patterns and thereby maximize harvest of the target species.

9. MTC also supported the Council's decision to extend to 2004 the qualifying period for IFQ allocations to shorebased fish processors, which were allocated IFQ shares based upon their processing history during the qualifying period. MTC ultimately supported allocating IFQ shares to fish processors in order to help preserve processing capacity in critical areas. MTC supported the extended qualifying period for processors based on its

understanding that processors made investments in 2002 and 2003 before the control date for harvesters, but for which no processing history was earned until 2003 and 2004 when these new processing facilities came online. In MTC's view, it was rational to allow some additional processing history to be earned for one additional year given these prior investments. In addition, processors are not mobile like harvesters, and so not recognizing these pre-control date investments would have jeopardized some processing jobs that were established as a result of these investments. Finally, the Council implemented the 2003 control date to prevent speculative increases in <u>fishing</u> capacity – not <u>processing</u> capacity – while the Council developed the IFQ Program. MTC therefore supported the qualifying period extension to 2004 for processing history because it had no affect on the fundamental purpose for establishing the 2003 control date for the harvesting sector (i.e., to prevent a spike in harvesting capacity while developing a program to reduce harvesting capacity).

10. Thus, while MTC members believed that holding the control date at 2003 for IFQ allocations of target species like whiting was critical to ensuring the success of this and future IFQ Programs, MTC believed there were legitimate reasons to allocate IFQ shares of overfished species based upon fishing history through 2006 and to allocate whiting IFQ shares to processors based on processing history through 2004.

INTERESTS OF MTC MEMBERS IN THE IFQ PROGRAM

11. Each of MTC's members received allocations of groundfish quota under the IFQ Program developed by the Pacific Council. These quota allocations permit MTC members to harvest and sell on an annual basis certain amounts of Pacific whiting and other species of groundfish from the Pacific Ocean off the coasts of California, Oregon and Washington. These quota allocations became effective on January 11, 2011, the date fishing opened under the IFQ Program. MTC members therefore have a direct economic stake in the IFQ

Program because their livelihoods are dependent upon the quota allocations made by the IFQ Program. Any interruption of the IFQ Program or material modifications to the existing IFQ allocations would harm MTC members. In particular, it is MTC's understanding that the Plaintiffs seek to extend the qualifying period to 2010 and reallocate IFQ shares based on fishing history from 1994 through 2010 (instead of 1994 through 2003 under the current program). Plaintiffs' proposed remedy would effectively take IFQ shares away from MTC members and give them to the Plaintiffs.

12. Following the successful completion of the 2011 fishing season, MTC members are now preparing for the upcoming fishing season, which typically begins in May or June, when they will utilize their allocations of whiting and other groundfish quotas made by the IFQ Program. Preparation for the upcoming season includes performing vessel maintenance and repairs, purchasing and maintaining fishing equipment, entering into contracts for vessel dockage and for procuring certain supplies, lining up potential buyers for their fish, obtaining observer coverage for their vessels, and hiring crew members. MTC members are therefore already committing resources and entering into contracts in reliance upon the IFQ allocations they received under the IFQ Program. These commitments would be threatened by an injunction of IFQ Program or a modification to the existing allocations of IFQ shares.

13. The stability created by the IFQ Program has fundamentally changed the fishing operations of MTC members for the better and has produced both economic and environmental benefits. MTC members no longer have to race against fellow fishermen to catch the available harvest, but instead can fish throughout the year when prices and the weather are favorable. MTC members also now have flexibility to focus on targeting other, non-groundfish species at certain times of the year and to reserve their whiting and

groundfish allocations for later periods, thus improving profitability. MTC members have dramatically reduced their bycatch and discards of overfished species, and have entered into risk pooling arrangements with other fishermen which allow harvests of target stocks to be maximized across the entire fishery while also minimizing catches of overfished stocks.

14. A preemptive injunction suspending the IFQ Program or the current allocations before the agency completes the necessary evaluations on remand to determine the appropriate remedy would be highly disruptive to the businesses of MTC's members and would forfeit the environmental and economic benefits of the IFQ Program that MTC members have observed.

15. MTC is concerned that any court-ordered remand requiring whiting IFQ shares to be reallocated based upon different qualifying years, without first affording NOAA an opportunity to more fully explain the bases for the existing allocations, would jeopardize the entire IFQ Program. In developing the IFQ Program, one of the most controversial and contentious actions the Council undertook was determining how to allocate IFQ shares among the participants. The final result represents years' worth of Council deliberations, analysis, and public comment sessions. MTC is concerned that, if the end result of this process can be invalidated without an opportunity to fully explain the reasons for the Council's actions, the Council may conclude that it is simply not worth the effort to develop such a program.

16. MTC is also concerned about the long-term implications of a court-ordered reallocation of IFQ shares. If fishing history after the 2003 control date must be taken into account for this IFQ Program, MTC is concerned that any future control dates announced for IFQ programs in other fisheries will merely be a signal to the participants to ramp up capacity and intensify their fishing efforts to boost fishing history and seek greater IFQ

allocations. Under such circumstances, based on its involvement with the development of this and other IFQ programs, MTC is concerned that the very act of announcing a control date in the future could inject massive fishing capacity into a fishery right when initiating the development of a program designed to reduce capacity. MTC members are concerned that invalidating the control date here could incentivize the very activity that IFQ programs are designed to disincentivize.

I declare under penalty of perjury pursuant to 28 U.S.C. § 1746 that the foregoing is true and correct.

Executed on February 2, 2012.

David Jincks
Midwater Trawlers Cooperative

ATTACHMENT 2

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

PACIFIC DAWN, LLC, et al, , Plaintiffs, vs. JOHN BRYSON, in his official capacity as Secretary of the United States Department of Commerce; NATIONAL MARINE FISHERIES SERVICES; and NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, Defendants.	Judge: Thelton E. Henderson Case No: 3:10-cv-4829 **DECLARATION OF JOHANNA THOMAS**

DECLARATION OF JOHANNA THOMAS

JOHANNA THOMAS declares under penalty of perjury the following:

1. My name is Johanna Thomas and I am the Pacific Region Director and Senior Advisor to the New England and Mid-Atlantic Regions for the Oceans Program of the Environmental Defense Fund ("EDF"). I have personal knowledge of the facts stated herein and am competent to testify.

2. EDF is a leading national not-for-profit organization with more than 300,000 members. Since 1967, EDF has linked science, economics, law and innovative private-sector partnerships to create breakthrough solutions to the most serious environmental problems. Through its Oceans Program, EDF identifies and supports the implementation of creative, practical solutions to the most critical problems facing the world's oceans.

3. I have been employed as a staff member of EDF since 1999. For nearly eight years, my professional responsibilities have included supervising and managing EDF's work on conservation issues involving the Pacific Ocean off the coasts of California, Oregon and Washington. Consistent with EDF's mission, my team focuses on innovative solutions that align conservation and economic goals in commercial and recreational fisheries in order to rebuild fish populations and restore healthy, productive fisheries and ecosystems.

BENEFITS OF CATCH SHARE PROGRAMS TO MANAGE MARINE FISHERIES

4. EDF has been a leader in advocating the use of "catch share" programs to manage marine fisheries. One type of a catch share program is an individual fishing quota ("IFQ") program, like the one instituted in the trawl portion of the groundfish fishery by the defendants, pursuant to which each participant is allocated a fixed percentage (i.e., an "individual quota") of the total catch. EDF strongly believes that catch share programs can succeed where other, more traditional approaches to marine fisheries management have failed. Among other projects, EDF has developed a Catch Share Design Manual describing the benefits of catch shares and providing practical information concerning how to design programs to best meet the needs of individual fisheries.[1]

PARTICIPATION OF EDF IN THE DEVELOPMENT OF THE IFQ PROGRAM

5. EDF was extensively involved in the development of the IFQ Program established by the defendants. EDF has been engaged with the Pacific Council in its management of groundfish since 1995, before the Pacific Council began developing the IFQ Program. Due to persistent problems in managing groundfish under more traditional measures, EDF strongly believed that implementing a catch share program was the best option for rebuilding groundfish and restoring productive commercial and recreational fisheries for

[1] *Available at:* http://www.edf.org/documents/11387_catch-share-design-manual.pdf.

them. Assisting in the development and implementation of the IFQ Program has been the centerpiece of EDF's advocacy efforts on ocean-related issues in the Pacific region from 2003 through the present, and EDF has devoted substantial resources towards the enactment of the IFQ Program.

6. In 2003 EDF began urging the Pacific Council to consider developing an IFQ program to manage Pacific groundfish. The Pacific Council formally began development of the IFQ Program in late 2003. From 2003 through 2010, EDF staff members attended every meeting of the Pacific Council where the details of and options for the IFQ Program were discussed and voted upon. EDF staff members served on advisory panels that guided the Pacific Council in considering and evaluating alternatives for the IFQ Program. EDF staff attended and provided input at meetings of the Groundfish Allocation Committee of the Pacific Council and at meetings of the California, Oregon and Washington state fish and game commissions where the IFQ Program was discussed. EDF submitted formal written and oral testimony to the Pacific Council during comment periods on the IFQ Program at various stages of its development and also at public hearings and town hall meetings held by the Pacific Council outside of its routine meeting schedule to discuss and solicit public input on the IFQ Program. In addition, EDF submitted comments to the proposed rule issued by the Defendants to promulgate the federal regulations necessary to implement the IFQ Program. EDF also appeared along with two fishing industry groups as *amici curiae* in support of the defendants in another case challenging the IFQ Program. *See Pacific Coast Fed'n of Fishermen's Ass'ns v. Locke*, No. 3:10-cv-4790-CRB, 2011 WL 3443533 (N.D. Cal. Aug. 5, 2011) (rejecting all of plaintiffs' claims) (appeal pending).

7. Control dates play a critical role in development of catch share programs and the ability of catch share programs to prevent overfishing. One cause of overfishing has been

an excess of fishing capacity – sometimes referred to as "too many boats chasing too few fish." By signaling to industry participants that further investment in fishing capacity will not result in higher allocations, control dates prevent speculation and further overcapitalization. As an organization involved in catch share advocacy in fisheries throughout the country, we are concerned that setting aside control dates in this case will instead be a signal to participants in other fisheries to increase fishing capacity after a control date is announced with the intention of setting them aside after the program is established in order to obtain larger quota allocations. Such a result would only exacerbate a primary problem that catch share programs are designed to resolve.

INTERESTS OF EDF MEMBERS IN THE IFQ PROGRAM

7. Members of EDF use and enjoy the wildlife resources of the Pacific Ocean, including the particular species of groundfish managed by the Pacific Council and the Defendants under the IFQ Program. EDF's members include wildlife enthusiasts, recreational anglers, scuba divers, scientists, and others who receive aesthetic, recreational, scientific and educational benefits from Pacific Ocean wildlife, including groundfish. Thousands of these members live in the coastal states of California, Oregon and Washington.

8. The IFQ Program is expected to enhance and promote the long-term conservation of Pacific fishery resources by ensuring that participants in the groundfish fishery adhere to their catch limits, reducing bycatch and discards of non-target fish, while aligning fishing effort with available catches. EDF views the development and implementation of the IFQ Program as a significant achievement for the long-term conservation and sustainable utilization of Pacific fishery resources. EDF has a discrete interest in the use of catch share

programs as the best method of conserving fisheries and managing fish stocks for long-term utilization.

9. The environmental and economic benefits of the IFQ Program are already materializing. Specifically, wasted bycatch (i.e. fish discarded at sea often dead) has been reduced to 1% of total catch. At the same time the whiting fleet was able to harvest close to its entire allocation of whiting (98%) without exceeding annual catch limits for any overfished species. Included at Attachment 2-1 are three recent articles from major newspapers documenting the benefits achieved by this IFQ Program. Included at Attachment 2-2 is the National Marine Fisheries Service "data snapshot" of the fishery through October 11, 2011 (most recent data publicly available), highlighting low bycatch in the fishery. If the IFQ Program is enjoined or changes to the current IFQ allocations lead to a lack of support for the program among industry participants, the environmental and economic benefits of the program would be lost.

I declare under penalty of perjury pursuant to 28 U.S.C. § 1746 that the foregoing is true and correct. Executed on February 2, 2012.

Johanna Thomas

Johanna Thomas
Environmental Defense Fund

ATTACHMENT 2-1

November 27, 2011

Partnership Preserves Livelihoods and Fish Stocks

By LESLIE KAUFMAN

HALF MOON BAY, Calif. — Stevie Fitz, a commercial fisherman, was pulling up his catch in one of his favorite spots off of Point Reyes in June when he saw something terrifying — in his nets were nearly 300 bocaccio, a dwindling species of rockfish protected by the government.

There are such strict limits on catching the overfished bocaccio that netting a large load, even by accident, can sideline and even ruin an independent fisherman.

Still, Mr. Fitz did not try to hide his mistake by slipping it back into the deep. Instead, he reported himself. With a few swipes on his iPad, he posted the exact time and location of the catch to a computerized mapping system shared by a fleet of 13 commercial boats, helping others to avoid his mistake.

“It was a slap in the face,” he said, “but we are trying to build an information base that will help everyone out.” He was later able to sell the bocaccio, although the catch still counted against his quota for the year.

A lifelong fisherman, Mr. Fitz is part of a very unusual business arrangement with the Nature Conservancy, an environmental group that is trying to transform commercial fishing in the region by offering a model of how to keep the industry vital without damaging fish stocks or sensitive areas of the ocean floor.

Five years ago, the conservancy bought out area fishing boats and licenses in a fairly extreme deal — forged with the local fishing industry — to protect millions of acres of fish habitat. The unusual collaboration was enjoined to meet stricter federal regulations and the results of a successful legal challenge. But once the conservancy had access to what was essentially its own private commercial fishing fleet, the group decided to put the boats back to work and set up a collaborative model for sustainable fishing.

Bringing information technology and better data collection to such an old-world industry is part of the plan. So is working with the fishermen it licenses to control overfishing by expanding closed areas and converting trawlers — boats that drag weighted nets across the ocean floor — to engage in more gentle and less ecologically damaging techniques like using traps, hooks and line, and seine netting.

The conservancy's model is designed to take advantage of radical new changes in government regulation that allow fishermen in the region both more control and more responsibility for their operating choices. The new rules have led to better conservation practices across all fleets, government monitors say.

"It is blowing me away what is happening out there," said William Stelle, the administrator for Pacific Northwest region of the National Oceanic and Atmospheric Administration's marine fisheries service. But, he added, the conservancy "may be the most sophisticated example of the successful marriage of interests between the environmental community and the fishing industry in marine conservation." Similar programs are beginning to appear in other places.

American fish stocks have been troubled since the early 1990s and remain so because of overfishing, pollution, and warming seas. The government says that today 23 percent of fish stocks are not at self-sustaining levels at current fishing pressure.

Congress passed a law in 1996 demanding that local fishery councils protect "essential fish habitat." In 2006, it also imposed tight catch limits for overfished species. As a result, if a fishery exceeds its limit on just one of these species, under federal law, the entire area could be closed to commercial boats for a season.

Local councils have struggled to balance the inherent tensions of adhering to these limits without ruining the fishermen's ability to make a living. To do this, they have imposed regulations like prohibiting fishing in some areas, dictating the catch season and limiting what techniques and gear are used.

But last year, the Pacific Fisheries Management Council replaced some of those restrictions with strict quotas on six imperiled species and parceled them out among all 138 commercial vessels along the coast. Government observers are now put on every boat to make sure there is no cheating.

The downside is that if one boat lands too much of a sensitive species, known as bycatch, it must be docked until it can buy another boat's unused quota — and there is not always a market to balance the catch. The quota system also provides incentive for each fisherman in the risk pool to help prevent others from using up their quota. And the early results for fish stocks are promising. Bycatch has dropped from 15 percent to 20 percent of the total haul to less than 1 percent.

The Nature Conservancy first got involved in central California in 2004 when it was looking to invest in marine conservation zones. The group realized that it needed better information to preserve the most critical areas.

“What the fishermen had was a deep local knowledge of the habitats of certain species,” said Michael Bell, senior project director with the conservancy. “There wasn’t scientific information at that level that could match the fisherman knowledge.”

But getting information from fishermen was difficult because they suspected that the conservancy was just looking to close off more prime fishing territory. So to get cooperation, as well as to reduce trawling along as much of the central coast as possible, the conservancy agreed to reduce the potential financial hardship to fishermen by buying the boats or the fishing permits of anyone who wanted out of the business. Thirteen volunteered to sell their permits, and six of the lot also sold their boats for a cost of about $7 million.

The fishermen soon divulged which nurseries and rock formations needed to be protected and which areas where mature fish congregated should be left open. What resulted was a proposal that included large areas of closings — nearly 4 million acres — that most fishermen thought was fair. It was adopted easily by the fishery council in 2006.

It has not been unheard of for environmental groups to buy boats and licenses and then to retire that part of the quota to take pressure off of an area fishery. But it was not an outcome that the fishermen or their coastal towns — Monterey, Half Moon Bay and Fort Bragg — wanted in this case. Rick Algert, the former harbor director for Morro Bay, near Monterey, explained that fishermen were critical to supporting local infrastructure like fuel piers. And besides, he said, “tourists still like to see boats in a working harbor.”

So the conservancy agreed to lease back some permits and boats, but only if their sustainable conditions were met.

Perhaps the hardest one for the fishermen to accept was the automated posting system known as eCatch. But fishermen have come to believe that the data will show patterns — for example, high catch rates of certain species after full moons along the edge of the shallow water shelf in July — that will help them all predict the danger zones. Independent fisherman have joined the risk pool and eCatch system because they see benefits. By handing out free iPads, the conservancy made the posting of real-time results almost effortless.

Their well-financed effort is among the most technologically advanced and coordinated in the country, but others are catching on. In Massachusetts, scallop fishermen, with the help of the University of Massachusetts, have developed a similar reporting program to avoid pulling in endangered yellowtail flounder.

Many of the fishermen have become fans of a system that yields profits and hardly any bycatch. Steve Fitz, Stevie's uncle, sold their fishing permit to the conservancy and now leases it back. The lease is fair-market value as long as Mr. Fitz continues to use Scottish seining, which is far gentler to the ocean bottom than trawling is.

"The Nature Conservancy had identified that the small family boats were sustainable, and they wanted to help," Mr. Fitz said. "We recognized that we needed help negotiating this increasingly confusing path into the future."

The Seattle Times
Winner of Eight Pulitzer Prizes

Editorials / Opinion

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New fishery-management regime pays off with less waste

The new catch-share program in the West Coast groundfish fishery has been a success, helping the industry cut down on wasted fish and enabling fishermen to "fish to the market."

ONE year ago, West Coast trawl fishermen entered a new management regime in the $40 million-a-year fishery for Pacific whiting, Dover sole and other groundfish. Called catch shares, the idea was to give fishermen an economic incentive to fish more carefully and not waste the resource. The new system appears to be a success.

The old way was to set fishing limits for the fleet. If the fleet reached its limit on an overfished species — say, halibut or rockfish — a boat owner could keep fishing for, say, whiting and throw the halibut and rockfish back. Some 20 to 30 percent of the catch was discarded, usually dead.

The new system forbids most throwbacks. Each boat has limits for several species. If an owner exceeds his limit on one, he must borrow or rent quota for that species from another owner.

Under this system in the first year, discards of wasted fish have fallen to 1 to 3 percent of the catch, says Shems Jud of the Environmental Defense Fund.

Brent Paine, executive director of United Catcher Boats, Seattle, said the system "has worked out extremely well." The 17 United boats in the whiting fishery have created a cooperative that swaps information on where to fish — and where not to fish — for sensitive species. "They figured out pretty quickly how to target species," he says. "They can fish to the market."

Some issues remain. In 2011, every boat had a government observer, which cost about $375 a day. The federal government paid 90 percent, and will again this year. That cannot continue indefinitely. Officials have to work out a way for the fleet to pay for a reasonable amount of coverage.

The Mercury News
MercuryNews.com

Geoff Bettencourt: New rules are saving fish and helping fishers

By Geoff Bettencourt
Special to the Mercury News

Posted: 01/11/2012 08:00:00 PM PST

In recent years, there hasn't been a lot of good news to report about California's commercial fishing industry and the many species that sustain it, but I thought I would pass some along.

I'm a commercial fisherman who fishes out of Half Moon Bay for groundfish, the many species of cod, sole and rockfish that are mainly caught using trawl nets. This week, my fellow groundfish fishermen and I marked an important anniversary. We have been fishing for one full year under a new fishery management program known as "catch shares."

The program assigns to fishermen an annual, percentage-based quota of each groundfish species' total allowable catch, which we are then able to fish for at any time during the yearlong fishing season. Our individual percentage of the total allowable catch is what makes up our "share." In effect, catch shares give us -- for the first time -- a true stewardship role to play in our fishery. We no longer are invested only in our boats and equipment, but in the sustainability of the resource that we depend on for our livelihoods.

Under the old system, fishermen had little or no incentive to avoid overfished species or to behave like the natural conservationists that we are. On the contrary. The old regulations actually forced us to throw 20 to 30 percent of our perfectly good fish, known as "bycatch," overboard -- dead. Every fisherman I know absolutely hated doing this. But in the first full year of our catch

share program, which many fishermen helped develop, the bycatch discard rate has dropped to just 1 percent. We feel very good about that.

With the new system, every trawler now carries an observer who gathers catch data and ensures that we are 100 percent accountable.

Previously, less than a third of these fishing trips were observed, and data collection was spotty. Observers add a significant new cost to our business, but I am hopeful that better data today will result in an increasingly healthy fishery for many years to come.

With the quota-based system, we have much more predictability in our lives and in our businesses. As every small-business owner knows, predictability is a good thing. Without it, confidence is hard to come by, and the slow decline of many California fishing communities over the past few decades is evidence of that.

The other big difference I've seen recently is a new "we're all in this together" attitude among my fellow fishermen. Now we are sharing information about hot spots of overfished species to avoid, and that's new. Under the old system, it was much more an every-man-for-himself atmosphere out on the fishing grounds.

As someone who remembers 2000, when the West Coast groundfish fishery was formally declared a disaster, I'm feeling better than I have in a long time about its future. The new program isn't perfect -- those observer costs could put some of us out of business if the federal government transfers their full weight onto our shoulders too soon -- but this brings up another good thing about the catch share system and the Pacific Fishery Management Council process that developed it: Fishermen have a say. Council members meet on a regular basis, and the program can be continually improved.

The Mercury News
MercuryNews.com

As hard as it may be to believe, this is one case in which government regulators and the people they regulate are working together constructively and making real progress. As both a taxpayer and a fisherman, I find that very encouraging.

Geoff Bettencourt is a commercial fisherman who operates out of Half Moon Bay. He wrote this for this newspaper.

ATTACHMENT 2-2

Agenda Item E.6.b
NMFS Report 1
November 2011

CURRENT INDIVIDUAL FISHING QUOTA (IFQ) CATCH: DATA SNAPSHOT

Since the start of the fishery on January 11, 2011, 214,006,549 pounds have been debited to accounts overall, out of 375,004,872 pounds allocated, (57%) on 1,997 trips, by 102 vessels, using both trawl and fixed gear. Table 1 shows counts of fishtickets and average weights, by state and target, and counts of vessels by state, as of October 11, 2011.

Table 2 lists current shorebased IFQ catch by weight debited, attainment, and retention rates by species category, as of October 11, 2011. The current estimate of total retention rate (by weight) for the fishery is 99%.

Pacific whiting shows the greatest percentage attainment (89%), followed by sablefish north of 36° N. lat. (64%), petrale sole (58%), sablefish south of 36° N. lat. (52%), and longspine thornyheads, north of 34° 27' N. lat. (40%). Tables 3 and 4 show catch distributed by state and port for total IFQ catch, and non-whiting IFQ catch, respectively. Ports have been grouped to preserve confidentiality. Oregon currently shows 74% of total IFQ catch and (59% of non-whiting), Washington shows 22% of total IFQ catch (13% of non-whiting), and California, 4% (28% of non-whiting).

Monthly non-whiting catch rose to its peak in June, at 4,213,345 pounds, and has dropped 21% to 3,336,301 pounds in September since then (Figure 1). Monthly shorebased IFQ catch from Pacific whiting trips peaked in August at 65,284,548 pounds, and fell back to 32,151,128 pounds in September (Figure 2).

Table 1. Counts of tickets and average weights, by state and target, and counts of vessels by state (data as of October 11, 2011).

	ticket counts			**vessels**	**ticket weights**			
					non-whiting		**whiting**	
state	**all**	**non-whiting**	**whiting**	**all**	**ave.**	**SE**	**ave.**	**SE**
CA	542	542	-	33	14,602	663	-	-
OR	1216	526	690	63	32,292	971	203,122	2,855
WA	239	91	148	21	41,173	2,629	289,252	8,313
	1,997	1,159	838	102*				

*Number of vessels is not additive among states, due to multiple-state participation.

Table 2. Current catch (pounds debited), percent attainment and retention for the shorebased IFQ fishery, as of October 11, 2011.

IFQ Species	Allocation	Catch to Date	QP Remaining	Attainment	Retention
Arrowtooth flounder	27,406,105	4,503,632	22,902,473	16%	91%
Bocaccio rockfish South of 40°10' N.	132,277	5,457	126,820	4%	100%
Canary rockfish	57,100	7,099	50,001	12%	96%
Chilipepper rockfish South of 40°10' N.	3,252,370	544,587	2,707,783	17%	97%
Cowcod South of 40°10' N.	3,968	23	3,945	1%	74%
Darkblotched rockfish	552,997	91,250	461,747	17%	97%
Dover sole	49,018,682	13,488,387	35,530,295	28%	98%
English sole	41,166,808	238,351	40,928,457	1%	79%
Lingcod	4,107,873	461,148	3,646,725	11%	85%
Longspine thornyheads North of 34°27' N.	4,334,839	1,749,267	2,585,572	40%	95%
Minor shelf rockfish North of 40°10' N.	1,150,813	25,562	1,125,251	2%	82%
Minor shelf rockfish South of 40°10' N.	189,598	4,539	185,059	2%	17%
Minor slope rockfish North of 40°10' N.	1,828,779	204,056	1,624,723	11%	96%
Minor slope rockfish South of 40°10' N.	831,958	72,381	759,577	9%	99%
Other flatfish	9,253,683	1,259,644	7,994,039	14%	83%
Pacific cod	2,502,247	526,103	1,976,144	21%	100%
Pacific halibut (IBQ) North of 40°10' N.	257,524	66,475	191,049	26%	1%
Pacific ocean perch North of 40°10' N.	263,148	49,332	213,816	19%	99%
Pacific whiting	204,628,442	182,695,053	21,933,389	89%	99%
Petrale sole	1,920,226	1,116,217	804,009	58%	97%
Sablefish North of 36° N.	5,613,719	3,605,734	2,007,985	64%	99%
Sablefish South of 36° N.	1,170,390	608,167	562,223	52%	99%
Shortspine thornyheads North of 34°27' N.	3,156,138	1,144,877	2,011,261	36%	99%
Shortspine thornyheads South of 34°27' N.	110,231	7,965	102,266	7%	97%
Splitnose rockfish South of 40°10' N.	3,045,245	36,523	3,008,722	1%	35%
Starry flounder	1,471,586	24,010	1,447,576	2%	94%
Widow rockfish	755,348	264,681	490,667	35%	90%
Yelloweye rockfish	1,323	83	1,240	6%	87%
Yellowtail rockfish North of 40°10' N.	6,821,455	1,205,946	5,615,509	18%	100%
Total	375,004,872	214,006,549	160,998,323	57%	99%

Table 3. Total IFQ pounds debited by state and ports (whiting and non-whiting; data as of October 11, 2011).

State	Ports	Lbs. debited	Percent
WA			
	Ilwaco	9,134,191	4%
	Bellingham and Westport	37,755,006	18%
	Subtotal	46,889,197	22%
OR			
	Astoria	100,372,562	47%
	Newport	49,331,903	23%
	Charleston, Brookings, and unidentified ports	9,008,854	4%
	Subtotal	158,713,319	74%
CA			
	Crescent City, Eureka	3,777,674	2%
	Fort Bragg, Monterey, Morro Bay, Moss Landing, Princeton, San Francisco, Avila, and unidentified ports	4,626,359	2%
	Subtotal	8,404,033	4%
Total		214,006,549	100%

Table 4. Non-whiting IFQ pounds debited by state and ports (non-whiting only; data as of October 11, 2011).

State	Ports	Lbs. debited	Percent
WA			
	Ilwaco	2,600,162	9%
	Bellingham and Westport	1,373,784	5%
	Subtotal	3,973,946	13%
OR			
	Astoria	10,623,765	35%
	Newport	1,946,184	6%
	Charleston and Brookings	5,228,626	17%
	Subtotal	17,798,575	59%
CA			
	Crescent City, Eureka	3,777,674	13%
	Fort Bragg, Monterey, Morro Bay, Moss Landing, Princeton, San Francisco, Avila, and unidentified ports	4,626,359	15%
	Subtotal	8,404,033	28%
Total		30,176,554	100%

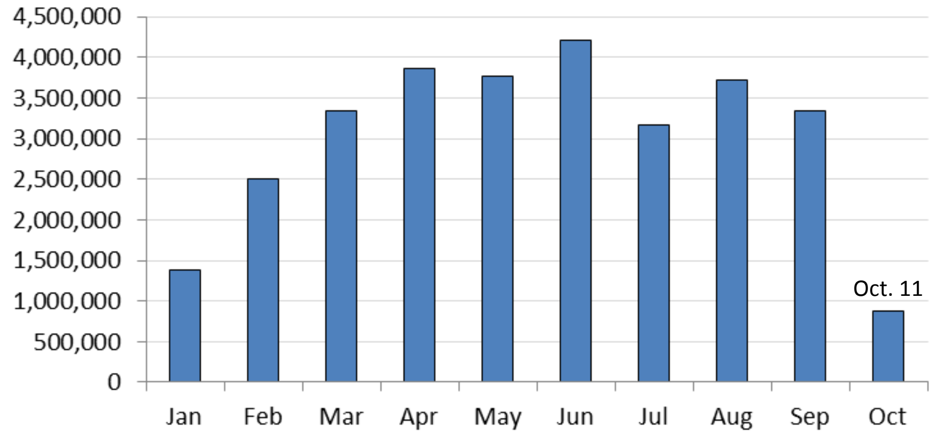


Figure 1. Monthly shorebased IFQ catch from non-whiting trips, as of October 11, 2011.

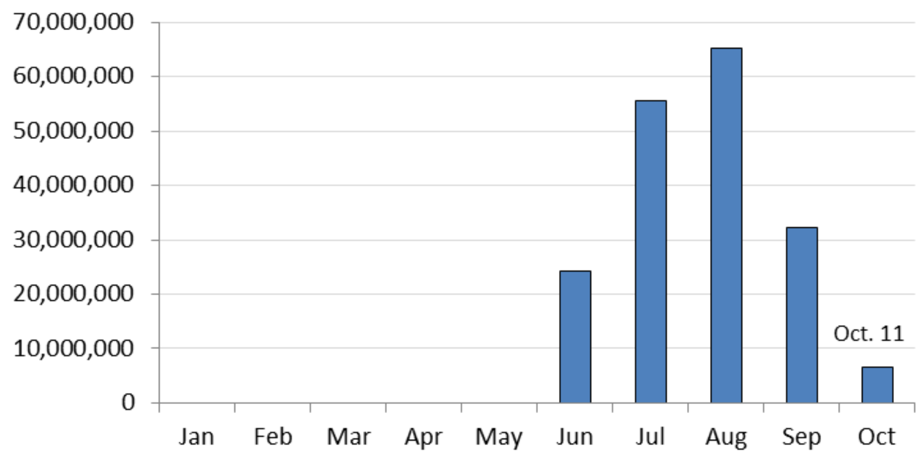


Figure 2. Monthly shorebased IFQ catch from Pacific whiting trips, as of October 11, 2011

Data were queried from the NMFS Vessel Accounts system on October 11, 2011 and were separated into non-whiting and whiting trips for reporting. IFQ fishing began January 11, 2011. A tsunami impacted Southern Oregon and Northern California on March 11, which likely affected effort and landings in those areas. In previous years, shoreside whiting began in California on April 1. The first whiting landings were made in 2011 after June 15th, when the fishery opened coastwide. Crab fishing during January through June was apparently a competing interest with the IFQ fishery, and participation in the two fisheries by vessels fishing IFQ in 2011 were negatively related (r^2 = 0.83, Mid-year IFQ Catch Report, Supplemental NMFS Report, G.7.b., September PFMC meeting).

ATTACHMENT 3

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

PACIFIC DAWN, LLC, et al., Plaintiffs, vs. JOHN BRYSON, in his official capacity as Secretary of Commerce, et al., Defendants.	Judge: Thelton E. Henderson Case No: 3:10-cv-4829 **DECLARATION OF JOSEPH T. PLESHA**

DECLARATION OF JOSEPH THOMAS PLESHA

JOE PLESHA declares under penalty of perjury the following::

1. My name is Joseph Thomas Plesha and I am the Chief Legal Officer of Trident Seafoods Corporation ("Trident"). I have personal knowledge of the facts stated herein and am competent to testify.

2. Trident was founded in 1973 and today is one of the largest seafood companies in the United States in terms of total value of seafood products sold to consumers. Trident generates annual revenues in excess of $1 billion through its seafood harvesting and processing operations. Trident owns a fleet of harvesting vessels and catcher/processor vessels that catch finfish and shellfish in the North Pacific and off the Pacific coast. Trident also owns fish processing facilities Oregon, Washington and Alaska. Trident employs over 8,000 people, including over 125 people at its processing facility in Newport, Oregon.

3. I have served as General Counsel for Trident since 1987 through 2009 and its Chief Legal Officer since 2009. I personally participated in the development of the individual fishing quota ("IFQ") program implemented by Amendments 20 and 21 to the Pacific Coast Groundfish Fishery Management Plan ("IFQ Program") developed by the Pacific Fishery Management Council ("Council"). I served on the Council's Transferable Individual Quota Committee ("TIQC") that guided the Council in considering and evaluating alternatives for the IFQ Program. I also participated in the development of the IFQ Program by meeting with members of Congress, Congressional staff, members of the Administration and other government officials to discuss management options, attending Council meetings, I personally testified before the Council in support of the IFQ Program and the manner in which it allocated IFQ shares to harvesters and processors.

4. As a member of the TIQC advising the Council on management alternatives, I believed it was critical that the Council adhere to the 2003 control date for harvesters and not allocate IFQ shares to harvesters based on fishing history accumulated after the control date. This was because a fundamental purpose of the IFQ Program was to address overcapacity in the whiting fishery, and it would have undermined that purpose to reward those who speculatively added fishing capacity after the control date as the Council developed a plan to reduce fishing capacity. I was also concerned about setting a precedent of disregarding a control date in a fishery, which I believed would cause problems in developing future IFQ programs in other fisheries by encouraging fishermen to increase fishing capacity after the announcement of a control date.

5. I supported using more recent logbook data from 2003 to 2006 for IFQ allocations for overfished species. Overfished species operate as a constraint on catches of target species like whiting, and I believed that using more recent fishing history would better

approximate current fishing patterns and thereby maximize harvests of target species. There were other controls in place to prevent speculative increases in fishing history for overfished species, and so adhering to the 2003 control date was not as critical for overfished species as it was for target species.

6. Therefore, while I believed that holding the control date at 2003 for IFQ allocations of target species like whiting to harvesters was critical to ensuring the success of the IFQ Program and similar future programs, I believed there were legitimate reasons to allocate IFQ shares of overfished species based upon fishing history through 2006 and to allocate whiting IFQ shares to processors based on processing history through 2004.

7. Trident has substantial interests in the IFQ Program. Specifically, under the IFQ Program, the Council elected to apportion to shoreside fish processors 20 percent of the total harvesting privileges for Pacific whiting, with the remaining 80 percent being apportioned to harvesting vessels. Trident received IFQ allocations for Pacific whiting based upon the processing history of its facility in Newport, Oregon during the period from 1998-2004. Trident has made business decisions and committed resources based upon its allocations of IFQ shares under the IFQ Program.

8. The IFQ Program has generated substantial economic and environmental benefits during its first year of operation. The fishery has become more stable because fishermen no longer must race against each other to catch the available harvest and now can spread their catches out over the course of a year. Trident has observed substantial reductions in bycatch of overfished species because fishermen can now have incentives and the flexibility to avoid bycatch. Reductions in bycatch also have enabled harvests of target stocks to be maximized because catch limits for over fished species have not forced fishermen to stop fishing for target stocks.

9. If the IFQ Program is enjoined or if the existing IFQ allocations are vacated, the substantial economic and environmental benefits achieved by the IFQ Program would be lost. This result would frustrate the Council's efforts to conserve and promote the long-term sustainable exploitation of Pacific groundfish. The commitments Trident has made based upon its IFQ allocations would be jeopardized.

10. Trident is concerned that a court-ordered remand requiring the Council to reallocate whiting IFQ shares based upon different control dates, without first affording NOAA an opportunity to justify the existing allocations, would cause substantial disruption in the fishery and could jeopardize the IFQ Program. As a member of the TIQC, I observed how contentious allocation decisions in this fishery can be. It took the Council years of deliberations to settle upon the allocation formulas in the IFQ Program. Reopening this deliberative process, particularly when all of the other elements of the program are already fixed and implemented, would be extremely contentious with an uncertain outcome. Before proceeding down such a path, Trident believes NOAA should first be afforded an opportunity to adequately justify the existing allocations.

11. Trident also is concerned about the long-term implications of a court-ordered reallocation of IFQ shares. If the court mandates that fishing history after the 2003 control date must be taken into account for this IFQ Program, Trident is concerned that any future control dates announced for IFQ programs in other fisheries will signal participants to ramp up capacity and intensify their fishing efforts to boost fishing history and seek greater IFQ allocations. That result would undermine the very purpose of IFQ programs to address overcapacity.

I declare under penalty of perjury pursuant to 28 U.S.C. § 1746 that the foregoing is true and correct.

Executed on February 1, 2012.

Joseph T. Plesha
Chief Legal Officer
Trident Seafoods Corporation

ATTACHMENT 4

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

PACIFIC DAWN, LLC, et al., Plaintiffs, vs. JOHN BRYSON, in his official capacity as Secretary of Commerce, et al., Defendants.	Judge: Thelton E. Henderson Case No: 3:10-cv-4829 **DECLARATION OF TIM HORGAN**

DECLARATION OF TIM HORGAN

TIM HORGAN declares under penalty of perjury the following:

1. My name is Tim Horgan and I am the Chief Operating Officer of Pacific Seafood, Inc. I have personal knowledge of the facts stated herein and I could and would competently testify thereto if called as a witness.

2. Pacific Seafood is one of the largest fish processing companies on the West coast of the United States in terms of volume of fish processed and value of seafood products sold to consumers. From its humble beginnings in 1941, Pacific Seafood today, has over 30 fish processing facilities along the Pacific coast and distribution facilities in seven states, and employs over 1500 personnel.

3. I have served as Chief Operating Officer for Pacific Seafood since 2009. Before that, I was employed by Pacific Seafood as the General Manager of Processing from 1994

to 2009. I have worked in the seafood industry for 35 years. I participated in the development of the individual fishing quota ("IFQ") program implemented by Amendments 20 and 21 to the Pacific Coast Groundfish Fishery Management Plan ("IFQ Program") developed by the Pacific Fishery Management Council ("Council") by meeting with government officials, council members, and staff to discuss management options, reviewing management options considered by the Council and offering input on those options on behalf of Pacific Seafood and attending Council meetings.

4. Pacific Seafood has substantial interests in the IFQ Program. Specifically, under the IFQ Program, the Council elected to apportion to shoreside fish processors 20 percent of the total harvesting privileges for Pacific whiting, with the remaining 80 percent being apportioned to harvesting vessels. Accordingly, Pacific Seafood received IFQ allocations for Pacific whiting based upon the processing history of its fish processing facilities during the period from 1998-2004. In addition, Pacific Seafood owns interests in harvesting vessels that also received allocations of IFQ shares for Pacific whiting and other Pacific groundfish under the IFQ Program based upon those vessels' fishing history from 1994- 2003.

5. Since taking effect in January 2011, the IFQ Program has generated substantial economic and environmental benefits for the whiting fishery. One purpose for the Council's decision to allocate IFQ shares to fish processors was to preserve the historic processing capacity in coastal communities. Allocating some whiting IFQ shares directly to historic processors provided a tool for processing facilities to attract deliveries from vessels, because facilities could provide their IFQ shares to vessels delivering to those plants, and processors could thereby secure the necessary volumes of fish to stay in business. This aspect of the IFQ Program has proven remarkably successful. Pacific Seafood maintained or increased production at all of its processing facilities and was able to keep some facilities in

operation for longer durations and generate higher revenues than would have been possible prior to the implementation of the IFQ Program. For example, Pacific Seafood's plant in Charleston, Oregon operated longer during 2011 than it would have if the IFQ program was not in place. Pacific Seafood's plants in Warrenton and Newport, Oregon developed new operational methods to improve and capitalize upon the volume of fish coming through these plants.

6. In addition to preserving processing capacity, the IFQ Program also has improved the economic performance of the whiting fishery. The IFQ Program slowed the pace of the fishery and resulted in a more constant supply of whiting over the course of the year. This not only improved the dockside prices paid to fishermen for whiting, but also enabled processors to develop new products and new markets for whiting. As one example, Pacific Seafood was able to find a market for whole (or round) whiting in certain African countries that it could not have served before due to lack of freezer capacity for large quantities of whole fish during spikes in whiting landings by harvesters. The slower pace of the fishery opened up freezer capacity on a continuing basis that enabled Pacific Seafood to retain larger quantities of whole fish and find new markets for that product.

7. The IFQ Program also has generated environmental benefits, namely a reduction in the amount of bycatch of overfished species. Prior to the implementation of the IFQ Program, the whiting fishery was an Olympic fishery where fishermen raced against one another to catch the available whiting quota. At times fishermen would catch too many overfished species and would have to stop fishing for whiting, leaving fish in the water that could otherwise have been exploited. The IFQ Program created incentives and allowed flexibility to avoid bycatch. During the first year, bycatch decreased substantially and did

not force fishermen to stop fishing for whiting, thus maximizing harvests of target stocks and maximizing the economic value of the fishery while helping overfished stocks rebuild.

8. The IFQ Program has made the fishery more stable and predicable which, in turn, has resulted in the economic and environmental benefits that Pacific Seafood observed during the first year of the program. If the IFQ Program is enjoined or if the allocations of IFQ shares are invalidated and set aside, the stability and predictability would be lost and the economic and environmental benefits achieved by the IFQ Program would be forfeited. Participants in the fishery have made business decisions and commitments based upon their current allocations of IFQ shares. If any modifications to the IFQ Program are required in order to comply with legal mandates, leaving the existing regulations and allocations in place pending the development and implementation of those modifications would be the course of action that is least disruptive to the fishery and most likely to retain the economic and environmental benefits the IFQ Program has generated.

I declare under penalty of perjury pursuant to 28 U.S.C. § 1746 that the foregoing is true and correct.

Executed on February 1, 2012.

Tim Horgan
Chief Operating Officer
Pacific Seafood, Inc.

ATTACHMENT 5

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

PACIFIC DAWN, LLC, et al., Plaintiffs, vs. JOHN BRYSON, in his official capacity as Secretary of Commerce, et al., Defendants.	Judge: Thelton E. Henderson Case No: 3:10-cv-4829 **DECLARATION OF TOM LIBBY**

Tom Libby declares under penalty of perjury the following:

1. My name is Tom Libby and I am Corporate Manager, California Shellfish Co., Inc., dba Point Adams Packing Company ("Cal Shell"). I have personal knowledge of the facts stated herein and am competent to testify.

2. Cal Shell was founded in 1948, and Point Packing Company in 1928. Cal Shell owns processing facilities in Hammond, and Charleston, Oregon; receiving stations in Newport and Bookings, Oregon. Cal Shell employs 250 - 400 people, depending on the season, at its processing facilities in Oregon.

3. I have served as Special Projects Manager for Cal Shell since 2004. Before that, I was employed by Cal Shell as General Manager, Point Adams Packing Company from 1982 to 2004. I have worked in the seafood industry for 43 years. I personally participated in the development of the individual fishing quota ("IFQ") program implemented by Amendments 20 and 21 to the Pacific Coast Groundfish Fishery Management Plan ("IFQ

Program") developed by the Pacific Fishery Management Council ("Council"). I serve on the Council's Groundfish Advisory Panel providing advice that guided the Council in considering and evaluating alternatives for the IFQ Program. I also participated in the development of the IFQ Program by attending Council meetings prior to my appointment to the Advisory Panel. I personally testified before the Council in support of the IFQ Program and the manner in which it allocated IFQ shares to harvesters and processors.

4. As a member of the Groundfish Advisory Panel providing advice to the Council on management alternatives, I believed it was critical that the Council adhere to the 2003 control date for harvesters and not allocate IFQ shares to harvesters based on fishing history accumulated after the control date. This was because a fundamental purpose of the IFQ Program was to address overcapacity in the whiting fishery, and it would have undermined that purpose to reward those who speculatively added fishing capacity after the control date as the Council developed a plan to reduce fishing capacity. Of primary concern to me was setting a precedent of disregarding a control date in a fishery, which I believed would encourage fishermen to increase capacity after the announcement of a control date.

5. Overfished species operate as a constraint on catches of target species like whiting, and I believed that using more recent fishing history would better approximate current fishing patterns and thereby maximize harvests of target species; therefore, I supported using more recent logbook data from 2003 to 2006 for IFQ allocations for overfished species. There were other controls in place to prevent speculative increases in fishing history for overfished species, rendering the 2003 control date a non-issue for overfished species.

6. I also supported extending to 2004 the qualifying period for processors to obtain IFQ shares based upon their processing history. The purpose of extending the qualifying

period to 2004 was to recognize major investments in shoreside processing facilities that were made prior to 2003 but which took time to come online and develop processing history. In addition, because the purpose of the 2003 control date was to prevent speculative increases in fishing capacity – not processing capacity – I did not view the extension to 2004 for IFQ allocations to processors as undermining the purpose of the control date for harvesters.

7. Therefore, while I believed that holding the control date at 2003 for IFQ allocations of target species like whiting to harvesters was critical to ensuring the success of the IFQ Program and similar future programs, I believed there were legitimate reasons to allocate IFQ shares of overfished species based upon fishing history through 2006 and to allocate whiting IFQ shares to processors based on processing history through 2004.

8. Cal Shell has substantial interests in the IFQ Program. Specifically, under the IFQ Program, the Council elected to apportion to shoreside fish processors 20 percent of the total harvesting privileges for Pacific whiting, with the remaining 80 percent being apportioned to harvesting vessels. Cal Shell received IFQ allocations for Pacific whiting based upon the processing history of its facility in Hammond, Oregon during the period from 1998-2004. Cal Shell has processed whiting since 1992. Cal Shell has made business decisions and committed resources based upon its allocations of IFQ shares under the IFQ Program.

9. The IFQ Program has generated substantial economic and environmental benefits during its first year of operation. The fishery has become more stable and profitable because fishermen no longer must race against each other to catch the available harvest and now can spread their catches out over the course of a year avoiding spikes in landings that previously drove down prices. On the processing side, Cal Shell has been able to develop

new markets and new products based upon the expectation of having a steady volume of fish to process. Cal Shell also has observed substantial reductions in bycatch of overfished species because fishermen now have incentives and the flexibility to avoid bycatch. Reductions in bycatch also have enabled harvests of target stocks to be maximized because catch limits for overfished species have not forced fishermen to stop fishing for target stocks.

10. If the IFQ Program is enjoined or if the existing IFQ allocations are vacated, the substantial economic and environmental benefits achieved by the IFQ Program would be lost. This result would frustrate the Council's efforts to conserve and promote the long-term sustainable exploitation of Pacific groundfish. The commitments Cal Shell has made based upon its IFQ allocations would be jeopardized.

11. Cal Shell is concerned that a court-ordered remand requiring the Council to reallocate whiting IFQ shares based upon different control dates, without first affording NOAA an opportunity to justify the existing allocations, would cause substantial disruption in the fishery and could jeopardize the IFQ Program in its entirety. As a member of the Groundfish Advisory Panel, I observed how contentious allocation decisions in this fishery can be. It took the Council years of deliberations to settle upon the allocation formulas in the IFQ Program. Reopening this deliberative process, particularly when all of the other elements of the program are already fixed and implemented, would be extremely contentious with an uncertain outcome. Before proceeding down such a path, Cal Shell believes NOAA should first be afforded an opportunity to adequately justify the existing allocations.

12. Cal Shell also is concerned about the long-term implications of a court-ordered reallocation of IFQ shares. If the court mandates that fishing history after the 2003 control

date must be taken into account for this IFQ Program, Cal Shell is concerned that any future control dates announced for IFQ programs in other fisheries will signal participants to ramp up capacity and intensify their fishing efforts to boost fishing history and seek greater IFQ allocations. That result would undermine the very purpose of IFQ programs.

I declare under penalty of perjury pursuant to 28 U.S.C. § 1746 that the foregoing is true and correct.

Executed on February 1, 2012.

Tom Libby
Corporate Manager, Special Projects
California Shellfish Co., Inc.

ATTACHMENT 6

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

PACIFIC DAWN, LLC, et al., Plaintiffs, vs. JOHN BRYSON, in his official capacity as Secretary of Commerce, et al., Defendants.	Judge: Thelton E. Henderson Case No: 3:10-cv-4829 **DECLARATION OF DONNA PARKER**

Donna Parker declares under penalty of perjury the following:

1. My name is Donna Parker and I am Director of Government Affairs at Arctic Storm Management Group located at 2727 Alaskan Way, Pier 69 in Seattle, Washington. I have personal knowledge of the facts stated herein and am competent to testify.

2. Arctic Storm Management Group (ASMG) was founded in 1986. ASMG operates two catcher-processor factory vessels and two catcher vessels. It participates in the pollock, yellowfin sole and Pacific cod fisheries in the Bering Sea and the Pacific whiting fishery off the coast of Washington and Oregon. ASMG employs approximately 300-400 people. The company has participated in the whiting fishery since 1988. ASMG's two catcher vessels received IFQ allocations of 1.43% of whiting as part of the Inshore Sector IFQ Program and received 7.38% of whiting as part of the Mothership Sector Cooperative Program through a contractual distribution of Cooperative shares. Under the new program implemented in 2011, approximately 25% of the CP Arctic Storm's annual days at sea were as a Mothership

that purchased and processed whiting from catcher vessels that harvested 26% of the Mothership Sector's annual allocation of whiting.

3. I have served as Director of Government Affairs for ASMG since 1998. Before that, I was employed by the State of Alaska as its Fisheries Specialist in the Department of Commerce. I have worked either as a fisherman, fisheries trade journalist, fisheries specialist or for a seafood company since 1986. I personally participated in the development of the individual fishing quota ("IFQ") program for the Inshore Sector and the Cooperative Program for the Mothership Sector both implemented by Amendments 20 and 21 to the Pacific Coast Groundfish Fishery Management Plan. I served on the Council's Trawl Individual Quota (TIQ) Committee that was tasked with developing and reviewing IFQ and Cooperative Program alternatives for consideration by the Council. I also participated in the development of the IFQ and Cooperative Program by attending Council meetings during development and consideration of the program by the Council. I personally testified before the Council in support of the Mothership Sector Cooperative Program including the catch history years used to allocate whiting to the Mothership Sector Cooperative.

4. As a member of the TIQ Committee and as a participant in the process, I believed it was critical that the Council adhere to the 2003 control date for harvesters and not allocate IFQ or Cooperative shares based on fishing history accumulated after the control date. This was because a fundamental purpose of the IFQ and Cooperative Programs was to address overcapacity in the whiting fishery, and it would have undermined that purpose to reward those who speculatively added fishing capacity after the control date as the Council developed a plan to reduce fishing capacity. Of primary concern to me was setting a precedent of disregarding a control date in a fishery, which I believed would encourage

fishermen to increase capacity after the announcement of a control date. ASMG built its' annual fishing plan based on the Council's reaffirmation of its use of the Control Date during the development of Amendment 20 and 21. In other words, ASMG vessels did not attempt to increase our participation in the fishery in the years following 2003 in hopes to increase its catch history. If catch history years are used beyond 2003, allocations of whiting will decrease to ASMG catcher vessels.

5. ASMG has substantial interests in the Mothership Sector Cooperative Program. Specifically, under this Program, the Council elected to apportion to the Mothership Sector a single allocation to the sector. If participants in the Mothership Sector formed a Cooperative, shares of the sector allocation would be allocated to Mothership Sector catcher vessel permit holders based on their catch history. No allocations were given to Mothership processors who are totally reliant on catch shares allocated to the fleet of catcher vessels that deliver whiting to their processing platforms. The fleet that delivers to ASMG's mothership(s) were allocated 26% of the Mothership sector allocation. It took about one year to assemble this fleet so that the harvesting and processing capacities would be matched. In 2011, the first year of the program, this allowed three processing trips by our Mothership, the CP Arctic Storm. Each trip lasted approximately 14 - 21 days until the vessel reached capacity meaning that its hold was full of processed and frozen fish. Preparation investment for each trip is approximately $800,000 to purchase packaging, gear, fuel, additives, food and does not include labor, insurance, freight, cold storage and port costs. Preparation must be made in advance and processing and harvesting capacity well matched. If the vessels that comprise our harvesting fleet are reallocated different amounts of whiting because different catch history years are chosen, it could be destabilizing to our operation.

6. The IFQ and Cooperative Programs have generated economic and environmental benefits during its first year of operation. The fishery has become more stable and profitable to fishermen because they no longer must race against each other to catch the available harvest and now can spread their catches out over the course of a year. On the processing side, it has allowed our Mothership to buy fish in both the spring and fall. If the whiting IFQ and Cooperative Programs are vacated, the economic and environmental benefits achieved by the Programs will be lost. This result would frustrate the Council's efforts to conserve and promote the long-term sustainable harvest of Pacific whiting groundfish.

7. ASMG is concerned that a court-ordered remand requiring the Council to reconsider whiting IFQ and Cooperative shares based upon different catch history dates, without first affording NOAA an opportunity to justify the existing allocations, would cause substantial disruption in the fishery and could jeopardize the IFQ and Cooperative Programs. As a member of the TIQ Committee and a participant in the process, I have observed how contentious allocation decisions in this fishery can be. Reopening this deliberative process, particularly when all of the other elements of the program are already fixed and implemented, would be extremely contentious with an uncertain outcome. Before proceeding down such a path, ASMG believes NOAA should first be afforded an opportunity to adequately justify the existing allocations.

8. ASMG is also concerned about the long-term implications of a court-ordered reallocation of whiting IFQ and Cooperative shares. If the court mandates that fishing history after the 2003 control date must be taken into account for these Programs, ASMG is concerned that any future control dates announced for IFQ and Cooperative programs in other fisheries will signal participants to intensify their fishing efforts to increase fishing

history and seek greater allocations. That result would undermine the very purpose of IFQ and Cooperative programs.

I declare under penalty of perjury pursuant to 28 U.S.C. § 1746 that the foregoing is true and correct.

Executed on February 2, 2012.

Donna Parker

Donna Parker
Director of Government Affairs
Arctic Storm Management Group
Seattle, WA

Agenda Item I.6
Situation Summary
April 2012

GROUNDFISH ESSENTIAL FISH HABITAT REVIEW

Pacific Coast groundfish essential fish habitat (EFH) was established in 2006 as part of Amendment 19 to the Pacific Coast Groundfish Fishery Management Plan. In September 2010, the Council directed the ad hoc Essential Fish Habitat Review Committee (EFHRC) to initiate the review, in accordance with the Council Operating Procedure 22. The Chair of the EFHRC, Mr. Brad Pettinger, and Dr. Waldo Wakefield, a member of the EFHRC, will provide a committee report addressing the following issues relevant to the ongoing EFH review:

1) an amended schedule;
2) a draft request for proposals (RFP) for consideration;
3) a discussion of a conflict of interest/recusal discussion paper; and
4) an overview of the information compiled thus far.

Council Action:

1. **Consider revised schedule.**
2. **Provide guidance on the draft RFP.**
3. **Provide guidance regarding conflict of interest and recusal issues.**

Reference Materials:

1. Agenda Item I.6.b, EFHRC Report.

Agenda Order:

a. Agenda Item Overview — Kerry Griffin
b. EFHRC Report — Brad Pettinger, Waldo Wakefield
c. Reports and Comments of Advisory Bodies and Management Entities
d. Public Comment
e. **Council Action:** Consider Request for Proposals and Clarify Other Process Issues

PFMC
03/19/12

GROUNDFISH ESSENTIAL FISH HABIAT REVIEW COMMITTEE REPORT

The Pacific Coast Groundfish Essential Fish Habitat Review Committee (EFHRC) met in January, 2012, to review data and information compiled thus far during the periodic EFH review; and met on via conference call on February 28, 2012. The attached materials provide background for several matters the EFHRC is addressing. These include:

A. A schedule change
B. Draft request for proposals
C. Discussion paper on conflict of interest and recusals
D. Presentation summarizing some of the data and mapping information compiled to date

A. Revised Groundfish EFH Schedule

(Italics = revisions)

Timing/Due Date	**Action**
April 2011	Council approves the process, and solicits for information and data (deadline: July 1, 2011)
Summer 2011	NMFS Science Center (or contractor) compiles and synthesizes data and information, initiates review. EFHRC starts reviewing interim products
Dec 31, 2011	NMFS Science Center (or contractor) product due
April, 2012	*EFHRC provides progress update to Council*
Jan ~~-March~~ *August* 2012	EFHRC drafts report summarizing new data and information; including how it compares with existing information, maps, etc.
~~April~~ *September* 2012	Council adopts interim report and issues RFP for any changes to existing GF EFH, HAPCs, etc. (END PHASE I)
December 20, 2012	*Proposals due (90 days after RFP issuance)*
January – February 2013	*EFHRC reviews proposals; drafts final report, including any recommendations for potential changes to EFH*
~~Sept 2012~~	~~EFHRC drafts final report, including recommendations for potential changes to EFH~~
~~November~~ *April 2013*	Final Action by Council (END PHASE II)
Post ~~November~~ *April 2013*	If Council determines that changes to EFH are warranted, that would initiate Phase 3. Additional work could be in the form of an FMP amendment or other non-FMP product such as a chapter in the SAFE document. At that point, the EFHRC would be adjourned, because the review will have been completed. Any further work would require delegation to or establishment of an appropriate workgroup (e.g., GMT, amendment committee, etc.)

B. Draft Request for Proposals (RFP) to Modify Essential Fish Habitat for Pacific Coast Groundfish

Introduction and Background

The Pacific Fishery Management Council's (Council) Essential Fish Habitat Review Committee (EFHRC) is conducting a review of essential fish habitat (EFH) for Pacific Coast Groundfish managed under the Council's Pacific Coast Groundfish Fishery Management Plan (FMP). This review is being conducted consistent with the Magnuson-Stevens Act and the National Marine Fisheries Service regulatory guidance (50 CFR §600), which states that reviews of EFH should be conducted at least every five years. New scientific research and updated fish and habitat surveys that have occurred since groundfish EFH was established in 2005 may provide new rationale to consider additional measures

Upon conclusion of Phase I of the review and issuance of the Phase I report, the Council will issue an RFP to solicit proposals to modify Pacific Coast groundfish EFH. The new information that was found during the EFH review is described in the EFHRC's Phase I report. That report, as well as data and information (including GIS files) gathered in this phase by the EFHRC will be made available to the public as well. The report and associated information and data products should be used in developing proposals submitted in response to this RFP.

Phase II of the EFH review consists of an RFP to modify groundfish EFH or its components. Proposals may address any of the components identified in the EFH regulations at 50 CFR 600.815(a)(1) – (a)(10). These include:

- Description and identification of EFH
- Council-managed fishing activities that may adversely affect EFH (including practicable measures to minimize adverse effects)
- Non-fishing activities that may adversely affect EFH
- Cumulative impacts
- Conservation and enhancement measures
- Impacts to prey species of Pacific Coast groundfishes
- Habitat areas of particular concern (HAPC)
- Research and information needs

The Council will accept proposals from state, Federal, and Tribal entities, non-governmental organizations, academic institutions, and the public. The Council's EFHRC will conduct an evaluation of proposals received by the deadline, and may develop its own proposal, if warranted. The EFHRC will also develop recommendations to be considered by the Council at the appropriate meeting, tentatively April, 2013. At that point, the EFH review process will be concluded and the Council will decide whether sufficient new information exists to pursue modifying groundfish EFH, via an FMP amendment or other appropriate vehicle.

Section 7.2 and Appendix B in the FMP describes groundfish EFH, which is generally between the shore line or the limit of saltwater intrusion out to depths of 3,500 m as well as seamounts in depths greater than 3,500 m. HAPCs have been identified for four habitat types (estuaries, canopy kelp, seagrass, and rocky reefs) and several Areas of Interest. Figure 7.2 in the FMP is a map of the approximate location of habitat types identified as HAPCs. The coordinates defining the area of interest HAPC are presented in FMP Appendix B. Ecologically important habitat closed areas are areas that have been closed to certain bottom contact gear to protect EFH, and are currently categorized as either bottom trawl closed areas or bottom contact closed areas. There are currently 50 such areas along the West Coast; maps showing their locations and coordinates defining their boundaries are presented in FMP Appendix C. The bottom trawl footprint closure covers all areas westward of the 1280 m (700 fm) contour, out to the 3500 m (1914 fm) contour, within the EEZ, designed to minimize adverse fishing effects on EFH. The groundfish FMP along with the appendices, is available on the Council website at: http://www.pcouncil.org/groundfish/fishery-management-plan/.

Protocol for Submitting and reviewing proposals to modify groundfish EFH
Proposals will be reviewed in the context of the following sections A, B, and C. The EFHRC will review all proposals, but not conduct any analysis. Any proposal that depends on analysis of the available data must include documentation and explanation of the methods and outcomes of the analysis.

A. Submission
   1. Proposals for Council review and consideration must be received (tentatively) by December 20, 2012, at the Council office.
   2. Proposals may originate from individuals, non-government organizations, businesses or business organizations, or Federal, state, or Tribal agencies.

B. Proposal Contents

   Proposals may be based on the information compiled by the EFHRC, although other information (including proprietary information not available to the public) may be used as a basis for the proposal. However, any proprietary information used to develop a proposal must be available to the EFHRC and ultimately the Council, for review and evaluation. To the extent possible, proponents must submit a completed proposal in writing that includes, but is not limited to, the following information:

   1. Date of proposal.
   2. Proponent's name, mailing address, email address, and telephone number, including contacts for any cooperating agencies or entities.
   3. An explanation why the proposal is warranted, including:
      a. Description of the proposal's objectives.
      b. How it is consistent with the Council's responsibility to identify and protect EFH, and to minimize to the extent practicable, the adverse effects to EFH from Council-managed fishing activities.
      c. How new or newly-available information indicates that EFH designation, its components, or associated management measures should be modified.

4. A detailed description of the proposed action(s), including, where applicable:

    a. Spatial changes to currently protected areas such as boundary modifications, elimination of current areas of EFH, HAPC, or ecologically important habitat closed areas, or addition of new areas of EFH, HAPC, or ecologically important habitat closed areas. Latitude and longitude coordinates (DDD° mm.mmm′) and maps, including before and after change, and digital files if available (e.g., GIS shape files, navigation plotter data).
    b. Gear regulation changes, (e.g., allowing or disallowing gear types, tow technique, mesh size, weight of gear, time of bottom contact, tow time, number of pots or hooks).
    c. Changes to the description and identification of groundfish EFH and its components.
    d. Other changes.

5. Any relevant and applicable information on the following characteristics and topics, including the attendant impacts of the proposed action; or at a minimum, explaining how information in the EFH review report supports the proposal:

    a. Biological and ecological characteristics (e.g., habitat function, vulnerability, index of recovery, species associations, including reference to any ESA-listed species, prey species and biogenic components).
    b. Geological characteristics (e.g., substrate type, grain size, relief, morphology, depth).
    c. Physical oceanographic characteristics (e.g., temperature, salinity, circulation, waves).
    d. Chemical characteristics (e.g., nutrients, dissolved oxygen).
    e. Socioeconomic characteristics (see 6.e below).

6. A discussion of the following topics as relevant to the proposed actions:

    a. The importance of habitat types to any groundfish FMP stocks for their spawning, breeding, feeding, or growth to maturity.
    b. The presence and location of important habitat (as defined in 6.a, above).
    c. The presence and location of habitat that is vulnerable to the effects of fishing and other activities as relevant.
    d. The presence and location of unique, rare, or threatened habitat.
    e. The socioeconomic and management-related effects of proposed actions, including changes in the location and intensity of bottom contact fishing effort, the displacement or loss of revenue from fishing, and social and economic effects to fishing communities attributable to the location and extent of closed areas. Proponents are encouraged to collaborate with socioeconomic experts as well as affected fishermen and communities in order to identify socioeconomic costs and benefits.

C. Review and Approval

1. The EFHRC will evaluate all proposals with regard to the technical sufficiency and potential biological, ecological, and socioeconomic significance of the proposal. The evaluation will include identifying any deficiencies that should be addressed if the Council desires a full assessment of the proposal for potential adoption. The Groundfish Management Team (GMT), Groundfish Advisory Subpanel (GAP), Habitat Committee (HC), Enforcement Consultants (EC), and Scientific and Statistical Committee (SSC) may also review proposals and provide comments on methodology and relevance to management issues, and make recommendations to the Council accordingly. Public comment will also be accepted at Council meetings.
2. The EFHRC will review proposals and provide an evaluation of the proposals for consideration by the Council. The Council is scheduled to take final action at the April 2013 Council meeting, thereby concluding the EFH periodic review process.
3. Only those proposals that were received by the RFP deadline may be considered by the EFHRC and the Council.
4. The Council will determine an appropriate process (e.g., biennial specifications, SAFE document, FMP amendment, etc.) for further analysis and consideration of proposals adopted at the April 2013 meeting.
5. In evaluating proposals, the EFHRC will consider the following questions:

    a. Is the proposal complete?

    b. Is the proposal consistent with the goals and objectives of the FMP and the Council's responsibility to identify and protect EFH and minimize the adverse effects to EFH from Council-managed fishing activities?

    c. Are the coordinates consistent with the proposed actions and do they map out correctly?

    d. What habitat types are affected by the proposal?

    e. Are the data and analysis sufficient to evaluate the proposal effects and objectives, and if not why?

    f. How well does the available information, including the nature of the data, support the proposal?

    g. What are the biological, ecological, and socioeconomic effects (beneficial and detrimental) of the proposal? For example:

        i. What is the importance of affected habitat types to any groundfish FMP stocks for their spawning, breeding, feeding, or growth to maturity?

        ii. What is the distribution and abundance of important habitat within the areas addressed by the proposal, including substrate types, biogenic habitats, prey items, etc.?

        iii. Is that habitat vulnerable to the effects of fishing and other activities?

iv. Is there unique, rare, or threatened habitat in areas addressed by the proposal?

v. What are the changes in location and intensity of fishing effort that may adversely affect EFH?

vi. What is the estimated displacement or loss of revenue from fishing?

vii. What has been the degree of collaboration with affected fishermen, conservation interests, communities, and other stakeholders, to identify socioeconomic costs and benefits?

h. If models are used in the proposal, are they consistent with the best available information?

i. How will fishing communities and other stakeholders be affected by the proposal?

j. How will Tribal Usual and Accustomed Areas be affected by the proposal, and how was that determined?

k. How will overfished stocks be affected by the proposal?

l. Is a monitoring plan part of the proposal?

m. Has there been coordination with appropriate state, Tribal, and Federal enforcement, management, and science staff?

n. Are there components of the proposal that require additional expertise beyond the EFHRC for a comprehensive evaluation?

Only those proposals received by the RFP deadline will be considered by the EFHRC, for inclusion in its Phase II report to the Council. Proposals may be submitted by mail, email, or fax and must be received at the Council office by close of business December 20, 2012. Submit proposals to:

Pacific Fishery Management Council
Attention: Kerry Griffin
7700 NE Ambassador Place, Suite 101
Portland, OR 97220-1384
PFMC.comments@noaa.gov
Phone: 503-820-2280
Fax: 503-820-2299

C. Discussion Document: Conflict of Interest and Recusal Issues

The Pacific Coast Groundfish Essential Fish Habitat Review Committee (EFHRC) is an advisory and review body, intended to provide an independent review process for proposals regarding modifications to Pacific Coast Groundfish EFH. To bring various expertise and viewpoints to the review process, the Committee includes agency, Tribal, industry, academic, and conservation representatives. The EFHRC seeks Council guidance on identifying conflicts of interest and establishing a process to address such conflicts of interest, should the situation arise in Committee deliberations.

Identifying conflicts of interest:
To facilitate consideration of addressing potential conflicts of interest, the EFHRC reviewed existing Council policies and guidance from the National Academies. The overriding objective of a policy approach to conflict of interest is to identify financial and other interests which could impair the individual's objectivity or could create an unfair competitive advantage. Based on the National Academies Policy on Committee Composition and Balance and Conflicts of Interest, the following situations would constitute a legitimate conflict of interest in terms of reviewing specific proposals:

- The Committee member directly participated in the development or authorship of a proposal;
- The Committee member works for or represents the agency, organization, or institution that authored the proposal;
- The Committee member has a financial interest, or represents an entity with financial interest in fishing activities that would be affected by the proposal. This includes interests of the Committee member's family, employer, business partners, or others with whom the individual has substantial common financial interests.

Existing Council procedures:
The EFHRC has not adopted conflict of interest protocols, although the Scientific and Statistical Committee's (SSC) procedure may offer a template for the EFHRC to follow. Council Operating Procedure (COP) 4 describes the roles, responsibility, and function of the SSC. COP 4 states that SSC members who are "directly involved in the development of reviewed materials…shall limit themselves to providing information and answering questions regarding SSC deliberations of such items." SSC members are also required to declare when an individual may have a financial interest relating to matters that the SSC reviews.

Options regarding recusal for those Committee members with a conflict of interest:
The EFHRC asks the Council for guidance on whether a recusal process is necessary for conflicted EFHRC members, and if so, what it would entail.

1. Option 1: Recusal. Under this scenario, any EFHRC member with a conflict would recuse him or herself from all or parts of the review process for which a conflict exists. This could apply to general discussion, to determining whether to recommend a specific proposal, or for both.

2. Option 2: No recusal. Under this scenario, EHFRC members would participate fully in review, discussion, and making recommendations on specific proposals. In circumstances where consensus is not achieved, committee members may submit minority reports, consistent with Council Operating Procedure 3.

Information to Support the Five-Year Review of Essential Fish Habitat for Pacific Coast Groundfish

Pacific Fisheries Management Council Pacific Coast Groundfish Essential Fish Habitat Review Committee:

(E. Bowlby, R. Eder, C. Goldfinger, G. Greene, M. Mackey, D. Matthews, B. Pettinger, J. Schumacker, G. Shester, J. Stadler, W. Wakefield, M. Yoklavich, and alternates)

With support from:

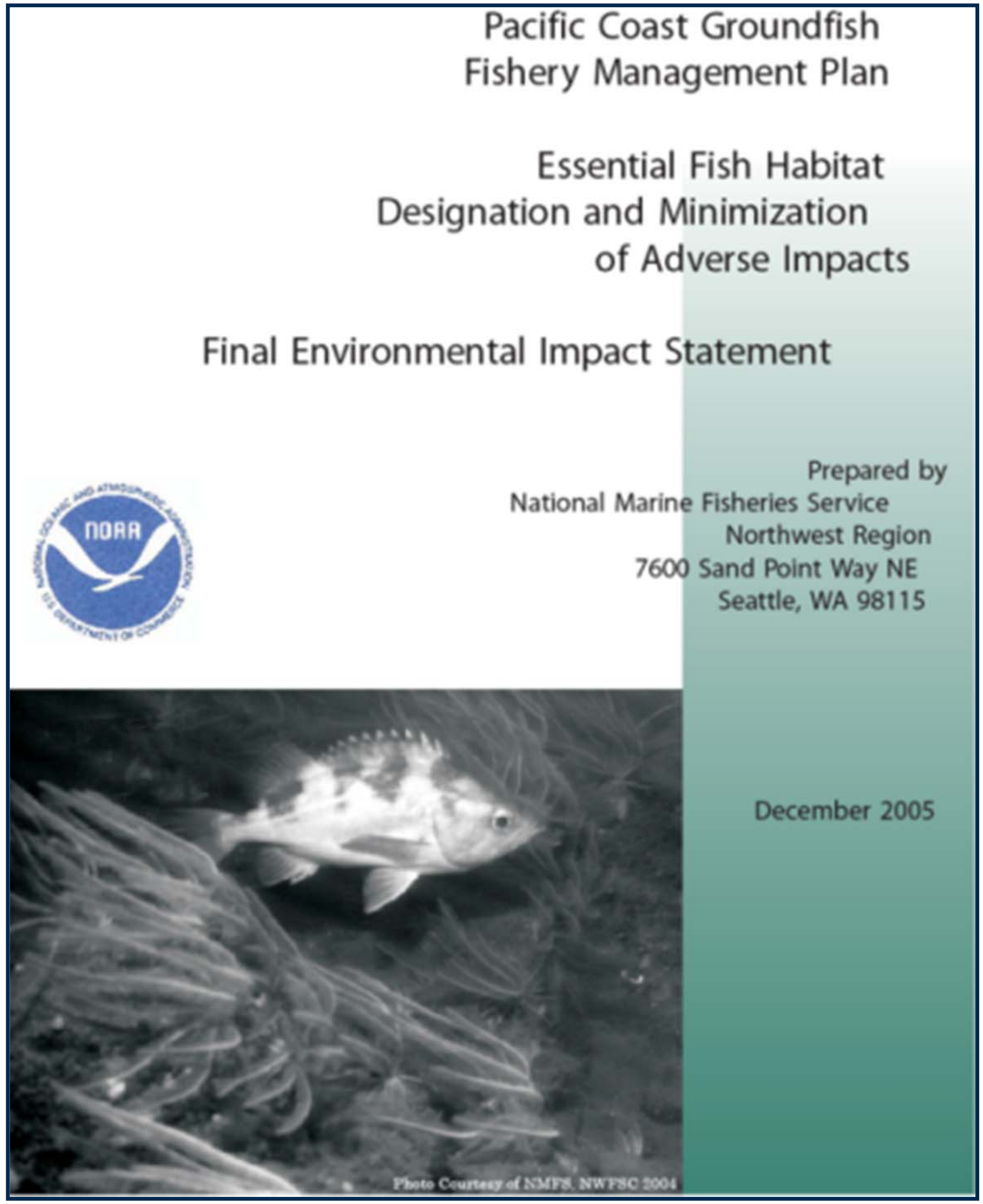
- **Chris Romsos - OSU College of Earth, Ocean & Atmospheric Science**
- **Joseph Bizzarro - UW School of Aquatic and Fishery Sciences**
- **Curt Whitmire - NOAA NMFS NW Fisheries Science Center**
- **Marlene Bellman - NOAA NMFS NW Fisheries Science Center**

Background for
Essential Fish Habitat (EFH)

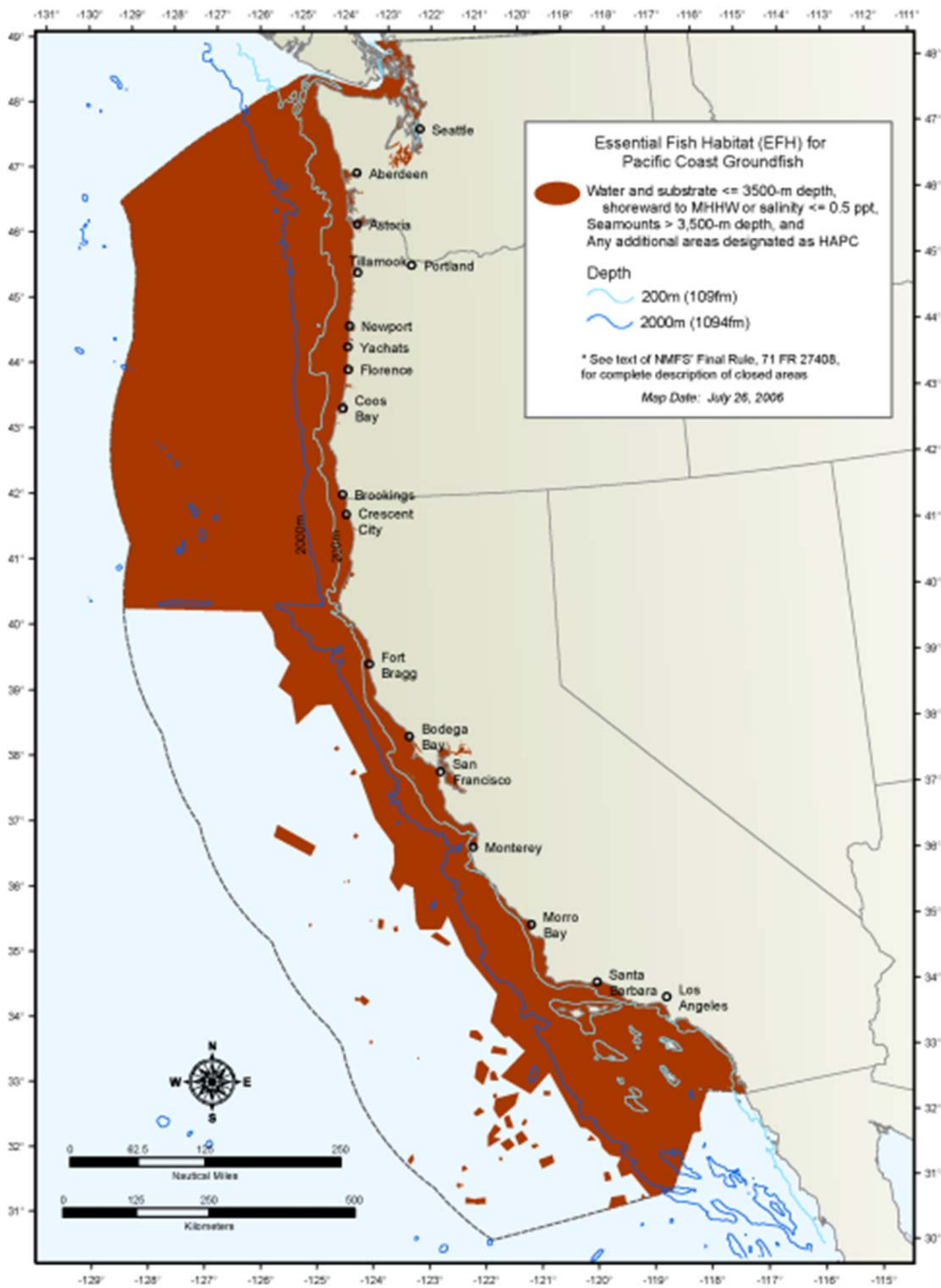
- EFH regulatory guidance requires a periodic review and update of EFH at least every five years
- This review must be based on the best scientific information available
- EFH is: "*Those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity*."

Pacific Coast Groundfish EFH was most recently reviewed in 2005, and EFH designations were approved by NMFS in 2006

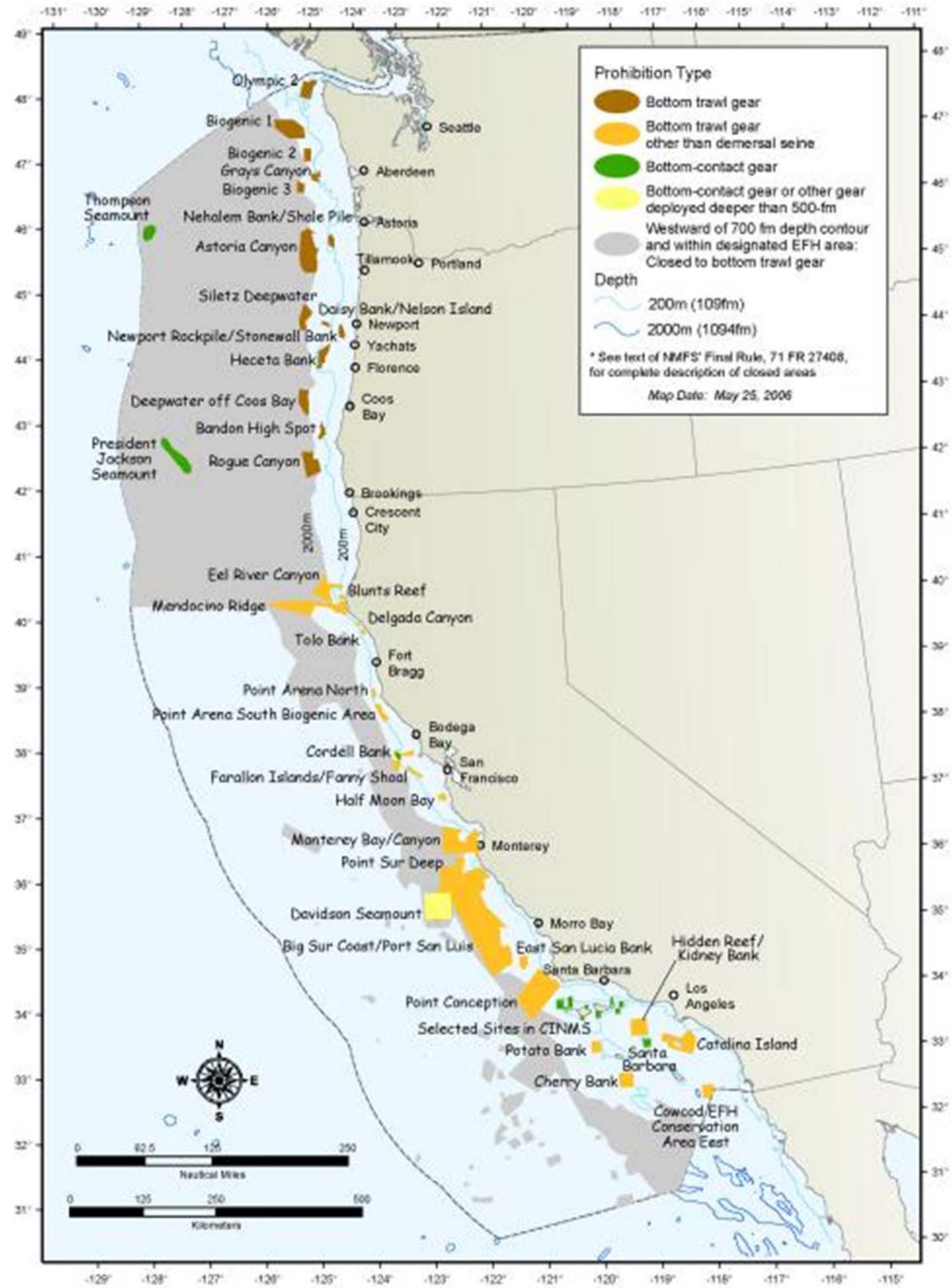
(Amendment 19)



EFH for 82 Species of Pacific Coast Groundfish 2006



EFH Closures to Protect Pacific Coast Groundfish Habitat 2006

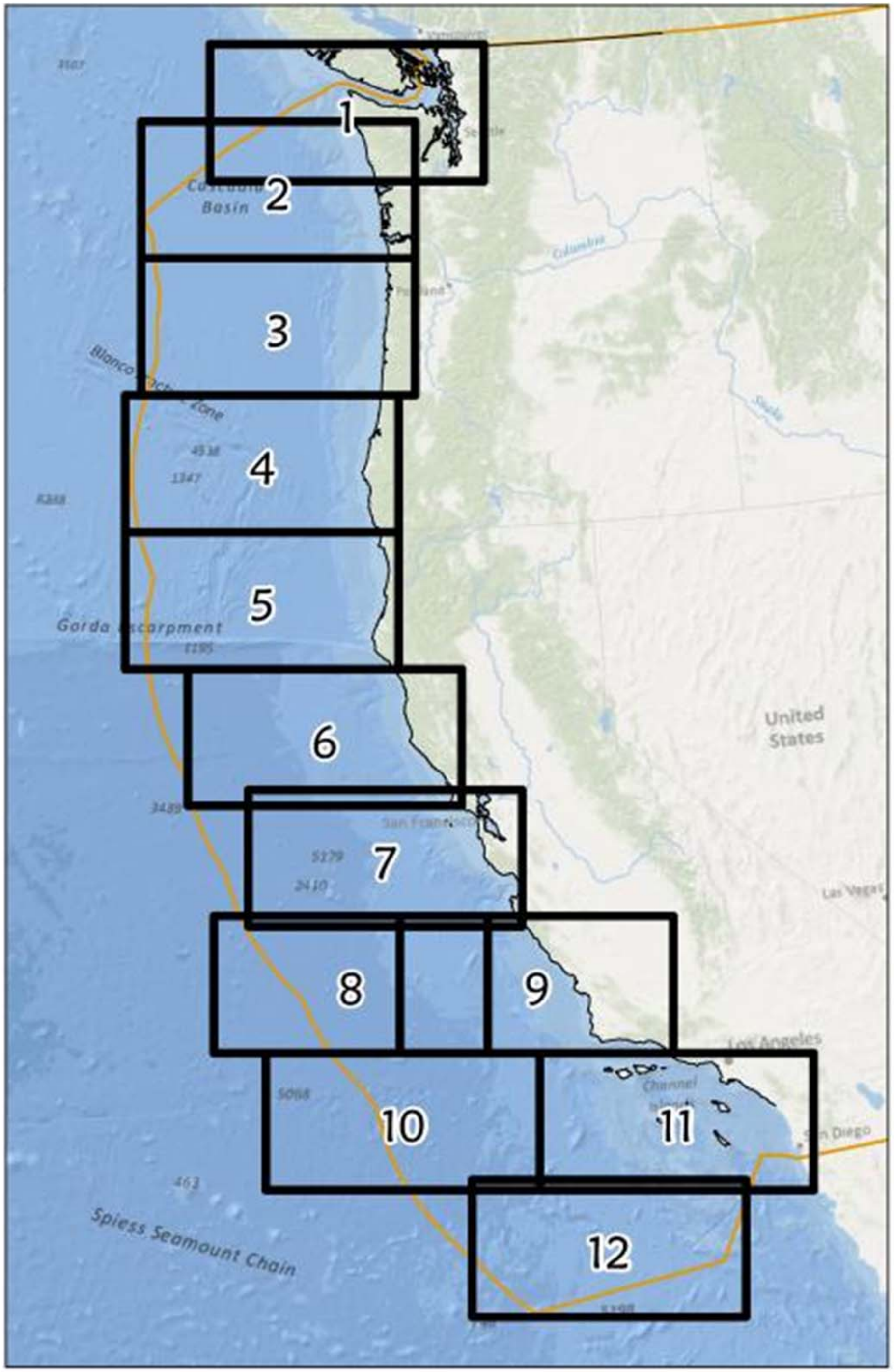


Council adopted a schedule based on a three-phase approach

- **Phase I** – Information and data gathering, culminating in a report to the PFMC in September 2012; Council considers report
- **Phase II**
  - September 2012: Council issues RFP
  - January-March 2013: EFHRC considers proposals and develops Phase II report
  - April 2013: EFHRC presents report and recommendations to Council
  - EFH review is concluded
- **Phase III** – If Council decides to amend EFH, that begins Phase III; May require an FMP amendment

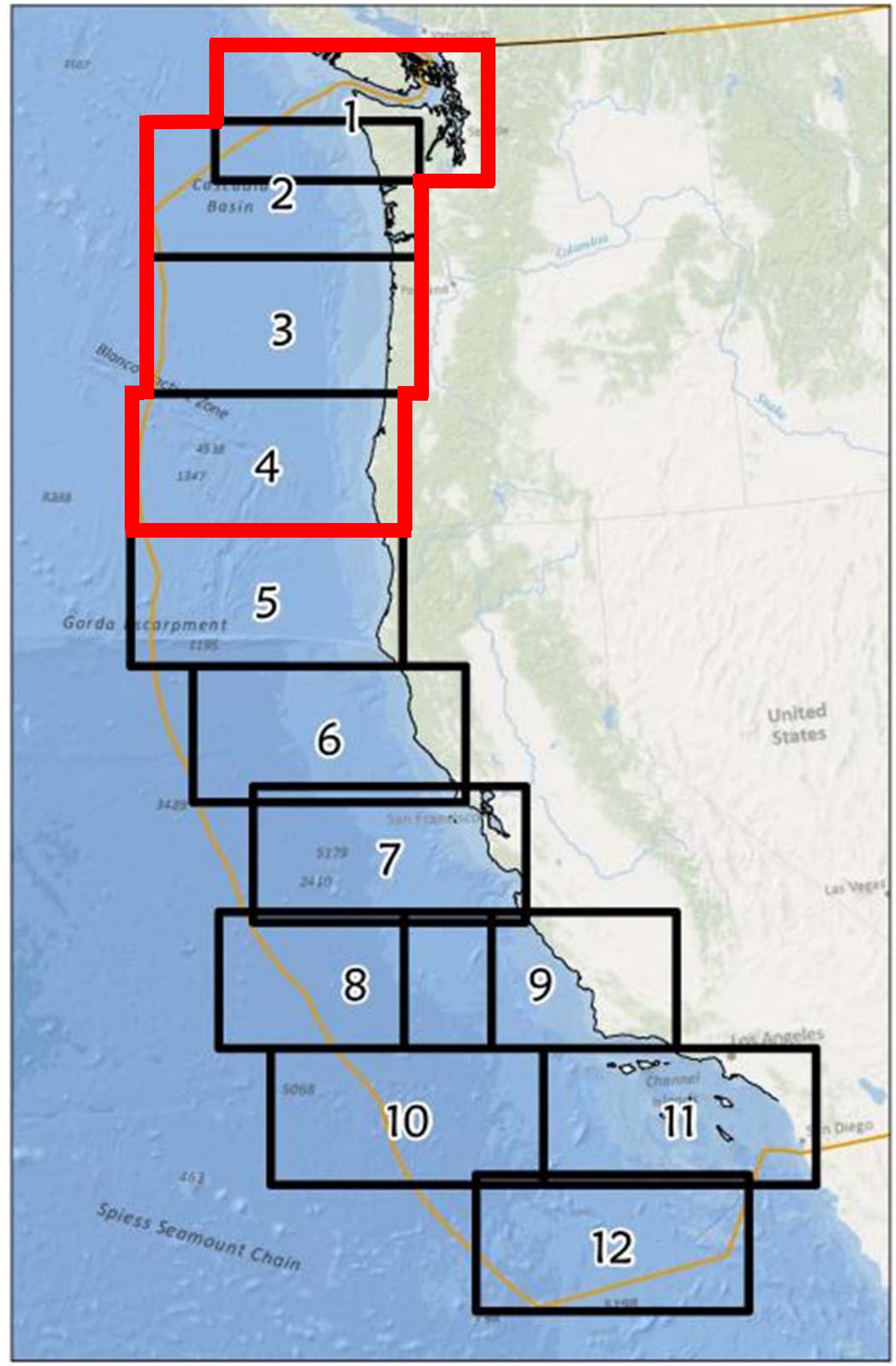
Phase I Products

- Comparisons for regional survey coverage between 2005 and 2011



Phase I Products

- Comparisons for regional survey coverage between 2005 and 2011

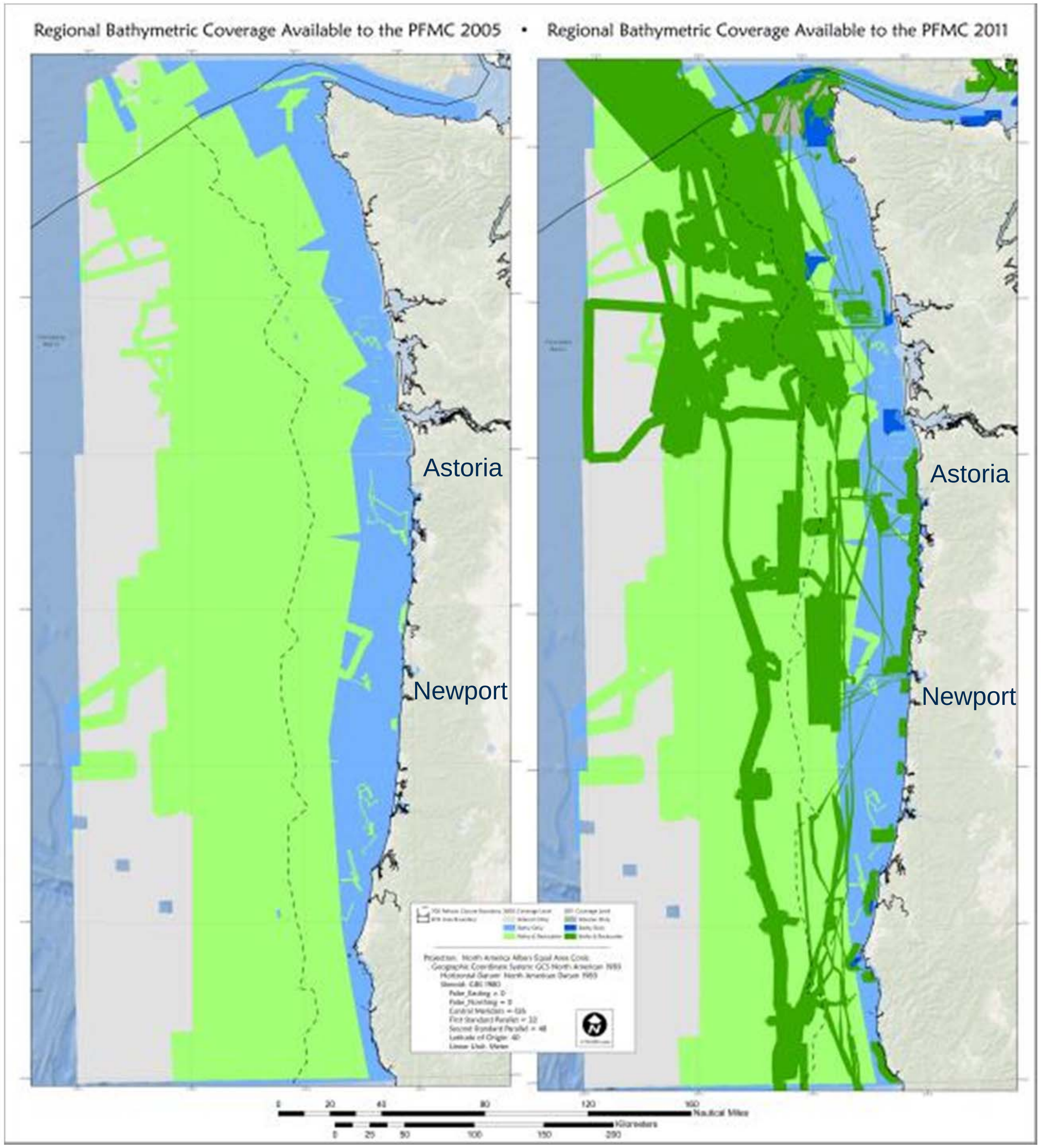


Regional Survey Coverage

2005

2005 Coverage Level

- Sidescan Only
- Bathy Only
- Bathy & Backscatter



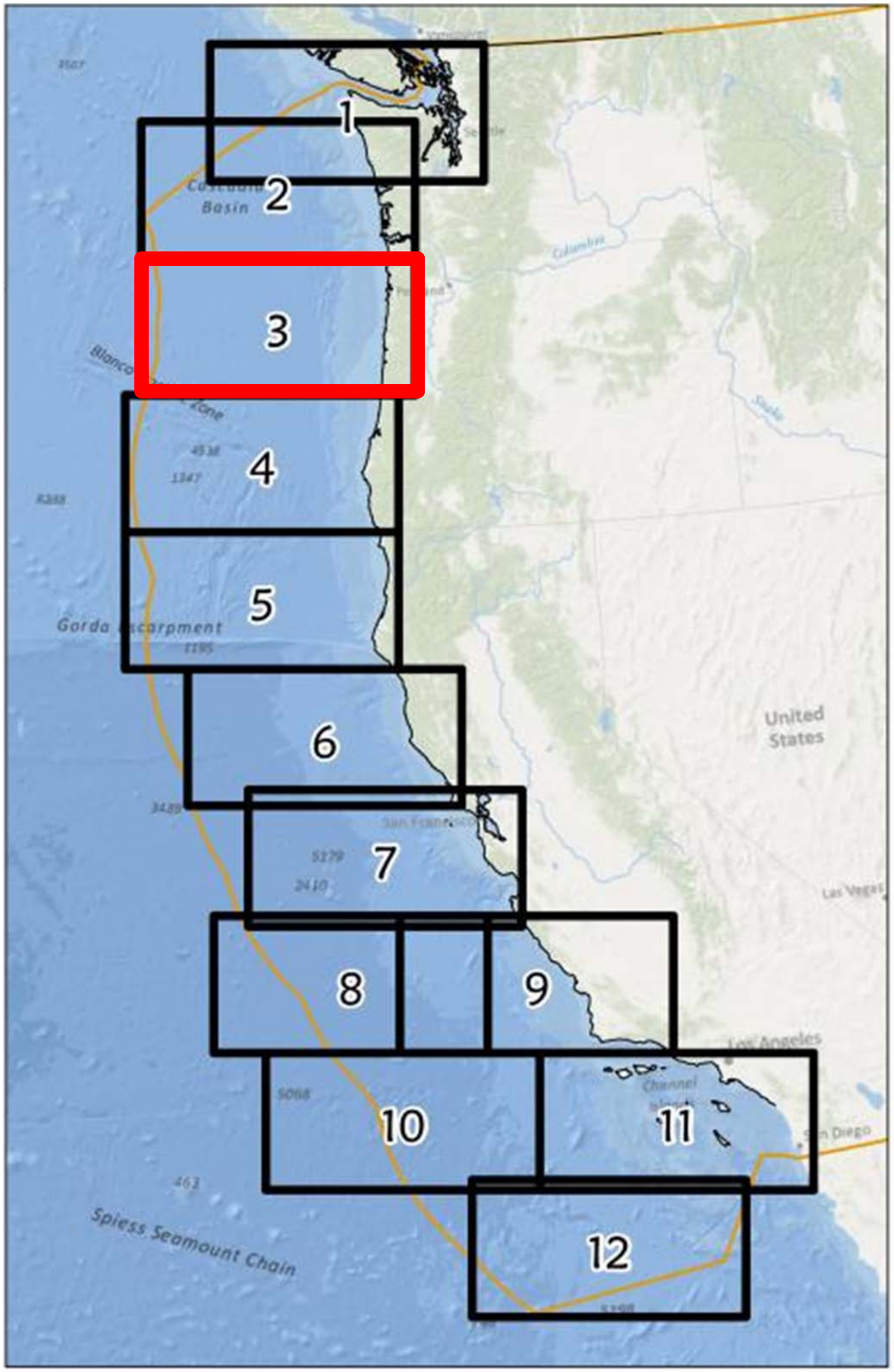
2011

2011 Coverage Level

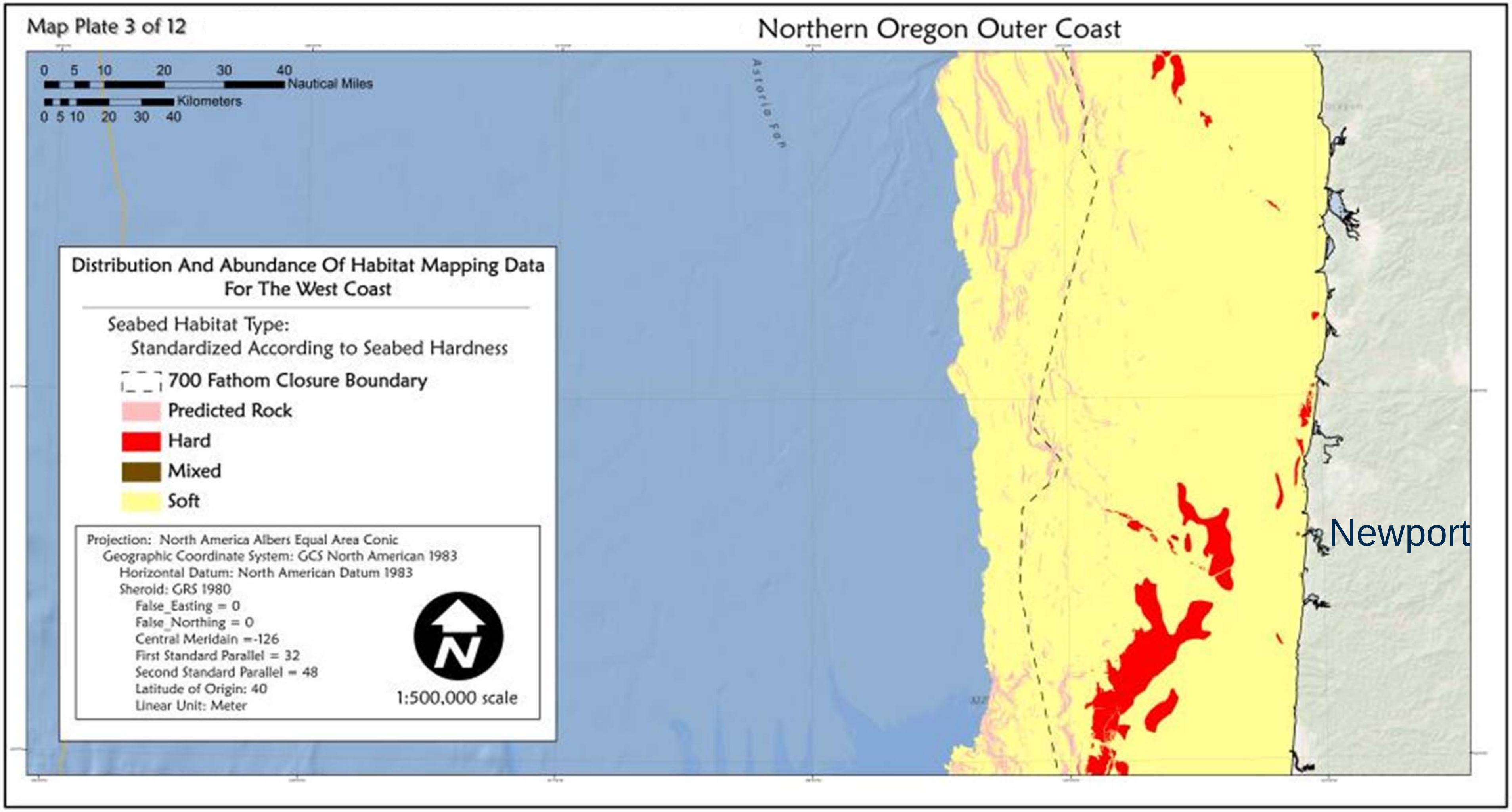
- Sidescan Only
- Bathy Only
- Bathy & Backscatter

Phase I Products

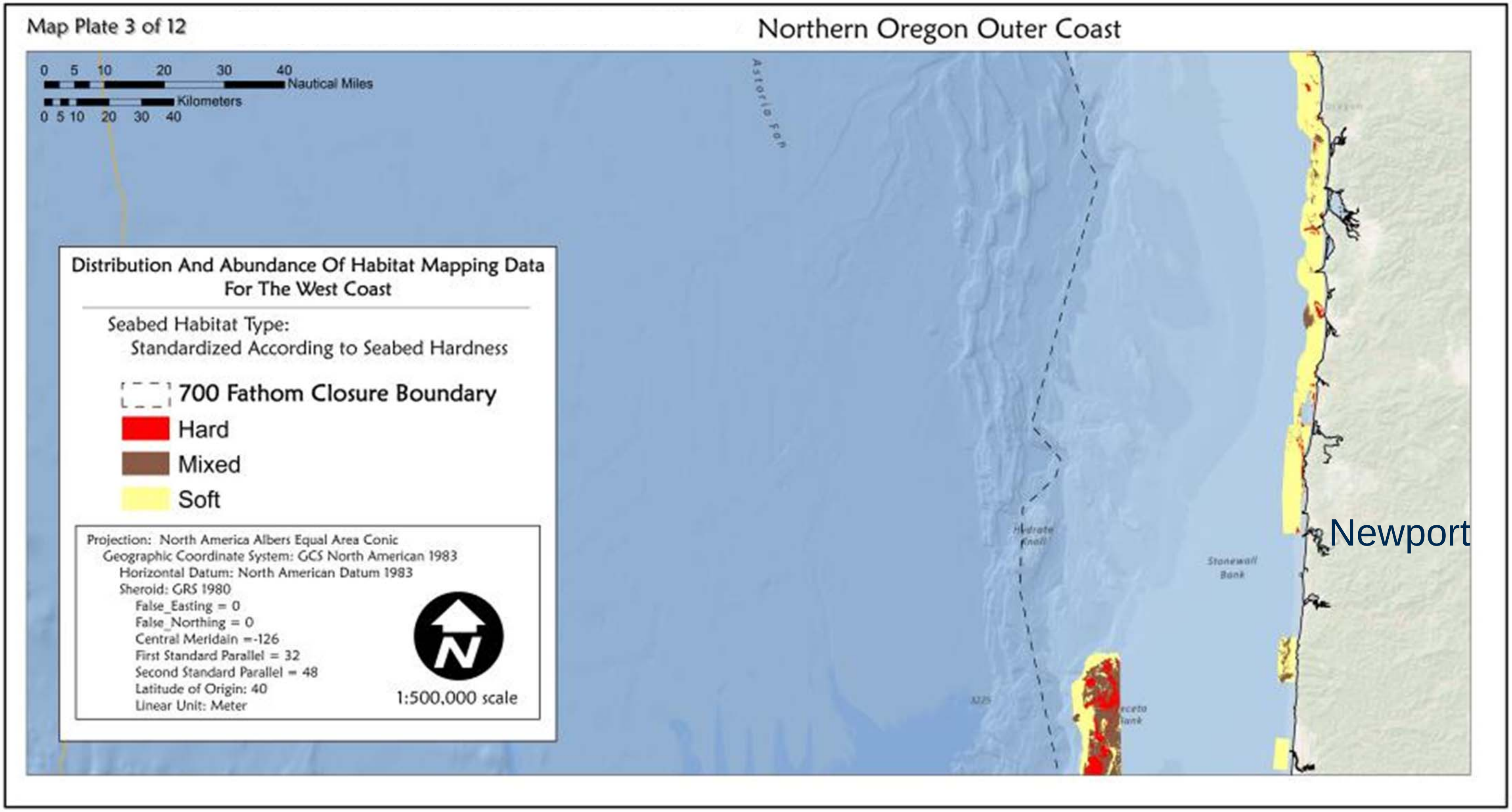
➢ Comparisons for habitat between 2005 and 2011



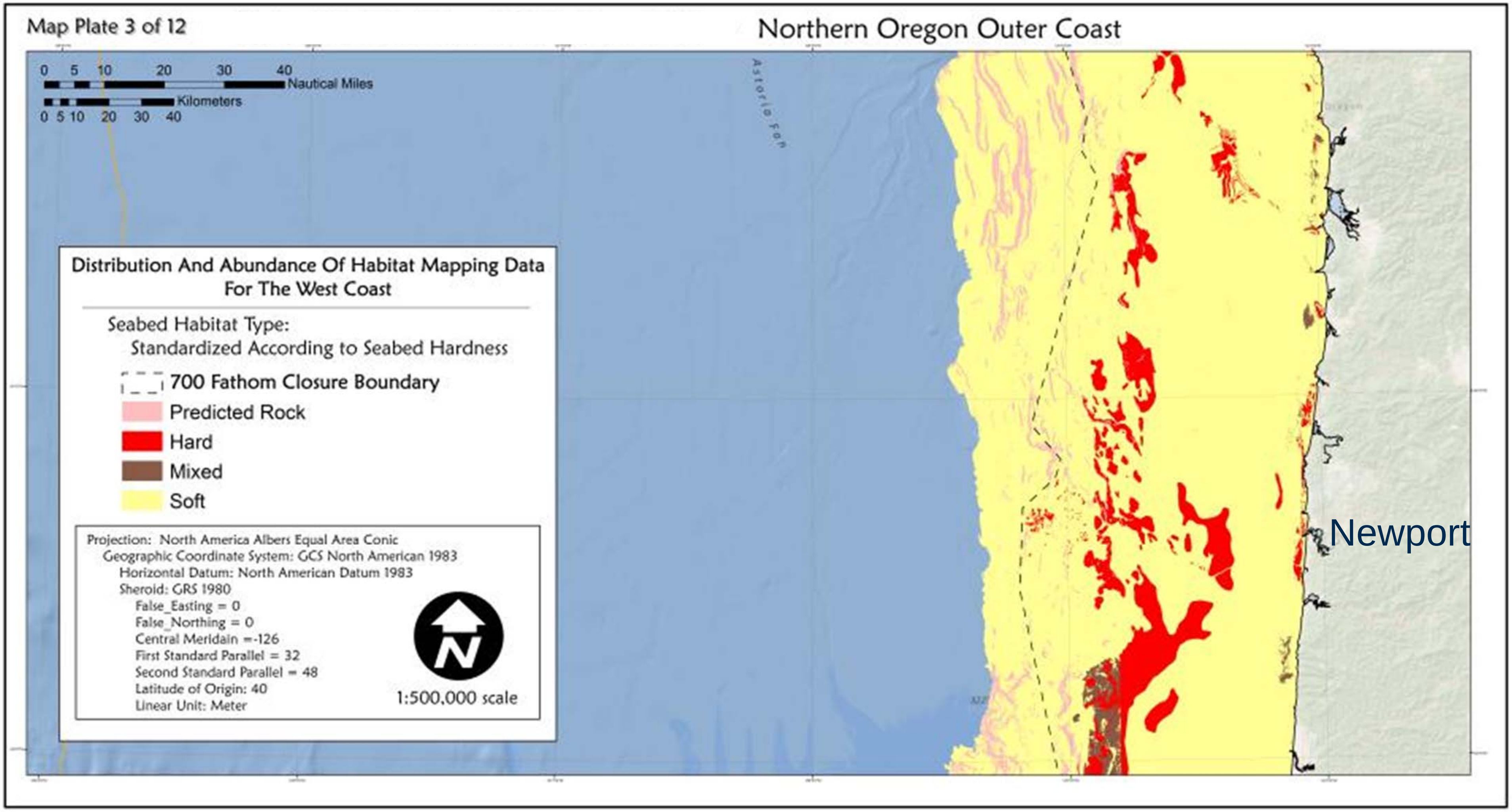
Seafloor Habitat Map 2005
Map Plate 3 of 12, Northern Oregon Coast



Seafloor Habitat Map 2005 to 2011
Map Plate 3 of 12, Northern Oregon Coast



Aggregate Seafloor Habitat Map 2011
Map Plate 3 of 12, Northern Oregon Coast



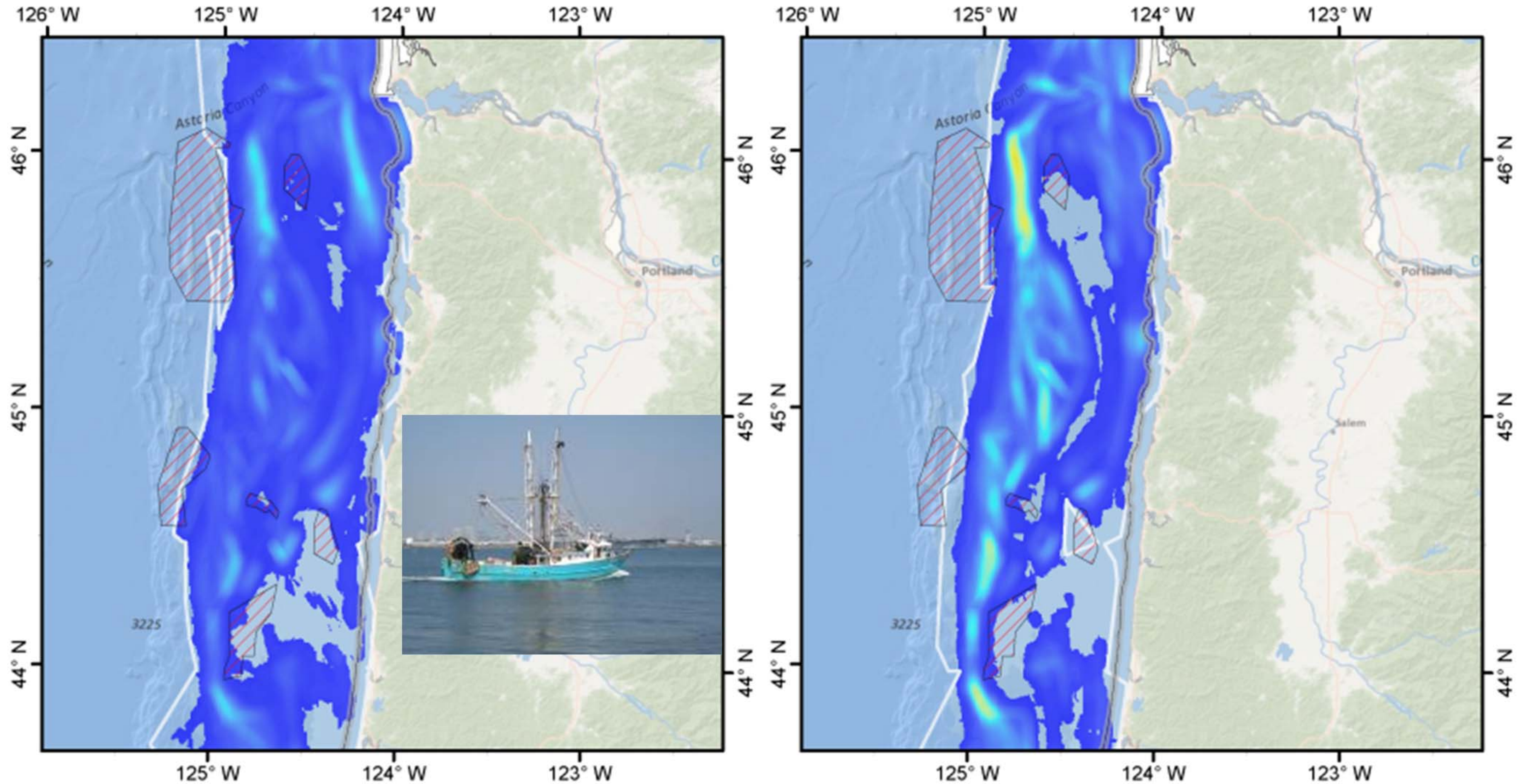
Other Phase I products developed for the 2011 Groundfish EFH 5-year review

- Footprints of commercial trawl and fixed gear fishing effort
- Fishery observer derived catch of corals and sponges in the bottom trawl fishery
- Comparative maps of spatial management boundaries (to minimize effects on EFH)

Before: 2002–2006

Bottom Trawl Fishing Effort (PacFIN)

After:2006 –2010



B2

0 20 40 60 80 100
Kilometers

0 20 40 60 80
Nautical Miles

Map Scale: 1:2,400,000

Date Saved: 24 Feb 2012

Effort (km/km^2)

High : 221.931

Low : 0.008

Extent Polygon

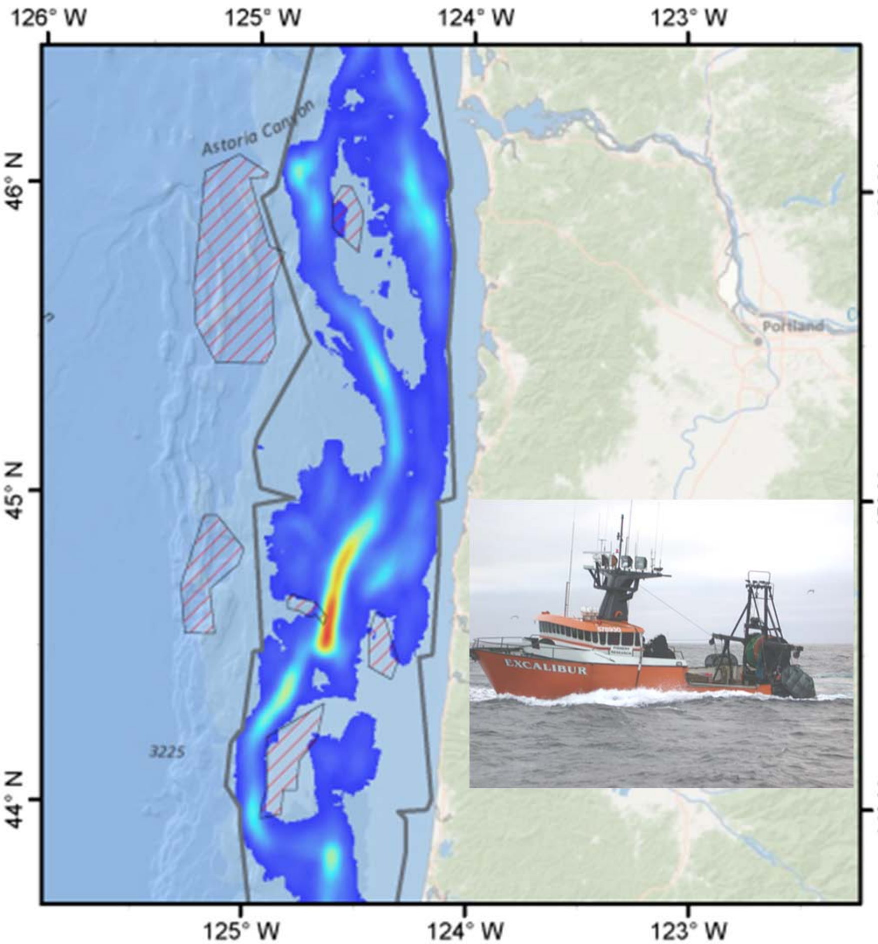
State Territorial Sea

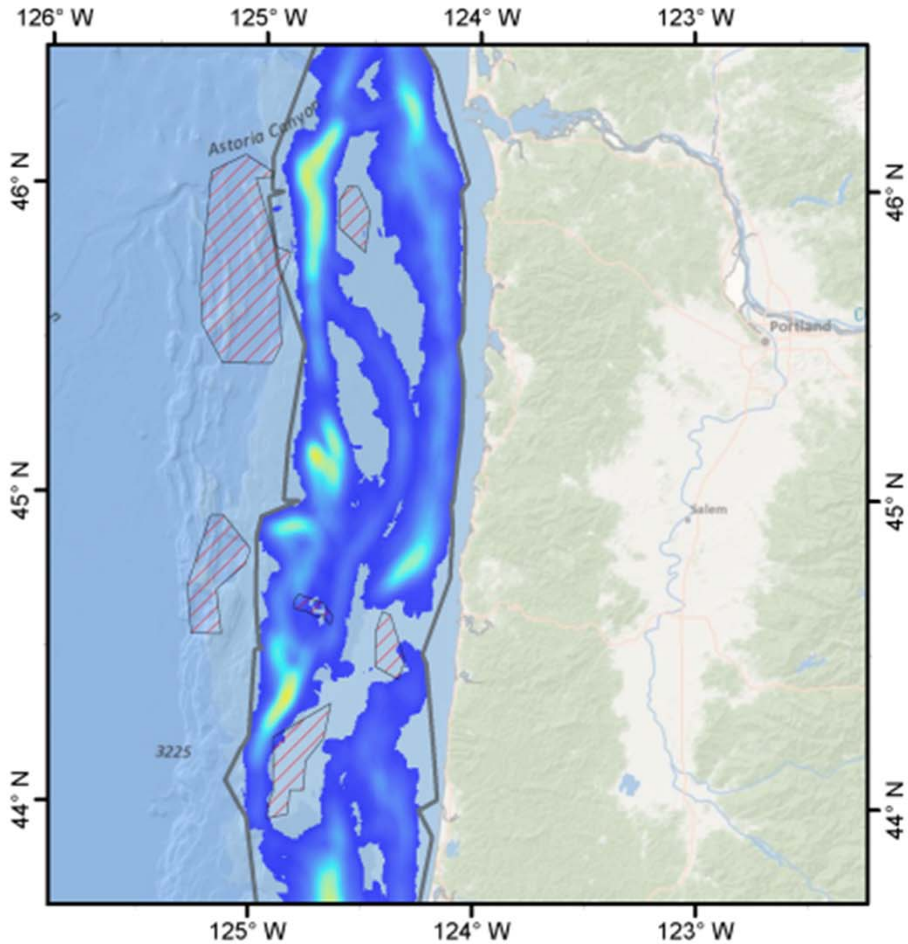
Map 2 of 8

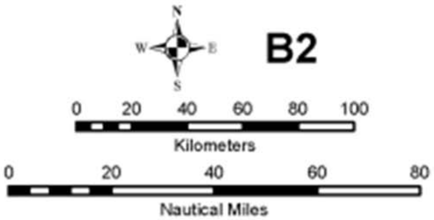
Search Radius: 3,000 m
Cell Size: 500 m

Authors C. Whitmire & M. Bellman (NOAA Fisheries NWFSC)

Before: 2002–2006 **Midwater Trawl Fishing Effort (At-Sea & Shoreside Sectors)** **After: 2006–2010**







B2

Map Scale: 1:2,400,000

Date Saved: 19 Feb 2012

Effort (km/km^2)

High : 53.669

Low : 0.008

Extent Polygon

Search Radius: 3,000 m

Cell Size: 500 m

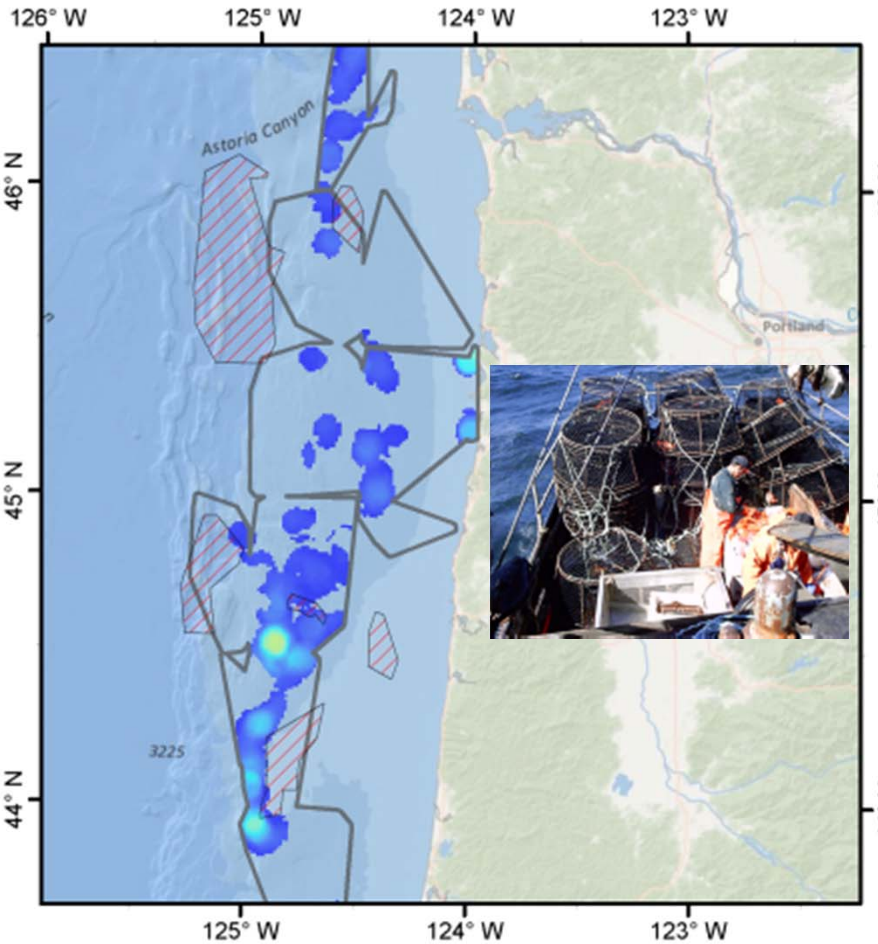
Map 2 of 4

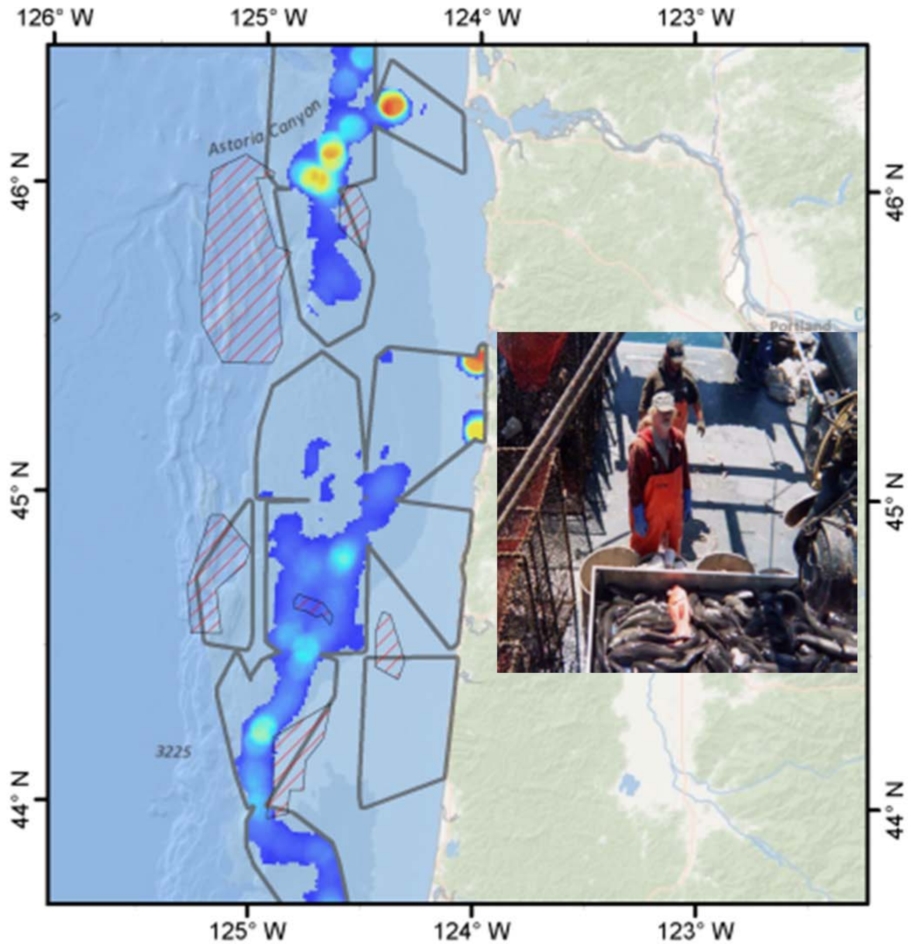
Authors C. Whitmire & M. Bellman (NOAA Fisheries NWFSC)

Before: 2002–2006

Fixed Gear Effort (WCGOP)

After: 2006–2010





B2

0 20 40 60 80 100
Kilometers

0 20 40 60 80
Nautical Miles

Map Scale: 1:2,400,000

Date Saved: 22 Feb 2012

Effort (locations/km^2)

High : 4.38

Low : 0.04

Extent Polygon

Search Radius: 5,000 m

Cell Size: 1,000 m

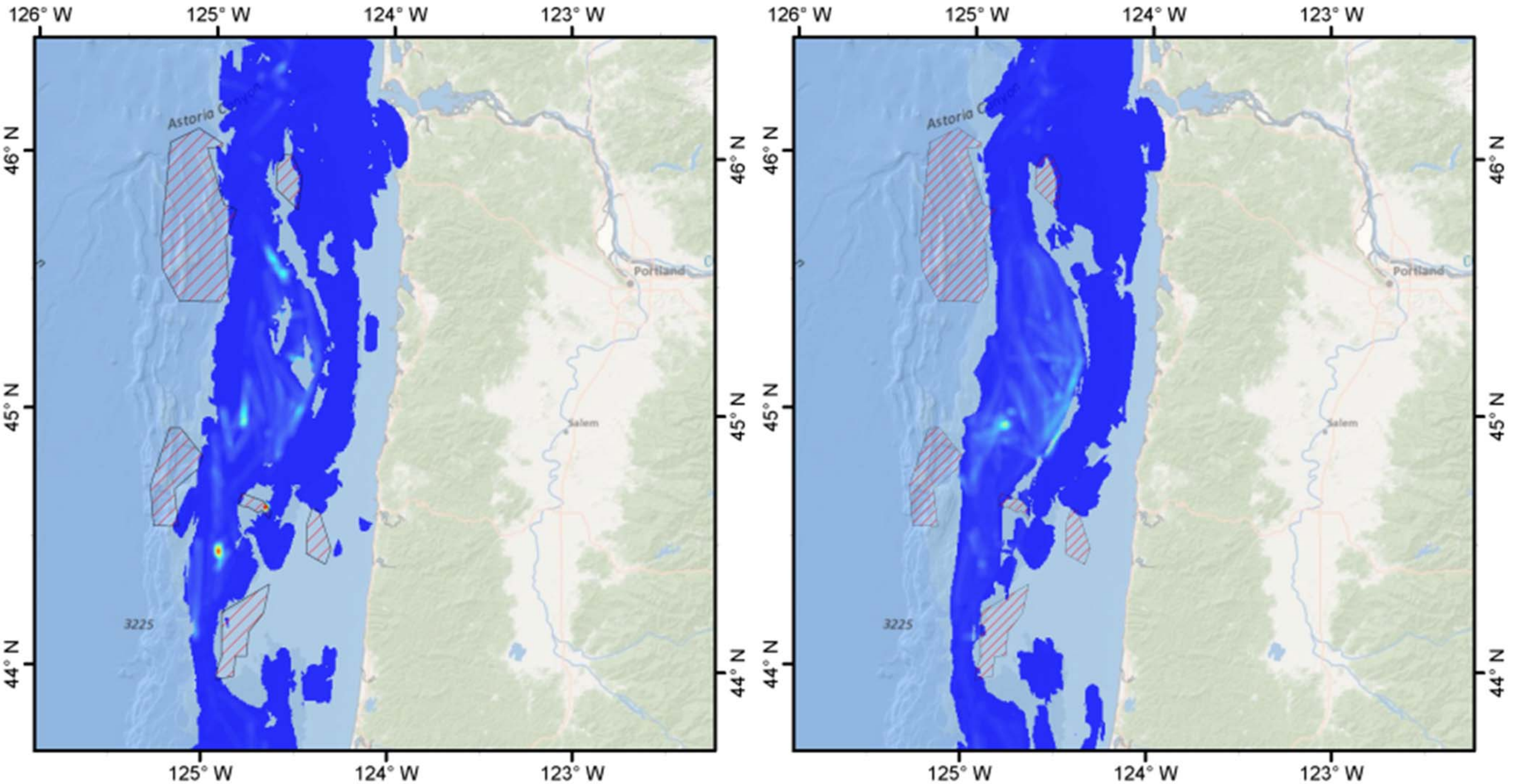
Map 2 of 9

Authors C. Whitmire & M. Bellman (NOAA Fisheries NWFSC)

Before: 2002–2006

Standardized Coral/Sponge Catch (WCGOP - Trawl)

After: 2006–2010



B2

0 20 40 60 80 100
Kilometers

0 20 40 60 80
Nautical Miles

Map Scale: 1:2,400,000

Date Saved: 13 Feb 2012

Author: Curt Whitmire (NOAA Fisheries - NWFSC)

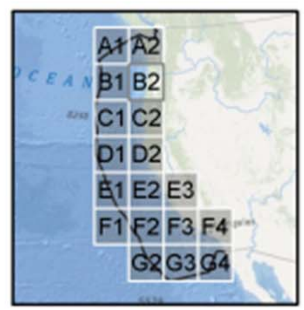
CPUE (lb/km)

High : 16.1607

Low : 0

Search Radius: 3,000 m

Cell Size: 500 m

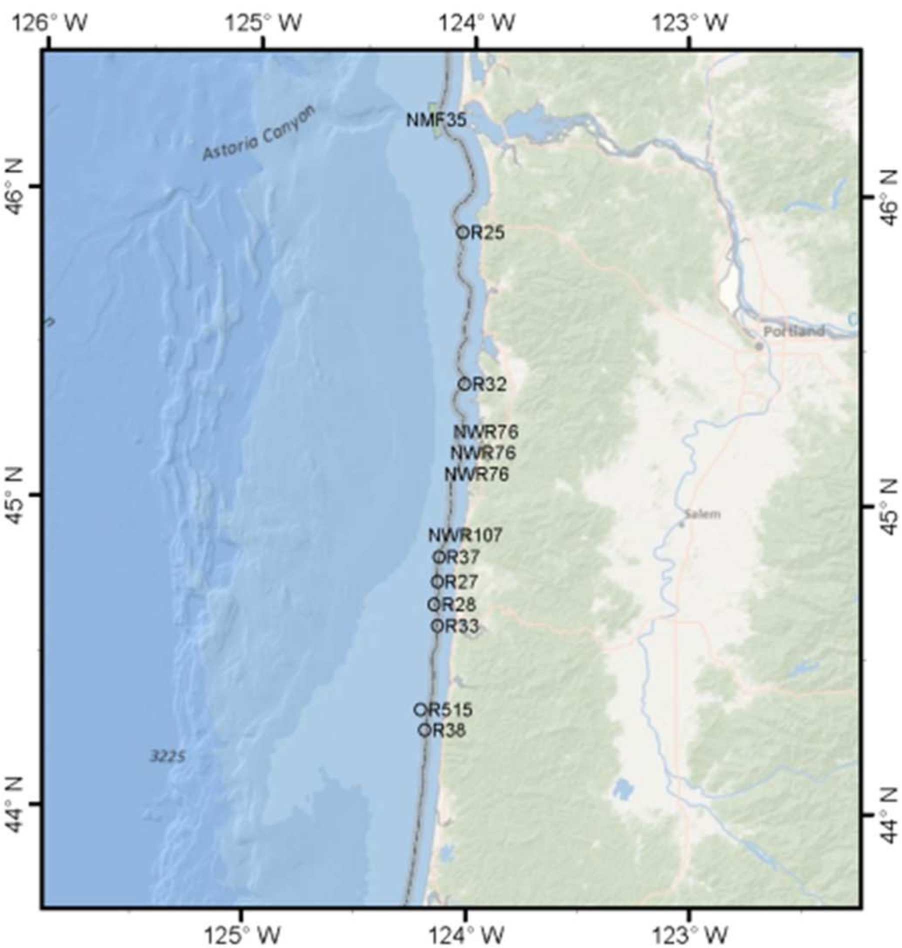


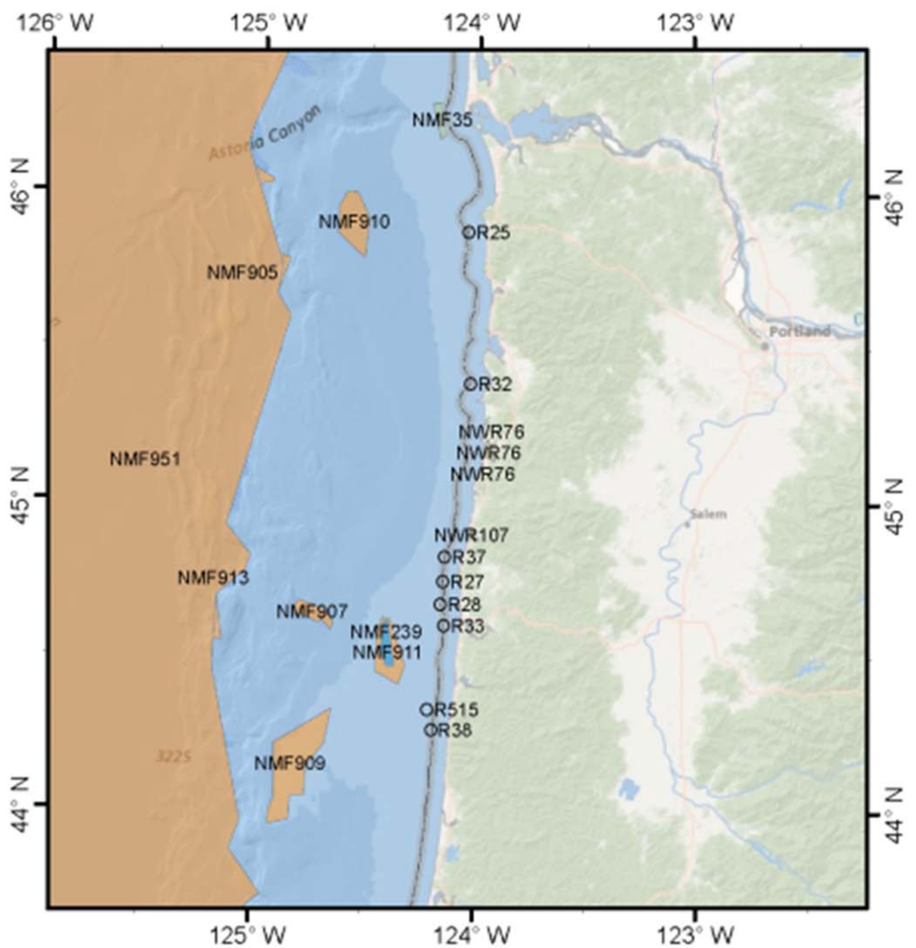
Map 2 of 8

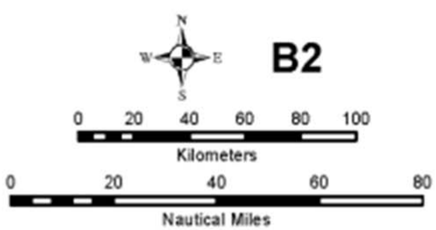
Before: 2002–2006

Selected Federal and State Marine Protected Areas

After: 2006–2010







B2

Map 4 of 17

Map Scale: 1:2,400,000

Date Saved: 24 Feb 2012

Author: Curt Whitmire (NOAA Fisheries - NWFSC)

- Commercial Fishing Prohibited
- Commercial Fishing Prohibited and Recreational Fishing Restricted
- Commercial Fishing Restricted
- Commercial Fishing Restricted and Recreational Fishing Prohibited
- Commercial and Recreational Fishing Prohibited
- Commercial and Recreational Fishing Restricted
- Recreational Fishing Restricted
- No Site Restrictions
- State Territorial Sea

Additional Phase I Products in Support of 2011 Five-Year Review

- Description of available models relevant to EFH (spatial, trophodynamic, ecosystem)
- Comparison of information in Habitat Use Database
- Life history summaries using updated information
- Review of emerging nonfishing threats
- Prey species

Acknowledgements

- Funding from the NMFS Office of Habitat Conservation to the NW and SW Fisheries Science Centers
- NMFS NW and SW Regions
- Pacific Fisheries Management Council

  K. Griffin, C. Tracy
- NMFS NW and SW Science Centers
- Oregon State University Cooperative Institute for Marine Resources Studies
- University of California Santa Cruz Cooperative Institute for Marine Ecosystems and Climate

GROUNDFISH ESSENTIAL FISH HABITAT REVIEW

The Essential Fish Habitat Review Committee (EFHRC) met via conference call on February 28, 2012, to discuss progress of the periodic groundfish essential fish habitat (EFH) review, and to plan for the April Pacific Fishery Management Council (Council) meeting. During that conference call, the EFHRC considered the progress to date on the Phase I report of the EFH review. While major progress has been made, the committee concluded that, in light of a very tight timeline and several other issues in need of resolution, it would be better to delay the delivery of the Phase I report until later in the year. The Council subsequently approved moving the delivery of the Phase I report and associated presentation to the September meeting.

Other issues to be addressed include a draft request for proposals, consideration of a conflict of interest/recusal policy, and a summary of some of the information and data compiled to date, as part of the EFH review process. These are included in Agenda Item I.6.b, EFHRC Report.

The draft request for proposals (RFPs) is adapted from the RFP issued during the interim consideration of groundfish EFH proposals, in 2008. It is designed to provide stakeholders and the general public with guidance on developing and submitting proposals; as well as information about how proposals will be reviewed by the EFHRC. This RFP should be issued only after the Phase I report is accepted by the Council (scheduled for September 2012) and associated information (including data, maps, and shape files) is available to the general public. The EFHRC requests feedback on the RFP, and will present a revised version to the Council in September.

The discussion document on conflict of interest and recusal issues is designed to provide general background on the issues, as well as information regarding how the issues are currently addressed in the Council process. The EFHRC seeks guidance from the Council in establishing a fair and consistent protocol to address potential conflicts of interest of EFHRC members in reviewing proposals.

The summary of data and mapping products is intended to give an indication of the type of information that has been compiled thus far. Members of the EFHRC, the NOAA NW and SW Fisheries Science Centers, and two contractors have invested major amounts of time and energy to produce the information. Although the Phase I report will be available at the September Council meeting, the EFHRC wants to demonstrate the progress made to date, and the type of products that can be expected in September. These products are draft, and intended only to demonstrate progress and to provide an indication of the types of products being developed.

PFMC
04/03/12

HABITAT COMMITTEE REPORT ON GROUNDFISH EFH ESSENTIAL FISH HABITAT REVIEW (EFHR)

The Habitat Committee (HC) received an update on the Groundfish Essential Fish Habitat (EFH) review process from Kerry Griffin. The HC considered the Council's action items and offers the following comments:

Amended Schedule (Phase II)

The HC recognizes the hard work of the Essential Fish Habitat Review Committee (EFHRC) and contractors in developing the information for this review, especially under the ambitious timelines of the EFH Review process. The HC discussed whether there was sufficient time in Phase II of the schedule for the advisory bodies to review the EFHRC's Final report (which includes review of submitted proposals). It is conceivable that the report could be submitted to the briefing book for the April Council meeting, with Council final action taken at the April 2013 meeting. If the Council anticipates substantive review of the report by the advisory bodies, it would be helpful to receive the report as soon as it becomes available, ahead of the briefing book deadline and distributed via email. It is unclear to the HC whether the schedule allows sufficient time for advisory bodies, agencies and stakeholders to review the proposals and provide comments to the Council before it takes final action.

Draft Request for Proposals (RFP)

We suggest one change to the RFP: Under the heading *Protocol for Submitting and Reviewing Proposals to Modify Groundfish EFH*, insert the underlined text as follows: "Any proposal that depends on analysis of the available data must include documentation and explanation of the methods and outcomes of the analysis <u>*and the specific datasets used*</u>."

PFMC
04/01/12

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON GROUNDFISH ESSENTIAL FISH HABITAT REVIEW

Mr. Kerry Griffin reported on the Essential Fish Habitat Review Committee (EFHRC) recommendations for issues relevant to the ongoing essential fish habitat (EFH) review including schedule changes, request for proposals (RFPs), and potential needs for recusal.

The original EFHRC schedule was considered ambitious and has been modified with a six-month delay. The EFHRC's Phase I report that summarizes new information available for EFH review and compares it to information used in the past will be issued in August 2012. Upon the completion of the Phase I report, the Council will issue an RFP to solicit proposals to modify Pacific coast groundfish EFH.

The draft RFP requires that proposals include a socioeconomic analysis. The Scientific and Statistical Committee (SSC) recommends that a standardized map showing the distribution of effort and revenue be made available so that all proposers have a common information base for the socioeconomic analysis.

Unlike other Council advisory bodies, the EFHRC has the dual role of providing both technical expertise and stakeholder representation. Given this hybrid role, decision making processes used by other Council entities (whether stakeholder advisory groups or the SSC) are not necessarily a good model for decision making by the EFHRC. The SSC recommends that the EFHRC develop its own procedures to ensure impartial review of EFH proposals.

PFMC
04/02/12

Agenda Item I.6.c
Supplemental Tribal Report
April 2012

COASTAL TREATY TRIBES REPORT ON CRITERIA AND STANDARDS FOR GROUNDFISH EFH REVIEW REQUEST FOR PROPOSALS

In April, 2011 the Council deliberated the process and schedule for reviewing EFH designations. At that meeting the Coastal Treaty Tribes—Hoh, Makah, and Quileute Tribes and the Quinault Indian Nation—proposed the adoption of standards and criteria for reviewing designations. There was some discussion on the Council floor of where those standards would be codified.

The Coastal Tribes are proposing that criteria be articulated in the request for proposals (RFPs) scheduled to go out later this year. Clearly defining the Council and NMFS's policy goals (i.e. the criteria for review) is necessary for effective deliberation on proposed changes to groundfish EFH designations. Right now the Council has identified ecologically important closed areas, and that was done through Amendment 19 (which deals with EFH) in the Groundfish FMP. The ecological significance was not defined, particularly with regard to groundfish habitat requirements, and that has caused some confusion. It was a more nebulous notion that biogenic habitats were susceptible to fishing gear impacts and should be protected. They also encompassed a broad range of habitat types in areas not currently being significantly impacted by trawl and/or other bottom-tending gear. There is a need to define how those closures will be considered in terms of EFH.

<u>*Current Policy*</u>

The Magnuson-Stevens Act requires FMPs to identify EFH and, "minimize to the extent practicable adverse effects of fishing on such habitat". This was done through gear closure areas under Amendment 19. The FMP further goes on to state:

> *In determining whether it is practicable to minimize an adverse effect from fishing, the Council will consider whether, and to what extent, the fishing activity is adversely affecting EFH, the nature and extent of the adverse effect on EFH, and whether management measures are practicable. The Council will consider the long-term and short-term costs and benefits to the fishery and to EFH, along with any other factors consistent with national standard 7.*

There are five areas of scientific information listed in Section 6.4.2 of the FMP (the habitat conservation framework) for considering revisions:

1. The importance of habitat types to any groundfish FMU species for their spawning, breeding, feeding, or growth to maturity.
2. The presence and location of important habitat (as defined immediately above).
3. The presence and location of habitat that is vulnerable to the effects of bottom trawl fishing.
4. The presence and location of unique, rare, or threatened habitat.
5. The socioeconomic and management-related effects of closures, including changes in the location and intensity of bottom trawl fishing effort, the displacement or loss of revenue

from fishing, and social and economic effects to fishing communities attributable to the location and extent of closed areas.

More specific guidance would help the public as well as the Council and its advisory bodies understand how the Council will judge progress within that framework. The Tribes believe that it is important to provide context to management rather than considering revisions every five years without regard to habitat conservation management measures already in place.

Refining the Policy

We have proposed some standards and criteria (listed below) for how changes would be judged in the five year reviews within that framework. For example, are the closures still minimizing to the extent practicable the effects of fishing on EFH? The Tribes have submitted that to answer this you need to clearly show that 1) your understanding of the efficacy of the original closures has changed, or 2) your understanding of what habitat is "essential" for groundfish has changed. Just showing that impacts could still be occurring (the primary focus of the habitat conservation framework in the FMP) is not sufficient. The standards and criteria will help put proposed changes in context to help answer whether further management measures are practicable.

Our proposed standards for changing EFH designations or closures are:

1. The data gaps identified in the original risk analysis are filled such that we can update our understanding of EFH for one or more fishery management unit (FMU) species (e.g. data are collected that document the importance of a habitat type for groundfish, or data quality is updated and changes our understanding of the distribution of habitat types).
2. Data are collected that update our understanding of habitat use from Level 1 (presence/absence) to Level 2 (density) or higher. This might be accomplished by inclusion of CPUE from surveys into the habitat use database or development of visual surveys that provide insight into habitat use in areas that are currently unsurveyed or under surveyed.
3. Some other level of scientific understanding that demonstrates that original action may no longer be considered precautionary and comprehensive (e.g. Distribution/density information on habitat types that indicate that closures are misspecified, new life-history stage specific information on habitat requirements shows that essential habitat types are not protected, or updated information on recovery times shows a habitat type is more or less sensitive than previously thought).

We recommend that the Council adopt these standards of review and transmit them as part of the Request for Proposals that is planned to be issued in September 2012.

ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS

March 20, 2012

Dan Wolford, Chair
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, Oregon, 97220-1384

RE: Groundfish EFH, Item I-6

Dear Chairman Wolford and Council Members:

I am writing on behalf of the Association of Monterey Bay Area Governments (AMBAG), which represents 18 cities and 3 counties in the Monterey Bay region. AMBAG was the lead agency representing local interests during the designation process for the Monterey Bay National Marine Sanctuary (MBNMS). AMBAG has consistently and constructively commented on MBNMS issues, in part due to its role in the creation of the sanctuary and the sanctuary's vital influence in the region. In particular, AMBAG was interested in how NOAA, the federal agency, would manage issues that arose, important to our communities and stakeholders.

One such issue was the agreement between NOAA and local fishermen, stating that the new sanctuary would not regulate fishing activities, or otherwise threaten their livelihoods. In light of this agreement, the AMBAG Board of Directors voted on December 8, 2006 (and repeatedly confirmed) the following positions on MBNMS Management/Action Plans:

> *"Bottom Trawling effects on Benthic Habitats Action Plan: AMBAG recommends that any data that the sanctuary develops be presented to the appropriate fishery management agencies for their consideration and action. AMBAG would not support the sanctuary changing its Designation Document to regulate this fishery even in the event that the appropriate fishery management agencies decline to act on the sanctuary's behalf."*
>
> *And,*
>
> *"Marine Protected Areas Action Plan: AMBAG recommends that sanctuary actions which effect fishing include the following statement: 'any zones or regulations proposed by the sanctuary which effect fishing would only occur if they are the result of a cooperative effort with the fishing and/or the aquaculture communities and they have the support of those communities'".*

Regarding the Groundfish Essential Fish Habitat review process being considered by the Pacific Fishery Management Council, AMBAG would ask that the Monterey Bay National Marine Sanctuary's involvement be consistent with the above AMBAG positions and in agreement with the local fishermen.

Thank you for your kind attention to AMBAG's positions regarding the Essential Fish Habitat review. We look forward to working cooperatively with the Pacific Fishery Management Council, NOAA, the MBNMS and AMBAG's local fishing communities.

Sincerely,

Stephany E. Aguilar

Stephany E. Aguilar

March 26, 2012

Mr. Dan Wolford, Chair
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, OR 97220

RE: Agenda Item I.6, Groundfish Essential Fish Habitat Review

Dear Chairman Wolford and Council Members:

Please accept the following comments regarding the groundfish Essential Fish Habitat (EFH) five-year review on behalf of the Natural Resources Defense Council (NRDC), Oceana, and Ocean Conservancy. Our organizations participated in the development of current habitat management measures and we view the five-year review as an important opportunity to incorporate new information that has been released since the original 2005 decision on EFH. Since that time, there has been a tremendous effort by scientists to expand our knowledge of sensitive habitats, which has produced a wealth of new information relevant to EFH. It is crucial that this new information be incorporated into EFH regulations, and the five-year review process provides the vehicle for doing so. As both a practical and legal matter, the success of the Council's approach to groundfish EFH management will depend on the extent to which the Council continues to use the best available scientific information to update management measures in an adaptive management framework. In this light, please accept these comments on various procedural aspects of the EFH five-year review that are currently before the Council.

1. Background

The identification of groundfish habitat and management measures that minimize the adverse effects of fishing on habitat is of the utmost importance for the long-term health of the California Current marine ecosystem, as well as for maintaining sustainable fisheries. Pacific Coast groundfish are particularly reliant on benthic structural habitats, some of which can be damaged by fishing gear. Ultimately, fishing practices that damage fish habitat can have serious, unintended consequences of diminishing the productivity of the target species that depend on these habitats for feeding, protection from predators, reproduction, and growth to maturity.

In the early to mid 2000s, the Council engaged in a significant effort to collect the best information on habitat available at the time. Based on the information gathered, in 2005 the Council closed an extensive (but unused) area to bottom trawling and established a series of EFH Conservation Areas to protect identified sensitive habitats from trawling. While the Council's 2005 decision was based on the best available information, there was broad recognition at that time that management measures could and would be improved in the future as additional information emerged. The Council is now engaged in a review process to assess the newly-available data, and modify management measures accordingly. Several procedural issues relating to the review are up for decision by the Council at this meeting.

2. Conflict of Interest Procedures

First, we urge the Council to select the "No recusal" Option (Option 2) from the Essential Fish Habitat Review Committee's (EFHRC) discussion document on conflict of interest, which states that all Committee members may participate in all aspects of the EFH Review. *See* April 2012 Briefing Book, Agenda Item I.6.b, EHFRC Report at 7.

Our understanding based on Council Operating Procedure 22 is that the EFHRC in its current form was developed to be an advisory body to the Council to help complete various aspects of the EFH five-year review, including compiling information, reviewing the contents of proposals for modifications to EFH, and potentially developing its own recommended proposals for modifying EFH. These tasks are intended to help the Council determine whether changes to EFH are warranted, and to contribute to the scoping of potential changes to EFH. As such, the composition of the EFHRC necessarily extends beyond a narrow technical group, and includes various stakeholders. Stakeholders with a range of interests were included to represent a diversity of perspectives as well as provide unique expertise. For these reasons, exclusion of any particular Committee member from certain aspects of the review—even where such Committee member may have an interest in the outcome—would undermine the purpose of the EFHRC.

For perspective, currently there is no prohibition on Council members or other advisory committees to the Council from voting on their own proposals, or proposals generated by their organizations. It would therefore be inconsistent to apply a different standard for conflict of interest rules to the EFHRC. It is particularly illogical to apply a stricter standard to the EFHRC than to the Council, since the EFHRC is not a decision-making body but rather an advisory body simply providing recommendations.

Placing recusal requirements on EFHRC members would also yield a nonsensical result: the EFHRC is charged with coming up with its own proposal for protecting habitat, therefore under the suggested conflict of interest rules, the whole committee would have to recuse itself and would be unable to evaluate its own proposal.

In the event that the Council chooses to apply some version of recusal to the EFHRC, at a minimum, authorship conflicts should not be held to a higher standard than financial conflicts. Indeed, financial conflicts are generally regarded as the primary concern underlying conflict-of-interest principles—the goal being to avoid situations where a decision-maker stands to gain or lose financially from a proposal before him or her. *See, e.g.*, National Academies Policy on Committee Composition and Balance and Conflicts of Interest (2003).

Finally, if the Council does choose to apply recusal procedures to the EFHRC, we would expect such a change to be made by amending COP 22, and we would expect the Council to also establish consistent recusal procedures for its own members and all Council advisory committees, on all topics.

3. EFHRC Timeline and Data Availability

We support the EFHRC's proposed revisions to the EFH review schedule, provided that all relevant data compiled in the Phase I report (bathymetry, observer data, effort data, and so forth, including the GIS files associated with maps presented in the report) are made available publicly prior to the issuance of the RFP in September 2012. The initial rationale for the schedule established by the Council in September 2010 was to provide sufficient time for NMFS and the EFHRC to compile, review, and make available publicly the key relevant data to inform potential modifications to EFH. Since the Council's three-phase process laid out in COP 22 relies heavily on proposals received from the public, it is critical that the public have access to the relevant data prior to the issuance of the RFP. We acknowledge that due to various circumstances the data gathering process has taken longer than initially conceived, and understand the need to revise the EFH review schedule, but emphasize the need for all data to be released publicly prior to the issuance of the RFP.

We are also concerned that neither the Council nor the EFHRC has yet issued a formal request to the individual states for logbook data from trawl locations. The release of individual haul data (trawl tracks) is apparently at the discretion of individual states, not NOAA. Accordingly, in April 2011, the Council endorsed an EFHRC request for data from state fishery management agencies on the "spatial footprint" of trawl fisheries from logbook information at the finest scale available. *See* April 2011 Briefing Book, Agenda Item I.3.a, Supplemental Attachment 4. However, rather than following the Council's instructions and requesting these data from the states, the EFHRC instead had Council Executive Director Don McIsaac write a letter to NOAA General Counsel and the Pacific States Marine Fisheries Commission asking about confidentiality issues related to the data. This occurred in fall 2011, and no response has been received to date. Given that the Council relied heavily on individual trawl track location data provided by the three west coast states in its final decision regarding EFH management measures in 2005, the Council should immediately request this information from the states to prevent further delays and ensure that all the key relevant information is made available. These data are especially important for the EFH review process, as fine-scale presentation of trawl effort data will allow EFH revisions to minimize displaced revenue in the fishery while meeting the legal mandate of minimizing adverse impacts to EFH.

4. Draft Request for Proposals and the Role of the EFHRC

After reviewing the EFHRC's draft Request for Proposals (RFP) as presented in the briefing book, we conclude that it captures the relevant considerations and provides adequate clarity to the public in terms of the information that is expected to be included in proposals. However, the RFP clearly indicates that the EFHRC will not be performing its own independent analysis of the proposals, but rather simply reviewing the analysis contained in the proposals. *See* April 2012 Briefing Book, Agenda Item I.6.b, EHFRC Report at 4. In other words, the EFHRC's ability to evaluate the biological and socioeconomic consequences of proposed management changes will depend solely on the proposal authors; the EFHRC will not be able to run its own analyses should the proposal authors provide insufficient documentation or mere assertions of impacts.

In making its decision, the Council will rely on the review and recommendations of the EFHRC. If the EFHRC is unable to conduct analysis of the proposals, and confidential data necessary to accurately analyze proposals is not available to proposal authors, the Council will be in the unfortunate position of deciding whether to move forward with modifications to EFH without the best available information—instead relying on the assertions of the proposers without independent analysis. This is a serious problem, as the Council needs to have a consistent and accurate means of evaluating potential proposals based on the best available scientific information. We strongly suggest the Council ask NMFS and/or the Groundfish Management Team to work with the EFHRC to provide independent analysis of proposals.

Thank you for considering these comments, and we look forward to working closely with the Council and the EFHRC in the coming months to ensure a comprehensive and deliberate EFH review.

Sincerely,

Ben Enticknap
Pacific Project Manager
Oceana
222 NW Davis Street, Suite 200
Portland, OR 97209

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CONSIDERATION OF INSEASON ADJUSTMENTS

Management measures for groundfish are set by the Council with the general understanding these measures will likely need to be adjusted within the biennium to attain, but not exceed, the total catch limits. This agenda item will consider inseason adjustments to ongoing 2012 fisheries. Potential routine inseason adjustments include adjustments to rockfish conservation area boundaries and adjustments to commercial and recreational fishery catch limits. Adjustments are, in part, based on catch estimate updates and the latest information from the West Coast Groundfish Observer Program. Also under this agenda item, the National Marine Fisheries Service will report on the status of issuing the 2011 surplus carry-over quota pounds to the 2012 shorebased individual fishing quota fishery.

Council Action:

1. **Consider information on the status of 2012 fisheries and adopt final inseason adjustments.**

Reference Materials:

None.

Agenda Order:

a. Agenda Item Overview — Kelly Ames
b. Reports and Comments of Advisory Bodies and Management Entities
c. Public Comment
d. **Council Action:** Adopt Final Recommendations for Adjustments to 2012 Groundfish Fisheries, Including the Carryover Issue

PFMC
03/14/12

Agenda Item I.7.b
Supplemental CDFG Report
April 2012

CALIFORNIA DEPARTMENT OF FISH AND GAME INFORMATIONAL REPORT ON CALCULATING COWCOD MORTALITY IN THE CALIFORNIA RECREATIONAL FISHERY

California Department of Fish and Game (CDFG) will be using a modified method to calculate discard mortality for cowcod released on Commercial Passenger Fishing Vessels (CPFV) beginning in 2012. CDFG sent a letter to the RecFIN Technical Committee on April 3, 2012 (attached) outlining the method, which gives credit for use of descending devices for cowcod only. CDFG will apply reduced mortality rates for cowcod that observers record as being released using these devices.

CDFG finds the application of this method uniquely suitable to the situation with cowcod. Approximately 80 percent of the estimated recreational cowcod bycatch occurs in the CPFV mode. As part of CDFG's California Recreational Fisheries Survey (CRFS) program, sampling activities occur aboard CPFVs, rather than dockside. Because cowcod interactions are rare events, when they do occur samplers can easily observe and denote whether or not a descending device was used to release the fish. Additionally, as cowcod interactions are primarily limited to Southern California, there is no need to consider geographic differences that might exist in sampling procedures or other concerns that might be raised for stocks that are managed across several management areas or jurisdictions. Although at this time CDFG will limit the application of the method to cowcod released from CPFVs, there is potential for examining possible use of this approach with other species and fishing modes in the future.

CDFG believes that direct observations by our onboard employees regarding the disposition of released cowcod are best available data and superior to using a generic proxy. Descending devices have proven to reduce mortality of rockfish discards. Because CDFG can effectively observe their use in this situation and the reduction in mortality can be quantified, application of this method will result in more accurate cowcod mortality estimates.

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EDMUND G. BROWN, Jr., Governor
CHARLTON H. BONHAM, Director

April 3, 2012

RecFIN Technical Committee
Pacific States Marine Fisheries Commission
205 SE Spokane Street, Suite 100
Portland, OR 97202

Dear Committee Members:

The purpose of this letter is to inform the committee of the Department of Fish and Game's (Department) intent to use a modified method to calculate cowcod mortality on released fish from the Party Charter (PC) mode. The Department's method will utilize empirical data instead of the Groundfish Management Team's (GMT) recommended proxy for these discards.

In January 2012, the GMT sent a letter recommending that proxy mortality rates be applied to species lacking species-specific depth dependent mortality rates, including cowcod. For cowcod, the GMT recommended that the deep-demersal guild proxy be applied to all released cowcod, whether fish were discarded alive or dead. Previously, in the absence of a species-specific discard mortality rate, RecFIN estimates had assumed 100 percent mortality of fish reported as released dead, and zero mortality of fish reported as released alive. Although there is data supporting higher survivorship rates for fish released using a descending device, to date it has not been used in the production of estimates.

Since 2007, the Department has conducted an extensive outreach campaign to educate the public on the use of descending devices to minimize mortality of discarded rockfish. Although the use of descending devices is not mandatory, many anglers are using them. The California Recreational Fisheries Survey (CRFS) observers document the use of these devices onboard Commercial Passenger Fishing Vessels (CPFV) during the course of fishing activity. Beginning in 2012, the Department will apply reduced mortality rates to the proportion of cowcod discarded alive from CPFVs that are released using these devices. Because the CPFV fleet accounts for more than 80 percent of cowcod bycatch, giving credit for use of descending devices is expected to significantly reduce overall mortality estimates for cowcod in the recreational fishery.

Methods
The GMT evaluated three specific mortality variables to develop the mortality proxy: a) surface mortality, b) short-term bottom mortality, and c) long-term delayed mortality. For cowcod released with descending devices on CPFVs, the Department will use a surface mortality rate of 22 percent, based on a study by Jarvis and Lowe (2008). In the study, 306 shelf rockfish were taken with recreational rod and reel gear, and after being

returned to depth in cages for two days, mortality was estimated at 22 percent. The Department will continue to use the GMT estimates for short term bottom mortality and long-term delayed mortality, which increases with depth. The Department will also continue to apply the GMT mortality proxy to fish released without a descending device on CPFVs, and for cowcod taken in the private/rental boat (PR) mode.

Table 1 shows the differences in depth dependent mortality rates with and without descending devices. Since no data are available from the study to inform savings from the use of a descending device in 20 fm or less, mortality estimates are based on the GMT proxy.

Table 1. Comparison of depth dependent mortality rates used by the GMT for the deep-demersal guild and estimates produced by the Department for cowcod released with a descending device on CPFVs.

	Depth Bin					
Mortality Estimate	0-10	11-20	21-30	31-40	41-50	51-60
GMT Method - Deep-Demersal Guild Mortality	21.0%	35.0%	52.0%	100.0%	100.0%	100.0%
CDFG Method - Cowcod Mortality Using Descending Device	21.0%	35.0%	39.2%	42.8%	46.4%	49.9%

Future Applications
Although the Department is using a modified mortality rate only for cowcod released with descending devices aboard CPFVs, there is the ability to examine additional applications of this approach to other species the future. Additionally, CRFS samplers are now gathering data on the use of descending devices on each trip for the PR mode. In the future, this information may allow for application of reduced mortality rates for fish released with descending devices in this mode as well.

If you have questions or need additional information, please contact me or John Budrick of my staff, at mvojkovich@dfg.ca.gov or jbudrick@dfg.ca.gov.

Sincerely,

Marija Vojkovich
Regional Manager
Marine Region

ec: John Budrick, Department of Fish and Game, Belmont, CA

GROUNDFISH ADVISORY SUBPANEL REPORT ON CONSIDERATION OF INSEASON ADJUSTMENTS

The Groundfish Advisory Subpanel (GAP) and the Groundfish Management Team (GMT) engaged in a joint session regarding potential inseason actions for 2012. The GMT discussion was led by Dr. Sean Matson. After completing a group discussion, the GAP wishes to recommend for inseason consideration the following:

Limited Entry Sablefish Daily-Trip-Limit (DTL), North of 36 N. latitude

Current Limited Entry DTL Sablefish landings projections for the area North of 36 N. latitude indicate that fishery will exceed its harvest target by 16 percent, or 43 metric tons, if left unchecked. Therefore, the GAP supports the recommendation of the GMT's Alternative 1 found in Table 2 as follows:

Reduce trip limits in the limited entry Sablefish DTL fishery North of 36 N. latitude from the current 1,300 pounds per week, not to exceed 5,000 pounds per two months, to 1,000 pounds per week, not to exceed 4,000 pounds per two months, beginning on May 1, 2012.

California recreational, kelp greenling

Increase the recreational sub-bag limit of kelp greenling from two to 10 fish in all areas during all open seasons. The minimum size limit of 12 inches would remain in place.

This change would simplify regulations and is not projected to affect the annual catch limit (ACL) or have other biological impacts. Furthermore, if anglers were to obtain their bag limits more quickly, they would be off the water sooner. This change could actually encourage conservation while providing shallow-water anglers additional opportunity.

The GAP supports the bag limit increase of kelp greenling from two to 10 fish in the California recreational sector.

Carryover provisions

Mr. Frank Lockhart gave the GAP an update on the surplus carryover issue. The GAP understands and appreciates the effort NMFS is directing towards short term and long-term solutions to address carryover situations resulting in exceeding the following year's ACL.

The GAP believes the short term fix outlined in the presentation is unacceptable in the long term. To be clear, the GAP emphasizes the critical need to establish a long-term protocol for handling surplus carryover in such cases.

It is apparent that carryovers for high quota-to-catch ratio species (for example, Dover sole) are not at issue here, since the vast majority of those cases will never result in exceeding the ACL. However, for species such as Pacific whiting, sablefish, and petrale, with a high value/low quota-to-catch ratio, the current inability to carryover up to 10 percent without exceeding the ACL is the core of the issue. Without an effective carryover provision in the program for these species, a carryover provision is meaningless; fishing strategies will change, and the economic imperative will result in these critical species being fished beyond the current year's ACL and assure the carryover of a deficit.

Attendant to this is the pressure to harvest 100 percent of the quota pounds for these species creating a race for quota pounds at year end regardless of ocean conditions, negating harvest plan flexibility, one of the primary intended benefits of the Quota Share Program.

Mr. Lockhart stated clearly that, after careful review by the SSC and GMT, there appears to be no biological impact resulting from implementation of a surplus carryover provision regardless of the effect on the ACL.

The GAP understands that this is a legal issue now recognized nationally and encourages NMFS and the Council to explore solutions regionally and nationally. Carryover provisions such as the one Canada uses – a rolling average – also should be explored more thoroughly.

The GAP urges NMFS and the Council to develop a long-term strategy to handle surplus carryover in a manner conforming to the original intent of the provision.

PFMC
04/04/12

THE GROUNDFISH MANAGEMENT TEAM REPORT ON CONSIDERATION OF INSEASON ADJUSTMENTS

SUMMARY

Action items:

- The GMT recommends reducing trip limits in the LE sablefish DTL fishery, north of 36° N. lat. from 1,300 pounds per week, not to exceed 5,000 pounds per two months, to 1,000 pounds per week, not to exceed 4,000 pounds per two months, beginning May 1, 2012, according to Alternative 1, in Table 2.
    - Current projections are over target.
    - LE FG North share was exceeded in 2011 as a result of this fishery.
    - Modest reductions now (May 1) could prevent more austere reductions later this year.
    - Earliest opportunity to take inseason action to reduce trip limits following this meeting would be September 1.

Informational items:

- Scorecard Update
- Research Catch Update
- Recreational Fisheries
    - California
        - Kelp greenling bag limits
        - Cowcod discard mortality & descending gear
    - Oregon and Washington Update
- Commercial Fisheries
    - Halibut IBQ
    - IFQ Catch Snapshot

The Groundfish Management Team (GMT) considered the most recent information on the status of ongoing fisheries, research, and requests from industry and provides the following recommendations for 2011 inseason adjustments.

The GMT also received guidance from the National Marine Fisheries Service (NMFS) Northwest Region (NWR) regarding timing of implementation of inseason recommendations from this meeting. NMFS anticipates implementing routine inseason adjustments to fishery management measures by May 1, 2011.

1. SCORECARD UPDATE

In the April 2012 scorecard (Attachment 1), projected impacts have been updated for the non-nearshore sector to reflect new information on bycatch rates and effort by area from the West Coast Groundfish Observer Program (WCGOP).

2. RESEARCH CATCH UPDATES

The Washington Department of Fish and Wildlife will conduct their longline survey in the Spring, sometime in April, rather than during the Summer. They anticipate no change to the one metric ton research set aside for those surveys, and intend to stay within it.

3. RECREATIONAL FISHERIES

3.1. California

3.1.1. <u>Increase of the recreational sub-bag limit of greenling to 10 fish</u>

The ACL contribution of kelp greenling to the "Other Fish" complex analyzed in the 2011-12 FEIS increased from 17.3 mt to 55.3 mt. The state of California is in the process of increasing the kelp greenling TAC (equivalent to an ACL) to conform to the higher federal ACL contribution. CDFG is proposing to increase the sub-bag limit to from 2 fish to 10 fish within the "10-fish RCG" (Rockfish, Cabezon and Greenling) bag limit to provide increased opportunities as a result of the higher greenling contribution to the "Other Fish" complex.

As discussed in the 2013-2014 DEIS (Agenda item I.3, Attachment 5), there are no projected increases in overfished species mortality as a result of the bag limit increase. The analysis shows that projected mortality will be below the kelp greenling ACL contribution for the "Other fish" complex for 2012, however the GMT notes there may be some process issues that the Council may need NMFS guidance on.

3.1.2. <u>Cowcod discard mortality estimation and use of descending gear</u>

The GMT understands that California Department of Fish and Game is proposing to apply a reduced discard mortality rate for cowcod, based on improved survivability when descending devices are used in the recreational fishery. We understand that there is interest in applying an alternate discard mortality rate (i.e. survivability credit) to the portion of discarded cowcod that were observed being released using descending devices. There are studies available to help inform the appropriate mortality rate to use. This would only be implemented for the Commercial Passenger Fishing Vessel (CPFV) fleet which has some onboard observer coverage providing direct observations of the disposition of discarded fish and rate of use of descending devices which is then expanded based on total effort.

However, there are some on the GMT who are concerned that this proposed application of different mortality rates has not been reviewed by the GMT, SSC and the Pacific States Marine Fisheries Commission (PSMFC), Recreational Fisheries Information Network (RecFIN) committee. As such it has also not been analyzed in the specifications and management measures EIS for inseason use this year. Others argue that this is only an update of the existing mortality estimation method already in place, which would increase its accuracy. The basis for the latter argument is that the only difference from the existing method is the substitution of a mortality rate which reflects release with a descending device rather than release at the surface. The other two components of the method, which reflect short term and long-term mortality remain the same as the GMT deep-demersal proxy mortality rate, applied to fish released at the surface.

The GMT developed, and the SSC reviewed, a coastwide matrix used by the three states and RecFIN for applying discard rates based on the depth of recreationally caught groundfish. An important goal of this process was to have discard mortality rates estimated and applied consistently coastwide. California Department of Fish and Game (CDFG) staff note that cowcod essentially occur only off California. It is the understanding of some on the GMT that changes to such mortality rates falls outside of the existing inseason process, as well as the limited scope of what is being considered for this coming biennial cycle. Others perceive these as systemic changes to the catch estimation methods, which directly impact the data; that they are more similar to effort estimates, or average weight, rather than management measures necessitating review within the regulatory specification process.

We would like guidance from the Council on whether they want the GMT to (1) work with the SSC to review and approve this methodology, and for RecFIN to update the previously recorded mortality estimates mid-cycle, or (2) if this should wait to be considered for 2015-2016 management cycle.

3.2. Oregon and Washington

Recreational fisheries in Washington and Oregon are open; however effort and overfished species catch during January through March have been relatively low. Therefore, there are currently no updates to the overfished species scorecard for the Washington or Oregon recreational fisheries.

4. COMMERCIAL FISHERIES

4.1. Incidental Catch Regulations for the 2012 Fixed Gear Sablefish Fisheries North of Point Chehalis

As the Council is aware, a motion was approved under Agenda Item F.1.d to support Option 2 for incidental halibut landings in the fixed gear primary sablefish fishery north of Point Chehalis. This motion determined that beginning May 1, incidental halibut landings shall be restricted to 50 pounds (dressed weight) of halibut for every 1,000 pounds (dressed weight) of sablefish landed and up to 2 additional halibut in excess of the 50 pounds per 1,000-pound ratio per landing. This item will be included with any other inseason adjustments recommended under this agenda item.

4.2. Fixed Gear Sablefish DTL fisheries

This section discusses 2011 inseason considerations for the four fixed gear, daily trip limit (DTL) fisheries, including both limited entry (LE) and open access (OA), north and south of 36° N. lat. for 2011. Hereafter, they will be referred to as follows: LE North, LE South, OA North, and OA South.

4.2.1. Sablefish DTL fishery performance in 2011

According to PacFIN data, the combination of LE South and OA South fisheries, which were managed collectively, harvested 99% of their sum landings targets for 2011. The OA North fishery also finished at 99% of its target.

However, the LE North finished at 157% of its target. This brought the sum of the LE DTL North and the sablefish primary fishery in 2011 to 60 mt above its collective target (the northern LE fixed gear share), even though the primary fishery left a historically typical remainder of approximately six percent (93 mt). This did not impact the northern sablefish ACL, since the IFQ fishery left 148 mt of sablefish unharvested in the northern area.

4.2.2. Current status

Landings projections were made for each fishery following update with the most recent available landings data from PacFIN, acquired on March 15, 2011. “Hard” landings data are complete through 2011. Estimates of 2012 landings from the Quota Species Monitoring System (QSM) are current through January, and were taken into account in projections.

Current model projections through the end of 2011 are shown in Figure 1. Under the No Action Alternative (i.e., status quo) the projection is for an overage in the LE North fishery of 16%, or 43 mt (Table 1). Projections for the other three DTL fisheries are within their landing targets (LT, Figure 1). We define “landing target” as a harvest guideline that has been reduced to account for discard mortality.

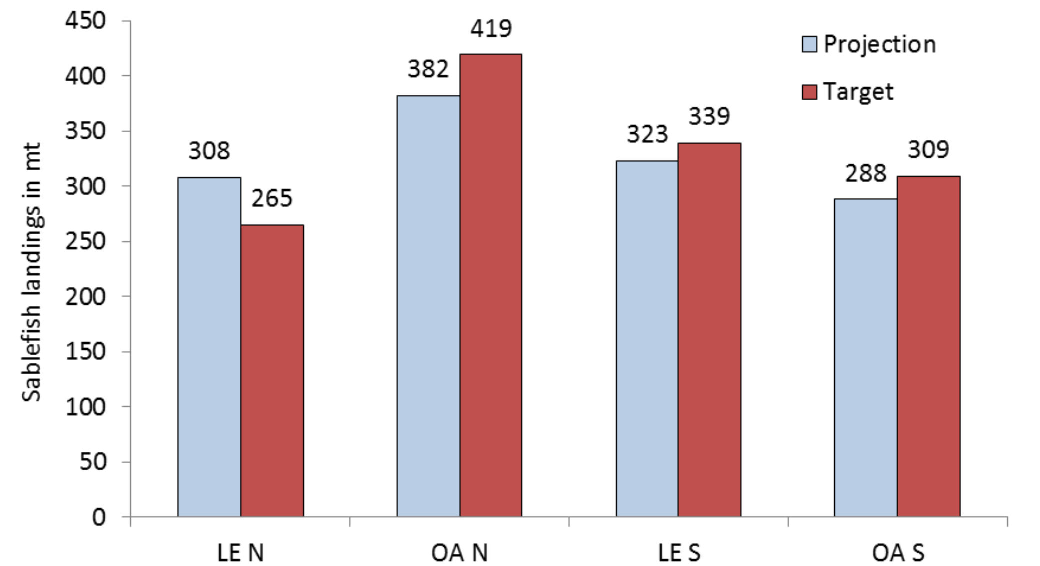


Figure 1. Current landings projections and landings targets for the four sablefish, fixed gear, DTL fisheries. The LE North fishery is currently projected to exceed its 2012 target by 16 percent, or 43 mt.

Table 1. Model-projected impacts of alternative trip limits in the limited entry, fixed-gear, sablefish, DTL fishery, north of 36° N. lat., for 2012. Landings target and projected landings are in metric tons (mt).

Fishery	Alternative	Target	Projection	Difference	Attainment
LE North	No Action	265	308	-43	116.2%
	Alternative 1		242	23	91.3%
	Alternative 2		240	25	90.7%

4.2.3. Options for action

The GMT analyzed possible trip limits and the resulting projected landings, and presents the following options (Table 2):

Table 2. Proposed 2012 trip limits for the limited entry, fixed-gear, sablefish DTL fishery, north of 36° N. lat., under the alternatives. Proposed changes under alternatives appear in bold font, in shaded cells.

Area	Fishery	Alternative	Jan-Feb	Mar-Apr	May-June	July-Aug	Sept-Oct	Nov-Dec
North of 36° N. lat. (U.S./Canada Border to 36° N. lat.)	LE North	No Action	1,300 lb. per week, not to exceed 5,000 lb. per 2 mo.					
		Alt. 1	1,300 lb. per week, not to exceed 5,000 lb. per 2 mo.		**1,000 lb. per week, not to exceed 4,000 lb. per 2 mo.**			
		Alt. 2	1,300 lb. per week, not to exceed 5,000 lb. per 2 mo.				**650 lb. per week, not to exceed 2,600 lb. per 2 mo.**	

Alternative 1 is to reduce trip limits now, effective May 1, 2012. This would mean a reduction from 1,300 pounds per week, not to exceed 5,000 pounds per two months, to 1,000 pounds per week, not to exceed 4,000 pounds per two months. The goal of this trip limit structure is to maintain a year-around fishery.

Alternative 2 is to delay action until after further progress of 2012 fishery landings, and a decision at the June meeting, in which case a reduction could be implemented by September 1, due to the late date of the June meeting, and that reductions in trip limits cannot routinely be implemented in the middle of a bimonthly period. This is projection results in a steeper decrease in trip limits relative to Alternative 1, from 1,300 pounds per week, not to exceed 5,000 pounds per two months, to 650 pounds per week, not to exceed 2,600 pounds per two months.

Both alternatives are currently estimated to reduce landings to approximately 91 percent of the fishery landing target. The strategy of near-90 percent attainment range for projected attainment was accepted by the Council in the November, 2011 meeting to accommodate uncertainty in landings data and model-based projections.

4.2.4. Rationale

Attending closely to this fishery in 2012 is important given three points:

1) The fishery exceeded its target by 154 mt in 2011 (current PacFIN estimate).
2) The 2011 overage in this fishery caused the LE Fixed Gear North Share to be exceeded by 60 mt. This did not impact the northern ACL, since IFQ left 148 mt unharvested, but very high attainment of this valuable species seems likely for the IFQ fishery in the future, in which case continued overages by the LE DTL North fishery could begin to jeopardize the northern ACL.

3) The current QSM estimate indicates that January 2012 catch was higher than predicted.

4.2.5. Additional detail

Model-predicted landings began to diverge from actual landings by a large amount beginning July 1, 2011, when the rolling 30-day average price of sablefish paid in this fishery rose above approximately $3.60 per pound, and the fishery did not respond as much as predicted to the substantial lowering of trip limits from July through December. Average monthly price peaked at $4.04 in September. We have investigated adding ex-vessel sablefish price per pound to the LE North model, and have found it to be a good candidate predictor. In the future, uncertainty in projections could be bracketed by a range of possible inseason sablefish ex-vessel prices. We plan to further investigate improvement of this model in the near future.

Presently, 2012 average sablefish prices in this fishery have dipped below $3.00 per pound (in February), to pre-July 2011 levels, possibly indicating a return to a more typical intra-annual pattern of ex-vessel sablefish prices within this fishery; in previous years, the price has tended to peak in the fall, although not as dramatically as in 2011.

We have scaled the weekly to the bimonthly trip limits according to model runs using weekly trip limit as the predictor, for 2012. The ratio of weekly to bimonthly limits in July through December of 2011 was higher than usual, which may have also contributed to higher than expected landings.

4.3. IFQ fishery

4.3.1. 2012 IFQ catch update

Total monthly catch by species in the IFQ groundfish fishery through March 31, 2012, and from January through March 31 during 2011, along with attainment of each species allocation is shown in Table 3. IFQ catch data are available from https://www.webapps.nwfsc.noaa.gov/ifq/ .

4.3.1.1. Early 2012 attainment and catch vs 2011

Although the total catch through March, 2012 differs little from that in early 2011 (Table 3), catches of some species do show differences, and it suggests that fishermen are more confident early this year in the IFQ fishery than the same time last year. Currently, the species with the highest attainment is petrale sole, which is reportedly at 34 percent of its allocation, versus 26 percent at the same time in 2011; a 61 percent increase (Table 3, Figure 1). Darkblotched rockfish currently shows the second highest attainment among species categories, with approximately 10 percent of its allocation reached, versus five percent for the same time period in 2011, an increase of more than 100 percent.

There are notable increases in attainment for several other species as well, including bocaccio, canary, chilipepper, and minor slope rockfish north and south of 40°10' N. lat., and shortspine thornyheads, north of 34°27' N. lat. Dover sole, lingcod and yelloweye rockfish showed slightly lower attainment rates versus the same time in 2011 (by one to two percent).

Among stocks which normally show low attainment, and thus reporting catch differences as attainment diminishes comparisons of catch between years, chilipepper rockfish currently shows 33,883 pounds caught so far this year, versus 57 pounds this time last year (Table 3). Yellowtail rockfish currently shows nearly double the catch in early 2011 (51,366 pounds in 2012 versus 27,102 pounds in 2011, an increase of 190 percent), all of which was retained. Splitnose rockfish also showed a sharp increase in catch, from 2,565 pounds early in 2011, to 17,308 pounds so far in 2012, an increase of 675 percent. Thirty-four percent of the splitnose catch in early 2012 was retained, versus 20 percent early in 2011.

Recommendation:

- **The GMT recommends reducing trip limits in the LE sablefish DTL fishery, north of 36° N. lat. from 1,300 pounds per week, not to exceed 5,000 pounds per two months, to 1,000 pounds per week, not to exceed 4,000 pounds per two months, beginning May 1, 2012, according to Alternative 1, in Table 2.**

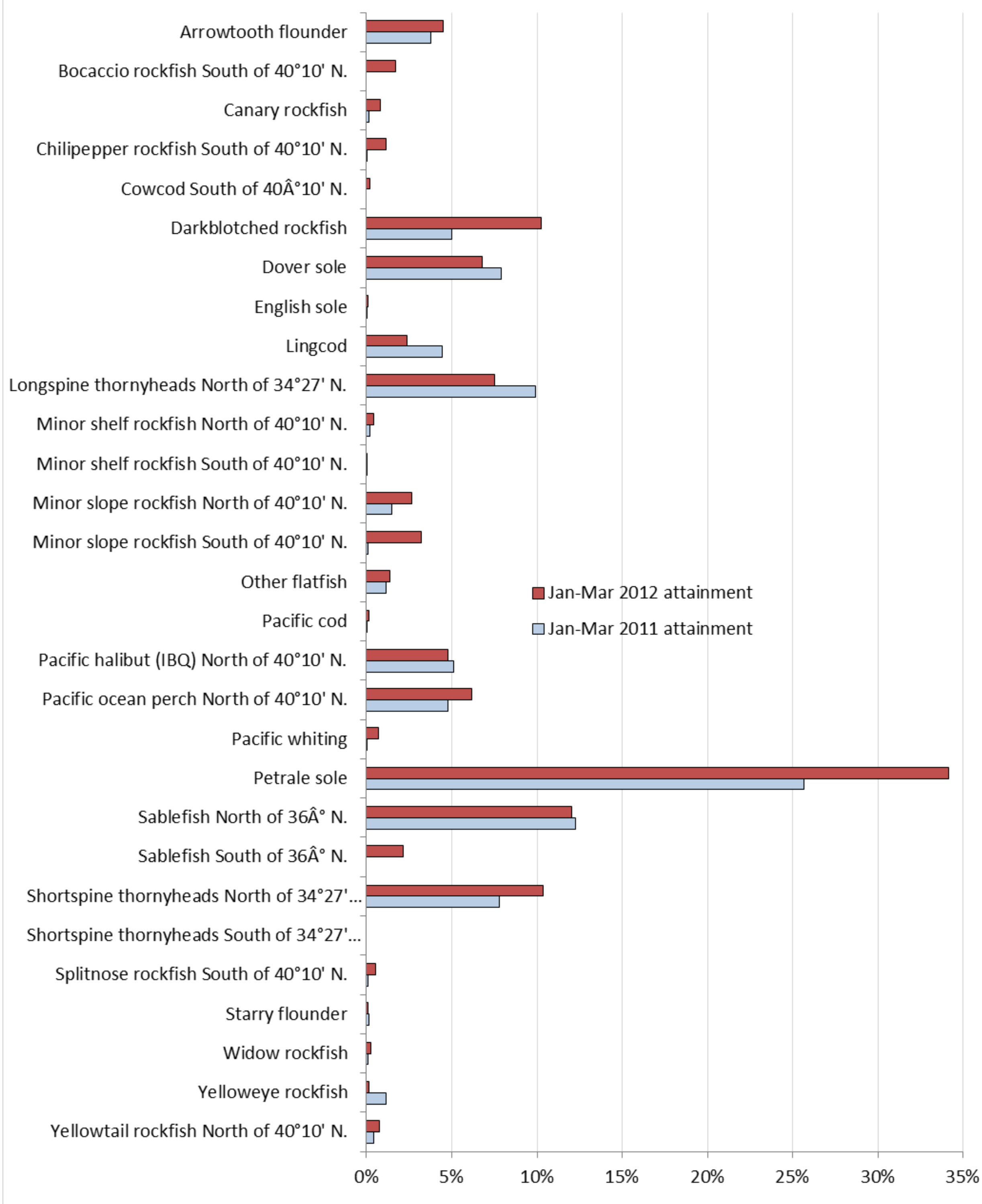


Figure 2. Attainment of species category allocations in the West Coast Groundfish IFQ Fishery, during January through March of 2012 versus 2011.

Table 3. Total catch (sum of landings and discard) for the West Coast Groundfish IFQ Fishery, during January, February and March of 2011 and 2012, attainment of species category allocations, and comparisons between the two years.

IFQ species category	Jan 2011	Feb 2011	Mar 2011	Sum Jan-Mar 2011	2011 alloc	Jan-Mar 2011 attain	Jan 2012	Feb 2012	Mar 2012	Sum Jan-Mar 2012	2012 alloc	Jan-Mar 2012 attain	Attain dif 2012-2011	Jan-Mar catch 2012/2011
Arrowtooth flounder	145,965	370,570	522,793	1,039,328	27,406,105	3.8%	187,401	335,155	417,397	939,953	20,861,131	4.5%	0.7%	90%
Bocaccio rockfish South of 40°10' N.	0	0	0	0	132,277	0.0%	1,407	0	866	2,273	132,277	1.7%	1.7%	zero in 2011
Canary rockfish	4	56	33	93	57,100	0.2%	16	346	105	467	57,761	0.8%	0.6%	502%
Chilipepper rockfish South of 40°10' N.	6	0	51	57	3,252,370	0.0%	2,580	107	31,196	33,883	2,934,904	1.2%	1.2%	59444%
Cowcod South of 40Â°10' N.	0	0	0	0	3,968	0.0%	0	0	8	8	3,968	0.2%	0.2%	zero in 2011
Darkblotched rockfish	2,862	13,662	11,024	27,548	552,997	5.0%	13,143	18,512	24,456	56,111	548,808	10.2%	5.2%	204%
Dover sole	794,070	1,161,616	1,919,382	3,875,068	49,018,682	7.9%	589,703	1,035,449	1,700,310	3,325,462	49,018,682	6.8%	-1.1%	86%
English sole	2,901	8,263	5,259	16,423	41,166,808	0.0%	5,163	5,420	8,327	18,910	21,037,611	0.1%	0.0%	115%
Lingcod	322	79,929	101,044	181,295	4,107,873	4.4%	25,598	27,016	42,452	95,066	3,991,800	2.4%	-2.0%	52%
Longspine thornyheads North of 34°27' N.	93,239	191,963	145,258	430,460	4,334,839	9.9%	71,936	80,694	164,767	317,397	4,219,648	7.5%	-2.4%	74%
Minor shelf rockfish North of 40°10' N.	33	602	1,337	1,972	1,150,813	0.2%	566	2,237	2,134	4,937	1,150,813	0.4%	0.3%	250%
Minor shelf rockfish South of 40°10' N.			10	10	189,598	0.0%	3	10	39	52	189,598	0.0%	0.0%	520%
Minor slope rockfish North of 40°10' N.	2,852	11,168	12,640	26,660	1,828,779	1.5%	8,442	13,635	26,117	48,194	1,828,779	2.6%	1.2%	181%
Minor slope rockfish South of 40°10' N.	426	72	431	929	831,958	0.1%	4,607	7,193	14,775	26,575	831,958	3.2%	3.1%	2861%
Other flatfish	21,203	55,312	29,210	105,725	9,253,683	1.1%	34,329	39,084	54,937	128,350	9,253,683	1.4%	0.2%	121%
Pacific cod	273	564	382	1,219	2,502,247	0.0%	114	84	3,709	3,907	2,502,247	0.2%	0.1%	321%
Pacific halibut (IBQ) North of 40°10' N.	1,794	4,148	7,257	13,199	257,524	5.1%	5,331	3,743	2,005	11,079	232,856	4.8%	-0.4%	84%
Pacific ocean perch North of 40°10' N.	1,632	4,045	6,818	12,495	263,148	4.7%	2,451	5,312	8,548	16,311	263,441	6.2%	1.4%	131%
Pacific whiting	16,835	16,695	16,235	49,765	204,628,442	0.0%	18,732	150,729	11,508	180,969	25,055,977	0.7%	0.7%	364%
Petrale sole	91,647	253,484	147,094	492,225	1,920,226	25.6%	246,541	335,860	211,154	793,555	2,324,995	34.1%	8.5%	161%
Sablefish North of 36Â° N.	155,107	239,357	293,110	687,574	5,613,719	12.2%	157,059	196,642	301,519	655,220	5,438,797	12.0%	-0.2%	95%
Sablefish South of 36Â° N.	0	0	0	0	1,170,390	0.0%	4,189	1,894	18,152	24,235	1,133,352	2.1%	2.1%	zero in 2011
Shortspine thornyheads North of 34°27' N.	54,853	92,848	97,707	245,408	3,156,138	7.8%	72,020	108,667	142,896	323,583	3,120,533	10.4%	2.6%	132%
Shortspine thornyheads South of 34°27' N.	0	0	0	0	110,231	0.0%	0	0	0	0	110,231	0.0%	0.0%	zero in both
Splitnose rockfish South of 40°10' N.	1,433	4	1,128	2,565	3,045,245	0.1%	8,854	3,017	5,437	17,308	3,206,513	0.5%	0.5%	675%
Starry flounder	0	933	859	1,792	1,471,586	0.1%	158	1,146	0	1,304	1,480,404	0.1%	0.0%	73%
Widow rockfish	65	143	335	543	755,348	0.1%	240	693	807	1,740	755,352	0.2%	0.2%	320%
Yelloweye rockfish	0	10	5	15	1,323	1.1%	0	2	0	2	1,323	0.2%	-1.0%	13%
Yellowtail rockfish North of 40°10' N.	214	103	26,785	27,102	6,821,455	0.4%	285	21,704	29,377	51,366	6,850,556	0.7%	0.4%	190%
Sum	1,387,736	2,505,547	3,346,187	7,239,470	375,004,872	-	1,460,868	2,394,351	3,222,998	7,078,217	168,537,998	-	-	98%

Attachment 1. Scorecard for April of 2012. Allocations[a] and projected mortality impacts (mt) of overfished groundfish species for 2012.

Fishery	Bocaccio b/		Canary		Cowcod b/		Dkbl		Petrale		POP		Widow		Yelloweye	
***Date*: 5 April 2012**	Allocation a/	Projected Impacts	Allocation a/	Projected Impacts	Allocation a/	Projected Impacts	Allocation a/	Projected Impacts	Allocation a/	Projected Impacts	Allocation a/	Projected Impacts	Allocation a/	Projected Impacts	Allocation a/	Projected Impacts
Off the Top Deductions	13.4	2.4	20.0	18.7	0.3	0.1	18.7	17.2	65.4	87.1	12.8	12.8	61.0	64.9	5.9	5.8
EFPc/	11.0	0.0	1.3	0.0	0.2	0.0	1.5	0.0	2.0	0.0	0.1	0.0	11.0	0.0	0.1	0.0
Research d/	1.7	1.7	7.2	7.2	0.1	0.1	2.1	2.1	17.0	17.0	1.8	1.8	1.6	1.6	3.3	3.3
Incidental OA e/	0.7	0.7	2.0	2.0	--	--	15.0	15.0	1.0	0.1	0.0	0.1	3.3	3.3	0.2	0.2
Tribal f/			9.5	9.5			0.1	0.1	45.4	70.0	10.9	10.9	45.0	60.0	2.3	2.3
Trawl Allocations	60.0	60.0	34.8	34.8	1.8	1.8	263.0	263.0	1,060.0	1,060.0	137.0	137.0	491.0	491.0	0.6	0.6
---SB Trawl	60.0	60.0	26.2	26.2	1.8	1.8	248.9	248.9	1,054.6	1,054.6	119.6	119.6	342.1	342.1	0.6	0.6
---At-Sea Trawl			8.6	8.6			14.5	14.5	5.0	5.0	17.4	17.4	147.9	147.9		
a) At-sea whiting MS			3.6	3.4			6.0	6.0			7.2	7.2	61.2	61.2		
b) At-sea whiting CP			5.0	4.8			8.5	8.5			10.2	10.2	86.7	86.7		
Non-Trawl Allocation	189.6	55.9	29.8	19.3	0.9	0.2	14.0	4.3	35.0	0.0	7.0	0.3	49.0	10.0	10.5	9.7
Non-Nearshore	57.9		2.3												1.3	
LE FG				**1.5**				**3.6**				0.3		0.1		**0.6**
OA FG				0.2				**0.5**				**0.0**		0.0		0.1
Directed OA: Nearshore	0.7	0.5	4.0	3.3		0.0		0.2						0.2	1.1	1.1
Recreational Groundfish																
WA			2.0	1.0				--		--		--		--	2.6	2.5
OR			7.0	4.0				--		--		--		1.0	2.4	2.3
CA	131.0	55.4	14.5	9.3		0.2		--		--		--		8.7	3.1	3.1
TOTAL	263.0	118.3	84.6	**72.8**	3.0	2.1	295.7	**284.5**	1,160.4	1,147.1	156.8	**150.1**	601.0	565.9	17.0	**16.1**
2012 Harvest Specification g/	**274**	**274**	**107**	**107**	**3.0**	**3.0**	**296**	**296**	**1,160**	**1,160**	**157**	**157**	**600**	**600**	**17**	**17**
Difference	11.0	155.7	22.4	34.2	0.0	0.9	0.3	11.5	-0.4	12.9	0.2	6.9	-1.0	34.1	0.0	0.9
Percent of OY	96.0%	43.2%	79.1%	68.0%	100.0%	70.0%	99.9%	96.1%	100.0%	98.9%	99.9%	95.6%	100.2%	94.3%	100.0%	94.7%

Key		
	(hatched)	= not applicable
	--	= trace, less than 0.1 mt
	(black)	= Fixed Values
	(light blue)	= off the top deductions

a/ Formal allocations are represented in the black shaded cells and are specified in regulation in Tables 1b and 1e. The other values in the allocation columns are 1) off the top deductions, 2) set asides from the trawl allocation (at-sea petrale only) 3) ad-hoc allocations recommended in the 2011-12 EIS process, 4) HG for the recreational fisheries for canary and YE.

b/ South of 40°10' N. lat.

c/ EFPs are amounts set aside to accommodate anticipated applications. Values in this table represent the estimates from the 11-12 biennial cycle, which are currently specified in regulation.

d/ Includes NMFS trawl shelf-slope surveys, the IPHC halibut survey, and expected impacts from SRPs and LOAs.

e/ The GMT's best estimate of impacts as analyzed in the 2011-2012 Environmental Impact Statement (Appendix B), which are currently specified in regulation.

f/ Tribal values in the allocation column represent the the values in regulation. Projected impacts are the tribes best estimate of catch.

g/ The POP ACL is 183 mt, while the HG is 157 mt

Agenda Item I.8
Situation Summary
April 2012

ADOPTION OF 2013-2014 BIENNIAL HARVEST SPECIFICATIONS AND MANAGEMENT MEASURES

This is the final step at this meeting in the process to adopt preferred harvest specifications and preliminary preferred management measures, including allocations, for 2013-2014 groundfish fisheries. The Council is scheduled to take incremental steps earlier at this meeting towards completion of this agenda item under Agenda Item I.3. The states, tribes, advisory bodies, and public are expected to have recommended harvest specifications, including rebuilding plans, and management measures to be analyzed in the Draft Environmental Impact Statement (DEIS) for public review. The Council task under this agenda item is to confirm or modify action taken under Agenda Item I.3. Final action for 2013-2014 groundfish fisheries is scheduled for the June Council meeting.

Council Action:

1. **Adopt preferred harvest specifications, including rebuilding plans.**
2. **Adopt a preliminary preferred management measures, including allocations.**

Reference Materials:

None.

Agenda Order:

a. Agenda Item Overview — John DeVore and Kelly Ames
b. Reports and Comments of Management Entities and Advisory Bodies
c. Public Comment
d. **Council Action:** Adopt Preferred Harvest Specifications and Preliminary Preferred Management Measures, Including Allocations

PFMC
03/15/12

OPTIONS FOR ROUTINE MANAGEMENT OF UNUSED HARVEST SET-ASIDES

Description of the Options for Managing Harvest Set-Asides

Harvest set-asides are yields taken off the top of a stock's annual catch limit (ACL) to accommodate catch in tribal fisheries, exempted fishing permit (EFP) activities, research activities, and incidental bycatch in non-groundfish fisheries. Such yields are set aside, or taken off the top of an ACL, before allocating to directed groundfish fisheries in the biennial harvest specifications and management measures process. Specification of set-asides to accommodate these sources of fishing-related mortality are accountability measures (AMs) that reduce the risk of exceeding ACLs.

The proposed action is to further clarify the management of "off-the-top" yields set aside for research catches, exempted fishing permit (EFP) activities, and groundfish mortality in non-groundfish fisheries (i.e., incidental open access [OA] fisheries) when deciding harvest specifications and management measures. The proposed action does not contemplate inseason management or reapportionment of set-asides specified to accommodate tribal fisheries[1]. The proposed action would allow flexibility in the management of these "off-the-top" set-asides, including the ability to take inseason action to make changes and redistribute the set asides to other sectors.

Currently the regulations at 660.55(j) state:
(j) Fishery set-asides. Annual set-asides are not formal allocations but they are amounts which are not available to the other fisheries during the fishing year. For the catcher/processor and mothership sectors of the at-sea Pacific whiting fishery, set-asides will be deducted from the limited entry trawl fishery allocation. Set-aside amounts will be specified in Tables la through 2d of this subpart and may be adjusted through the biennial harvest specifications and management measures process.

The purpose of the proposed action is to create a formal process to redistribute unused set-asides amounts inseason to other sectors in the groundfish fishery. The need for the proposed action is to provide an opportunity for full attainment of the annual available harvest for the groundfish fishery in accordance with the requirements of the Magnuson-Stevens Act.

Some fishing-related activities where catch is counted against harvest set-asides can be completed inseason (e.g., research and exempted fishing permits [EFPs]) and yield that was set aside to cover these activities is then released for other uses. Those uses can include buffers to reduce the risk of exceeding ACLs and reallocation to fishing sectors. The options analyzed contemplate increasingly more flexible use of these set-asides inseason when they are released.

[1] A system to reapportion unused whiting quota from tribal fisheries to non-tribal whiting fisheries is under consideration in a separate rulemaking process.

Option 1: No Action

Set-asides are established to account for management uncertainty relative to the tribal fisheries, research, EFP and non-groundfish fisheries catch. Under this option, the specification for "fishery harvest guideline" would be derived by subtracting amounts for the following from the annual catch limit (ACL) or fishery-wide annual catch target (ACT), if specified: projected catch for Pacific Coast treaty Indian Tribes (whiting will be addressed through a separate rulemaking), projected scientific research conducted under letters of authorization and scientific research permits issued by NMFS, projected mortality in EFPs, and projected fishing mortality in non-groundfish fisheries (including but not limited to the incidental OA fishery). Under Option 1, unused portions of the set-aside would not be allocated to other fisheries during the calendar year. However, if unused portions of the set-aside are identified inseason, they would reduce the risk of exceeding the ACL and allow management measures to be adjusted so they more closely approach or slightly exceed a fisheries harvest guideline (HG).

Option 2: Real Time Catch Accounting; Reallocation According to Prescribed Sector Allocations

For activities that are completed before a Council meeting and where data derived from "accurate catch accounting methodology" was used to estimate the total catch, the unused portion of the set-aside may be reapportioned back to the groundfish fishery. As with the No Action Option, set-asides are established to account for projected mortalities relative to the tribal, research, EFP, and bycatch in non-groundfish fisheries. "Accurate catch accounting methodology" means data gathered from sources such as that used by the West Coast Groundfish Observer Program (WCGOP), the Northwest Fisheries Science Center (NWFSC) survey biologists, and tribal co-manager observer programs. When total catch data are available from accurate catch accounting methodologies, the unused portions of the set-asides can be accurately determined shortly after the completion of the activity. When data gathered by using accurate catch accounting methodology are summarized, the uncertainty relative to the total catch from the completed activities no longer exists. The unused proportions of the catch associated with the completed activities would be reapportioned back to the fishery.

The process to reapportion would be structured to be done through an inseason action published in the Federal Register following a Council meeting. At a Council meeting, the Council would review set-asides and recommend any adjustments to be reapportioned. The specified amount of groundfish would be reapportioned back to the "fishery harvest guideline" and out to the sectors in proportion to the original allocations for the calendar year. Because the set-aside amount that is getting reapportioned must be completed before reapportionment occurs, reapportionment would likely only occur later in the year after the September or November Council meetings. For sectors that are already closed for the year, or in the case of the Shorebased individual fishing quota (IFQ) Program, after September 1 where quota share (QS) accounts are no longer open or able to transfer quota pounds (QP), the Council must determine whether to reopen those sectors or, for the Shorebased IFQ Program, whether to reactivate those accounts.

Option 3: Projected Catch Accounting; Reallocation According to Prescribed Sector Allocations

For activities that are completed before a Council meeting, the "best available information" would be used to estimate the amount of set-asides that would not be used in the calendar year and that amount would be reapportioned back to the groundfish fishery. As with the No Action Option, set-asides are established to account for management uncertainty relative to the tribal, research, EFP, and fishing mortality in non-groundfish fisheries. The "best available information" could include data collected using "accurate catch accounting methodologies" as specified under Option 2 as well as estimates based on more uncertain information, such as those derived from OA fishery models where no- or limited catch data are available. Such projected commercial catches are reported in the PacFIN database in the Quota Species Monitoring (QSM) reports. Projected recreational catches are reported in the RecFIN database.

The process to reapportion is the same as described under Options 2.

Option 4: Projected Catch Accounting; Reallocation According to Sector Needs

The process for inseason catch accounting and the ability to use projected catch data as the best available information is the same as described under Option 3.

The process to reapportion is the same as described under Options 2, except that the Council may recommend no reapportionment or a more limited overall amount be reapportioned. Any amount available for reapportionment would be reapportioned to the sectors in proportion to the original allocations for the calendar year, modified to account for Council recommendations with respect to reapportionment to: 1) sectors that are closed; 2) for reapportionments after September 1 in the IFQ sector; and 3) sectors for which catch of the species to be reapportioned would not be projected to be reached.

Managing Harvest Set-Asides

The primary difference between the No Action option (Option 1) and the alternative options for managing harvest set-asides is the alternative options consider some form of inseason allocation of released set-asides to directed groundfish fisheries, whereas the current system under Option 1 does not. The distinguishing elements informing the alternative options that do consider inseason allocation of released set-asides to directed fisheries are 1) the quality of inseason catch data (i.e., real-time catch accounting vs. projected catch accounting) and 2) reallocation rules (reallocate based on prescribed sector allocations vs. reallocate based on a judgment of sector needs). The discussion that follows explains the tradeoffs between these options and defines the practical limits of inseason action when there are surplus yields available from released set-asides.

Quality of Inseason Catch Data

The quality of inseason catch data and inseason catch tracking systems by fishing sector is a consideration in any reallocation of unused harvest set-asides in any sector since there is less risk of exceeding an ACL if catch monitoring is timely and accurate. The element of catch data quality in the analysis of options is distinguished by real-time catch accounting of landings and discards versus projecting inseason catch based on delayed provision of estimated landings and discards. Catch is currently monitored inseason using real-time catch accounting for the trawl sectors and catch projections for the non-trawl sectors.

Current Catch Accounting by Sector

Trawl catches are tracked inseason using real-time reporting of shorebased IFQ catches (landings plus discards) in the IFQ database managed by the NMFS Northwest Region and real-time reporting of total catches for the at-sea whiting trawl sectors in the NorPAC database. Projections of annual trawl catches based on catches reported to date inseason are not needed in the trawl fishery since the catch is tightly regulated to prescribed quotas. Catch accounting is accurate given that the rationalized trawl fishery requires 100 percent at-sea monitoring of all trawl efforts.

Non-trawl commercial catches and shorebased trawl catches of non-IFQ species are tracked inseason using delayed catch accounting and projections of annual mortalities based on inseason catches to date. Non-trawl commercial catches are updated every other week and reported in the PacFIN Quota Species Monitoring (QSM) reports. Non-trawl catch updates are based on fish ticket landings and estimated discards are based on average historical discard rates observed in the WCGOP program applied to landings of target species. Discard rates and final total annual catches by sector (landings plus discard mortalities) are provided annually by the WCGOP program approximately a year after the end of the season.

Recreational catches are tracked inseason and reported on the RecFIN web site. Recreational catches (landings plus discard mortalities) are updated every other month[2] based on a census of marine anglers conducted in state fishery sampling programs. Inseason recreational catch projections for the year are less certain than those for commercial trawl and non-trawl fisheries.

Potential Routine Actions Under the Options Analyzed Based on the Quality of Inseason Catch Data

Under the options considered for routinely reallocating unused harvest set-asides inseason, set-asides for all fishing sectors could be considered for reallocation based on the data quality standard under options 3 and 4. Routine reallocation of unused harvest set-asides can only be considered for set-asides

[2] The state monitors their recreational fisheries closely and can take independent action to manage those fisheries to specified harvest guidelines.

specified for the trawl and tribal sectors under option 2, which imposes a higher data quality standard of real-time and accurate catch accounting. Option 1 (No Action) does not allow routine reallocation of any set-asides.

All options other than the No Action Option 1 would allow routine consideration of reallocation of unused harvest set-asides specified for EFP and research activities since there is real-time and accurate catch accounting for these activities. EFP proposals must contain a mechanism, such as at-sea fishery monitoring, to ensure that the harvest limits for targeted and incidental species are not exceeded and are accurately accounted. Research activities also are controlled activities where catch accounting mechanisms are accurate and reported in a timely manner. Most west coast research activities that affect groundfish are conducted by NMFS (e.g., the annual NWFSC trawl survey) and accurate catch reports are provided routinely in the Council process. Those research activities not conducted by NMFS are only allowed through state and Federal scientific research permits and accurate and timely catch reporting is a condition of these permits.

One consideration in reallocating unused set-asides are that the activities supported by the set-asides need to have been completed or canceled to ensure the set-aside is not still needed. For instance, the set-asides specified to accommodate the incidental bycatch of groundfish species in non-groundfish fisheries (i.e., set-asides for incidental open access) are really not considered in this potential reallocation process since many of those fisheries are outside the jurisdiction and authority of the Council and NMFS; and some of those fisheries tend to occur year round. Since the timing and magnitude of bycatch events in non-groundfish and tribal fisheries is unpredictable, it is not likely that the need to maintain such set-asides can be dismissed inseason until these fisheries are done for the year. Therefore, the contemplated action to routinely reallocate set-asides inseason should be limited to those specified for fisheries that do not continue year-round or set-asides for EFPs and research activities since these activities typically do not continue through the full year. Approved EFPs can also be canceled before implementation and the bycatch caps or total catch limits specified for the EFP activity that define the EFP set-asides can then become available for other uses.

Reallocation Rules

A reallocation of unused set-asides would have to meet certain criteria, such as those allocation principles specified in the FMP allocation framework (FMP section 6.3.1), the FMP socioeconomic framework (FMP section 6.2.3), and practical considerations for managing the risk of exceeding an ACL. These criteria attempt to ensure fair and equitable distribution of harvestable surpluses that reflect dependence on the fishery and provide optimal economic benefits to fishing communities. The objective to extend fishing and marketing opportunities as long as practicable during the fishing year is an especially important criterion in this proposed action.

The dimension of this proposed action needs to be kept in perspective. The amount of yield associated with harvest set-asides are typically low, especially if the set-asides considered for reallocation are limited to those fisheries that do not continue year-round or to EFP or research activities that are completed prior to the end of the year (e.g., see Table 2-46 in the preliminary DEIS). However, the yield for some species (e.g., canary and yelloweye rockfish) is especially limited and inseason availability of such yield inseason can make the difference between early closure of a fishery when a harvest guideline or allocation is attained and the ability to extend the fishery by reallocating unused harvest set-asides inseason. Therefore, despite the low yields considered for inseason reallocation, the importance of the process for considering a reallocation of these yields is not trivial.

Option 1 (No Action) does not allow a direct reallocation of unused harvest set-asides routinely as an inseason adjustment. Instead, unused set-asides remain as a “buffer” between the ACL and the inseason projection of annual fishing-related mortalities (i.e., landings plus discard mortalities) given management measures in place. The amount of this yield buffer is taken into account when considering the risk of exceeding an ACL under proposed inseason adjustments to the fishery. While this process may work for adjusting management measures for species where there is no prescribed allocation, it provides limited benefit to some sectors that rely on an allocation to maintain a fishing strategy. For instance, the trawl IFQ fishery would not receive a “top off” or provision of additional yield to vessel accounts under Option 1. Benefits could also accrue for the at-sea whiting sectors if additional whiting quota or quota of bycatch species that can limit their ability to attain the whiting quota (i.e., canary, darkblotched, POP, and widow) were able to be added inseason to their annual allocations. While Option 1 may be more responsive to conservation objectives by providing another layer of precaution by maintaining a higher buffer mitigating the risk of exceeding an ACL, it is less responsive to socioeconomic objectives in that it will not allow a process to add unused yield if needed to keep a fishery open.

Options 2, 3, and 4 consider the ability to reallocate unused harvest set-asides as a routine inseason action and in that regard are more responsive to socioeconomic objectives. These options are also adaptive in that there is a deliberate inseason process to weigh the risk of exceeding an ACL versus providing socioeconomic benefits. If the risk of exceeding an ACL is considered too high to reallocate unused yield, then the Council and NMFS can decide not to reallocate to the fishery. If the judgment is that the risk of exceeding an ACL is low and there is a need for additional yield, then all or a portion of the released set-aside can be reallocated to the fishery.

Options 2 and 3 would only allow reallocation according to prescribed allocations, such as those long-term allocations specified in the FMP or the short-term allocations decided in the biennial specifications process. If there is a decision to reallocate some or all of the unused set-aside to the fishery, then all sectors would receive some of that yield. In some cases, not all sectors would need additional yield to maintain fishing opportunities. For instance, an unused set-aside of yelloweye could be reallocated to all sectors, yet only one recreational sector may need that yield to keep the fishery open. The rest of the yield may go unused by the other sectors that received an inseason allocation. While this is not necessarily a bad outcome in that this yield is effectively a buffer against exceeding an ACL, it may not provide enough yield to the sector or sectors that need it to keep a fishing a season open or achieve other socioeconomic objectives. Alternatively, Option 4 allows a reallocation of unused harvest set-asides different from prescribed allocations according to need. For example, using the hypothetical yelloweye case above, if 1 mt of yelloweye yield became available and one sector needed the entire ton to maintain that sector’s fishery and no other sectors needed additional yelloweye yield to maintain their fisheries, then an Option 4 process would be the only one considered in this analysis that would achieve the socioeconomic objectives outlined in the FMP. In all cases, conservation objectives need to be considered by evaluating the risk of exceeding an ACL before any inseason reallocation of unused harvest set-aside is contemplated.

PFMC
04/04/12

ENFORCEMENT CONSULTANTS REPORT ON 2013-2014 BIENNIAL HARVEST SPECIFICATIONS AND MANAGEMENT MEASURES DEALING WITH SORTING REQUIREMENTS FOR AURORA, SHORTRAKER AND ROUGHEYE ROCKFISH NORTH OF 40° 10'

The issue for law enforcement is whether the individual doing the sorting can reasonably discern the difference in species, and whether a reasonable opportunity to separate species prior to weighing exists. The Enforcement Consultants assume that with some education, these species can be properly identified and separated by species or as a group prior to weighing and accounting, which would be consistent with current sorting requirements.

Following are the interactions between current regulations and the alternatives

<u>No sorting (Status quo)</u>

- Oregon and Washington currently allow these three rockfish species to be reported on a fish receiving ticket as part of the slope rockfish group.

- California currently requires all commercial fish to be documented on a landing receipt by species, and not by a group designation such as slope rockfish. State law can be more restrictive than Federal law, and California would continue to require these rockfish to be broken out by species on the landing receipt.

<u>Sorting (Proposed sorting North of 40°10')</u>

- Oregon and Washington will have to make changes to their regulations if sorting these rockfish by species instead of group is required on a fish receiving ticket.

- California currently requires sorting of commercial fish by species on the state landing receipt.

PFMC
04/05/12

GROUNDFISH ADVISORY SUBPANEL REPORT ON ADOPTION OF 2013-2014 BIENNIAL HARVEST SPECIFICATIONS AND MANAGEMENT MEASURES

The Groundfish Advisory Subpanel (GAP) received a briefing from Mr. John DeVore on the 2013-14 harvest specifications and management measure issues on which the Council wanted to focus under this agenda item. The GAP offers the following comments and recommendations on the cowcod sector allocation, routine inseason management of unused harvest set-asides and canary ACLs, as requested by the Council. The GAP intends to offer comments on all 2013-14 specifications and management measures in June, including those not yet discussed by the Council at this meeting such as the minimum lingcod size limit, the surplus IFQ quota carryover provision, and IFQ accumulation limits.

2013-14 COWCOD SECTOR ALLOCATION

The GAP discussed the request to analyze an alternative sector allocation of cowcod for the 2013-14 management cycle. The GAP understands that new approved recreational catch estimation methods in the CRFS program and a higher incidental cowcod catch in the 2011 California recreational fishery led to a higher recreational catch estimate of cowcod and the recommendation to analyze a higher non-trawl sector allocation for 2013-14. The GAP also understands that there was a very low incidental cowcod catch in the 2011 IFQ fishery. The GAP reiterates that catches in the 2011 IFQ fishery are a poor indication of the future allocation needs of the IFQ fishery. Regardless, the GAP agrees that an alternative cowcod allocation scenario should be analyzed for 2013-14. However, the GAP is not prepared to recommend a 2013-14 cowcod sector allocation until June when the analysis of effects is provided.

ROUTINE INSEASON MANAGEMENT OF UNUSED HARVEST SET-ASIDES

The GAP reviewed Agenda Item I.8.a, Supplemental Attachment 1 and offers the following recommendation. The GAP recommends Option 4 since it allows the most flexible management system by allowing a reallocation of unused harvest set-asides to the sectors that need it most. The GAP understands that the amount of yield considered for inseason reallocation is small but stresses that a reallocation of any additional yield of a stock that constrains fishing opportunity for any sector may make the difference between early closure of a fishery and a continuation of fishing. The ability to routinely reallocate unused harvest set-asides to the sectors that need it to continue to prosecute their fisheries will provide more benefit to West Coast fishing communities than any of the other options analyzed.

CANARY ROCKFISH ACLs

The GAP believes there is sufficient rationale to justify an ACL of 147 mt for 2013 and a 2014 ACL of 151 mt for canary rockfish. This higher ACL will not jeopardize the rebuilding progress for canary and will go a long way toward meeting the needs of fishing communities. We've been here before – providing detailed justification and begging for small increases in available catch to prosecute other healthy fisheries. To that end we reference extensive comments provided by the GAP and other public comment previously that detail the negative socio-economic impacts of lower values and the trade-offs in positive benefits to fishing businesses and communities. These are listed below and we request they be incorporated into the record electronically.

Biological Justifications

The GAP believes there is significant biological justification for the higher canary ACL alternative that modifies the SPR harvest rate from 88.7% to 85.9%. First and foremost, both the PPA alternative of 116 mt and 119 mt in 2013 and 2014, respectively and the GAP-recommended alternative of 147 mt and 151 mt in 2013 and 2014, respectively are predicted to rebuild the stock by 2030, which is only two years longer than the shortest possible time to rebuild the stock. Further biological justification for the GAP-recommended alternative follows.

Change in Understanding of Canary Stock Status

The decrease in the estimated depletion of canary rockfish in 2011 relative to the status in 2009 is minor yet significant enough to require a change to the rebuilding plan. Depletion in 2011 dropped by 2.3 percent relative to 2009 due largely to a higher estimate of initial biomass (B_0) of 7.1 percent (Figure 1). Relative ending year or current biomass increased by 4.7 percent between the 2009 and 2011 assessments. Therefore, the status change was due to the increase in the B_0 estimate rather than the current estimated biomass and that change was largely due to revisions in the Oregon catch history of canary that occurred subsequent to the 2009 assessment. It is also noted that this change in depletion, while relatively minor, created this situation where the Council is contemplating a change to the rebuilding plan because the rebuilding plan is a very conservative one in that the target year has been set very close to the minimum time to rebuild the stock (Figure 2). It can be concluded from this analysis that the management performance of the rebuilding plan has been good and the stock has been rebuilding. The contemplated change in the canary T_{TARGET} is due to the change in the B_0 estimate and the fact that T_{TARGET} has been set very close to the minimum possible time to rebuild in recent management cycles.

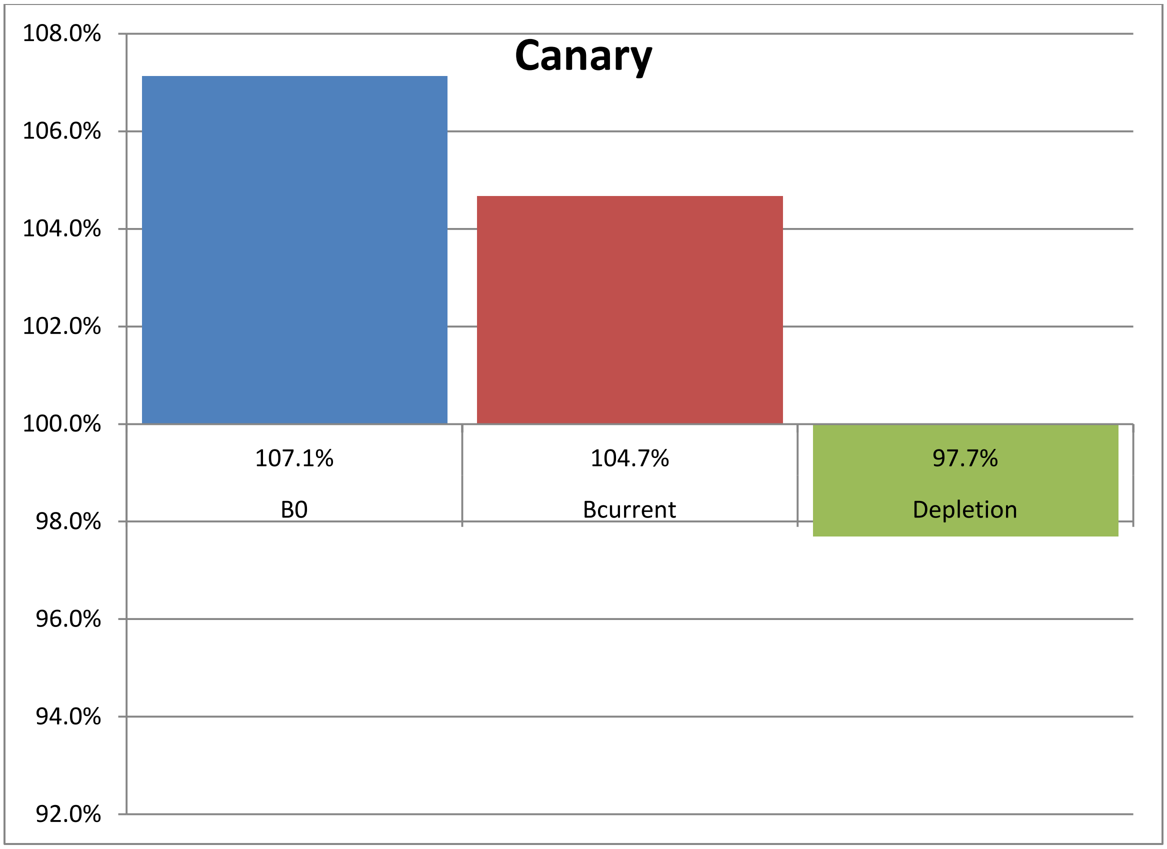


Figure 1. Relative change in initial biomass (B0), current biomass, and depletion of canary rockfish between the 2009 and 2011 assessments.

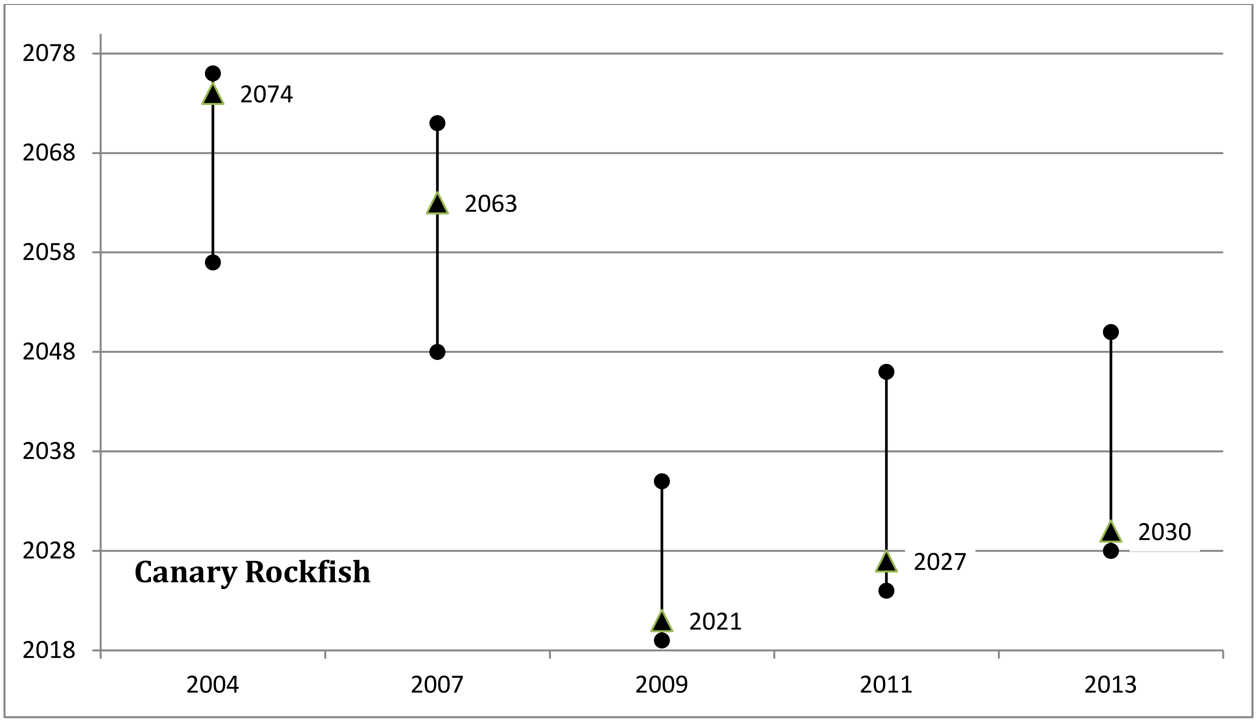


Figure 2. Canary rockfish rebuilding parameters (T_{MAX}, T_{MIN} or $T_{F=0}$, and T_{TARGET}) from rebuilding analyses. The chart illustrates the degree of variability in parameter estimates in successive rebuilding analyses and the policy choice of target year (depicted by triangles). The year on the x axis is the year the rebuilding plans were or, in the case of the 2011 rebuilding analysis, are expected to be implemented.

Socioeconomic Justifications

Canary interactions

Canary rockfish are caught in all the major fishery sectors, including:

- Research fisheries
- Washington recreational fisheries
- Oregon recreational fisheries
- California recreational fisheries
- Tribal fisheries
- Limited entry trawl non-whiting fisheries
- Limited entry trawl whiting fisheries
- Limited entry fixed gear fisheries
- Open access directed groundfish fisheries
- Incidental open access non-groundfish fisheries

Communities and fisheries affected

There are at least 46 port communities in Washington, Oregon and California that are affected by the amount of canary rockfish available for harvest. As you know, availability of some level of canary rockfish in the majority of fisheries is critical to prosecuting those fisheries – this option allows greater management flexibility for bycatch in all sectors and more equitably distributes bycatch to slow the loss of valuable fishing heritage.

Several regained opportunities could include:

- Recreational: liberalizing of depth restrictions from 20 fathoms to 30 fathoms north of 40°10' would result in a benefits if the fishery can reduce impacts of other recreationally-caught species of concern (i.e., yelloweye).
- Nearshore non-trawl commercial: liberalizing RCA boundaries from 20 fathoms to 30 fathoms could allow greater access to target species, spread effort and reduce concerns about localized depletion of stocks, if the fishery can reduce impacts of other recreationally-caught species of concern (i.e., yelloweye).
- Trawl whiting: flexibility for the whiting fishery, which has been constrained by canary in recent years.
- Trawl non-whiting: mid-water widow/yellowtail rockfish opportunities, flatfish opportunities, chilipepper rockfish opportunities and, to a lesser degree, an opportunity to regain lingcod, sanddabs, and a shallow-water flatfish fishery.

As an example, the GAP used the nearshore flatfish fishery relative to canary rockfish to show how the available canary allocation has affected flatfish landings (Figure 3). The attached graph shows not only a drop in canary landings after restrictions to accommodate rebuilding were introduced in 2000, but it also shows a drop in flatfish.

For this graph, we excluded Dover sole because it is primarily part of the deepwater complex and has little interaction with canary rockfish. Nearshore flatfish species, on the other hand, do.

We used the PacFIN trawl landings data to show total landings of flatfish and canary between 1981 and 2011. Flatfish is a volume species primarily caught by the trawl fleet and is easy to delineate the canary/target species relationship. The ex-vessel price per pound for flatfish also has remained relatively consistent over the years.

We acknowledge other fisheries – sport and commercial – have comparable effects from canary rebuilding; they may just not be easily quantified at this point for this meeting. This graph illustrates these effects:

- After 2000, landings of flatfish species dropped significantly. Whereas the highest flatfish landings were 12.2 mt in 1991, after 2000, the highest landings were 7.5 mt.
- Total value for flatfish has not been more than \$6.8 million, when adjusted for inflation, after 2000. Prior to 2000, the highest value for flatfish was \$8.5 million in 1991, or \$14.2 million, after being adjusted for inflation. That's a difference of more than \$7 million solely in ex-vessel value – a value that has much more meaning when that value is extrapolated to include vessel employment, processing and distribution

employment and community impacts. Those figures could easily be much higher to account for effects on coastal communities.

- The lowest flatfish landed catch in history – a mere 4 mt – occurred in 2011, during the rationalized trawl fishery. Why? Because fishermen were hesitant to trade their canary quota or they didn't have enough to trade. They also were afraid to fish in nearshore areas due to potential interaction with canary rockfish.
- With higher canary ACLs, nearshore trawl fishermen could fish in somewhat deeper waters – and access other healthy target species – thereby increasing the benefits to vessels, processors and local businesses that have been hampered by canary restrictions.

Canary Trading Under a Rationalized Fishery

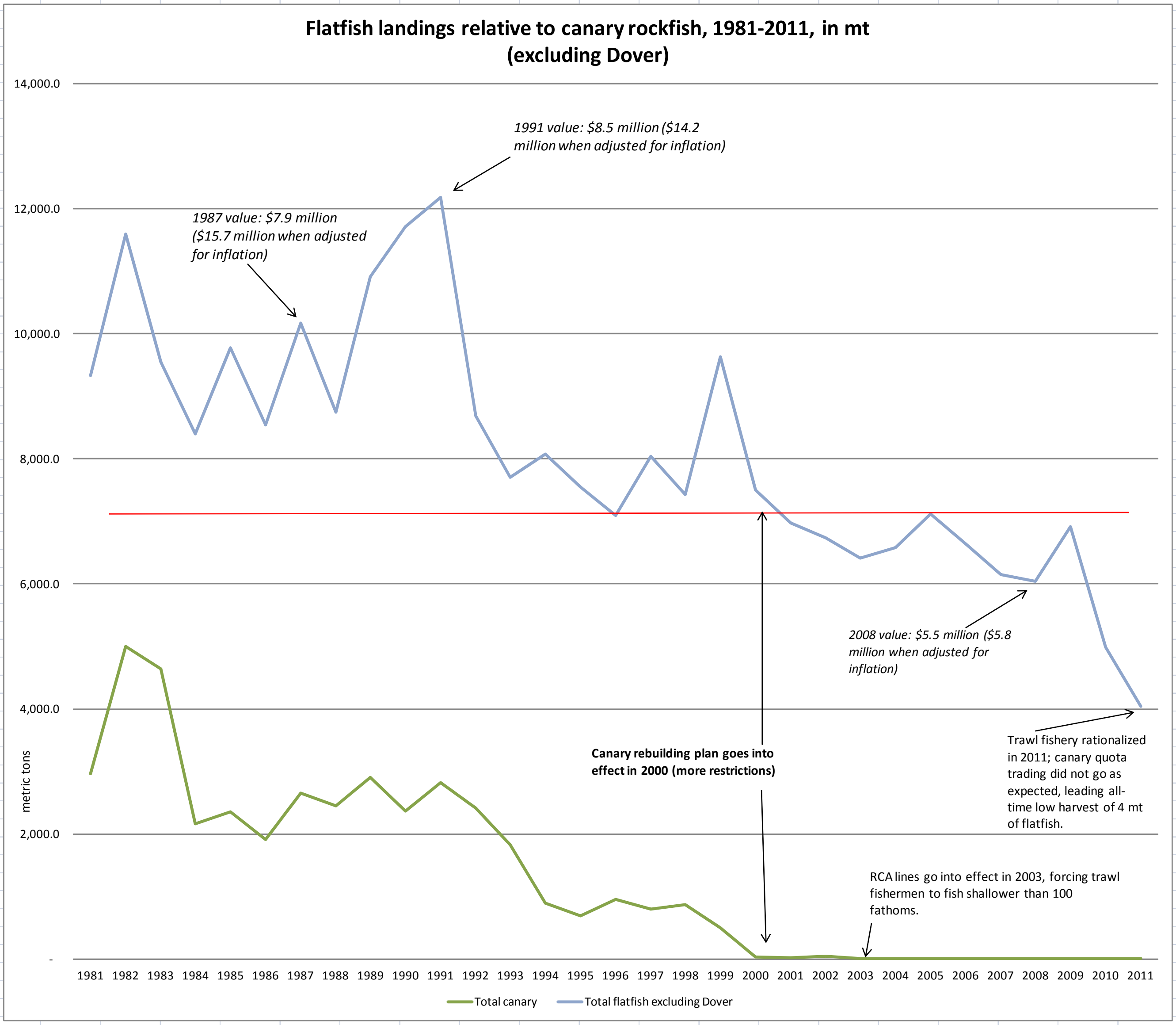
It is also worth noting that the amount of canary landed and quota trading in the 2011 rationalized trawl fishery had unanticipated effects.

In 2011, the trawl IFQ quota was 57,761 pounds, yet the non-whiting IFQ fleet harvested only 6,239 pounds. In short, fishermen feared catching too much canary and many held onto their canary quota until the very end of the year. The result was lost opportunity and lost harvest of target species.

This new management regime also created unintended consequences when it came to canary rockfish:

- Some fishermen have canary quota and some don't. Others have very little. Regardless, trading of canary quota did not happen to the extent it was expected; therefore canary rockfish did not go to fishermen where it was needed to maximize target landings. Only 14 percent of the canary quota allocated to the trawl fleet was landed.
- One of the expectations under a rationalized fishery was that quota of species considered overfished would happen through market trading. That didn't happen in 2011 with canary rockfish.
- The industry's hesitancy to trade quota had the end result of a stagnant market or poor economy. There was no way to encourage trading, no way to urge fishermen to target nearshore healthy species, no mechanism to minimize their risks, whether those risks were real or perceived. Regarding quota trading of canary, only 1,200 pounds – less than half a metric ton and only a fraction of the landed catch – were traded on a public trawl fishery trading site.
- In the end, we need a change. One interim solution is higher ACLs for the 2013-14 management cycle, as canary continues to rebuild. Establishing a rebuilding plan based on estimated mortality also would help.
- As we've noted before, full accountability in the rationalized trawl fishery should lessen projected mortality, therefore decreasing the estimated time to rebuild.

Supplemental GAP report, April 2012, "Tentative Adoption of 2013-2014 Biennial Harvest Specifications and Management Measures"



Data sources: PacFIN reports 1981-2011, #010Wtwl, "PFMC Port Group Report: Groundfish Landed-catch (Metric tons) for All Trawl Gear (except Shrimp Trawls)"

Figure 3. Recent trawl flatfish landings (upper line), excluding Dover sole, relative to canary rockfish landings (lower line).

References to prior statements of canary rockfish (and other overfished species) community impacts for inclusion:

Groundfish Advisory Subpanel Comments on Management Specifications for 2007-2008 Fisheries:
http://www.pcouncil.org/bb/2006/0406/agf1c_supp_gap.pdf

Public Comment on Process for Implementing the 2011-2012 Specifications and Management Measures:
http://www.pcouncil.org/wp-content/uploads/H2d_PC_MAR2011BB.pdf

Groundfish Advisory Subpanel Report on Part 1 of Management Measures for 2011-12 Fisheries:
http://www.pcouncil.org/wp-content/uploads/I4b_SUP_GAP_RPT_APRIL_2010_BB.pdf

Groundfish Advisory Subpanel Report on Tentative Adoption of Groundfish Advisory Subpanel Report on Tentative Adoption of Harvest Specifications, Rebuilding Plan Revisions and Management Measures for 2011-2012 Fisheries:
http://www.pcouncil.org/wp-content/uploads/B3b_SUP_GAP_JUNE2010BB.pdf

GROUNDFISH MANAGEMENT TEAM REPORT ON THE 2013-2014 BIENNIAL HARVEST SPECIFICATIONS AND MANAGEMENT MEASURES, PART II

The Groundfish Management Team (GMT) received guidance from the Council, under Agenda Item I.3 at this meeting, to further consider several items concerning the 2013-2014 biennial harvest specifications and management measures, and offers the following comments.

Contents

Provide More Information to Inform the Canary Rockfish Annual Catch Limit Choice

General Overview

Under Agenda Item I.3, the Council requested more information from us on the difference between the 116/119 mt and the 147/151 mt canary annual catch limit (ACL) alternatives (the alternatives refer to 2013 ACL/2014 ACL). As the Council knows, the task is to relate the projected rebuilding times associated with each alternatives to the needs of fishing communities. That relationship of whether a particular alternative is acceptable or not is one of legal interpretation and not something the GMT is comfortable providing recommendations on. As with last cycle, NMFS looks for the Council to link concrete economic consequences to a particular alternative, and if possible, to tie those impacts to a specific fishing community. NMFS and NOAA General Counsel can elaborate if the Council desires.

We begin with our treatment of the request with some bigger picture thoughts and then follow with the relevant detailed information that will be included in the Draft Environmental Impact Statement (DEIS). Time available for responding to Council's requests under Agenda Item 3 did not allow much time for writing and compiling, therefore some materials may be redundant.

In brief, change from the PPA would not result in changes to management measures or projected fishing mortality in the recreational, non-nearshore, or nearshore sectors. The reason is that management measures would be held steady to keep those fisheries to their respective PPA allocations of yelloweye. In other words, yelloweye is the "choke point" for these sectors under any of the three canary ACL scenarios we are discussing here.

The trawl sectors are where we see the key differences. Those differences are better described by shades of risk than in black and white economic impacts from our models. Of note, the discussion about the shades of risk are very similar to the issues the Council covered in the discussion under Agenda Item I.3 on the allocation of widow rockfish for 2013-2014. There the focus was on the difference of allocating ~90 mt of widow to either the shoreside or the at-sea sectors. Our ability to quantitatively analyze such differences is limited.

To explain, the Council has used a “performance standard” type approach for the at sea sectors where bycatch caps and now formal allocations in the co-op fishery are assigned and the sectors are left to figure how to harvest their whiting allocations at the least cost. The GMT’s projection models have played less and less of a role in the Council’s decision on where to set those performance standards.

The important point here is that rebuilding decisions like this one for canary rockfish involve the Council essentially deciding where to set that “performance standard.” To analyze the question, one must consider the effects that standard might have on the fishery relative to others. In the rebuilding context, this decision is made in conjunction with the allocations available to all the other sectors as part of the integrated alternatives. In essence, the exercise involves weighing the benefits and costs of each alternative performance standard, although again, this weighing takes place within the Magnuson-Stevens Act’s “as short as possible” and “needs of fishing communities” legal factors. Once the Council chooses a performance standard based on comparing and contrasting the impacts to fishing communities across the integrated alternatives, the allocations to the co-op sectors set the “performance standard” and the sectors are left to figure out how to achieve their harvest goals in the most cost effective manner.

We draw this distinction between the “cost effectiveness” of achieving a set goal and the “cost-benefit analysis” involved with the decision on where to set the goal so as to make a point about the limitations of the existing analysis of the integrated alternatives. That analysis focuses on estimated revenues and the associated economic activity on the coast. These estimates of revenue are based on our projections of catch and effort, the ex-vessel value of landings, estimates of angler trips, and so on. The IO-PAC economic model then translates those projections into broader economic impacts to communities. Businesses, of course, rely on profits—i.e. revenues minus costs—to remain viable and to grow. The key point is that we do not think that the integrated alternatives analysis gets at the cost side of the equation to the level of detail needed to explore relatively small variations between ACLs. Cost is a key factor to vary when considering the operations of a fishery and the resulting consequences for fishing communities.

We provide some thoughts below on how profits, instead of simply revenues, relate to the “needs of fishing communities” factor, although we did not have time for detailed discussion here. The issue is complicated and data is limited. If one cares about economic activity in a fishing community or region, the question is much different than if one is focused on revenues and costs to harvesters. One business’ costs are another business’ revenues (e.g. fuel costs), or revenue to governments if those costs are a tax, and so on, and each has different impacts on the economy at different scales (local, regional, national). We had a discussion with the lead analysts of IO-PAC from the NWFSC at our October meeting, yet only had time for an introductory discussion there. We hope to further engage with those analysts in future cycles. The model may capture how harvesting costs and profits vary between the integrated alternatives, yet from this first impression, we are not confident that it will pick up the type of cost differences that we are discussing here.

To illustrate our point using an example from the earlier widow allocation discussion, the Council heard public testimony from members of the mothership sector on how much time and effort they have put into bycatch management in recent years. One main point raised there was that the co-op fishery had achieved substantial reductions in bycatch of widow rockfish yet that those reductions were achieved at some cost.

For example, Ms. Donna Parker, during public comments for Agenda Item I.3, made the argument that bycatch management has increased the time vessels have spent on the water and thereby increased overhead. She also argued that the areas the co-op had voluntarily agreed to avoid had resulted in them catching smaller whiting thereby reducing the product recovery rate and, hence value, of their quota. We do not have the data to independently evaluate those costs in specific detail, yet basic logic dictates that rebuilding restrictions increase the costs of harvest compared to what those costs would be absent those restrictions. Increased costs will reduce profits if harvesters and processors cannot make up the difference in the price that they are then paid for the products they produce. We have very little information on what those prices beyond the ex-vessel prices reported on fish tickets.

Again, our main point is that we do not think the integrated alternatives are able to capture and quantify how harvesting costs vary between integrated alternatives. We do not currently have the data to do so, yet the mandatory economic data collection program should improve information in coming cycles for the IFQ and co-op sectors. For now, revenues may look similar between the integrated alternatives yet this does not necessarily mean that profits are similar as well. This deficiency should be considered when consider how fishing communities will be affected.

Another main point raised in the Council's discussion on the widow allocation was that bycatch management and harvesting behavior involves perceptions of risk. In general, risk can be thought of as the probability of an event times the cost or consequences of that event. Uncertainty about those probabilities and consequences can cause risk aversion and inefficient behavior. Increasing the amount of bycatch to a sector, in theory, reduces risk averse behavior because the cost or consequences are reduced. Perceptions of risk and how they change as ACLs are varied among the integrated alternatives and down are not something that we are able to quantify with our models.

These two points apply generally to the IFQ fishery and the integrated alternatives analysis as well. In addition, as we described in our report (Agenda Item I.3.b, Supplemental GMT Report), the modeling approach we used for the IFQ fishery relies on 2011 data, and only a partial year at that. The inferences that can be drawn from this data are limited.

The fishery could behave much differently under higher ACL alternatives than we saw last year because of, for example, perceptions of risk change as a function of overall the canary quota allocated to the sector. Or the increased canary ACL might not change dynamics at all because halibut IBQ or yelloweye QP, or the newness of the program in general, might be more important drivers of behavior in the IFQ sector. The start of 2012 already looks different than the start of 2011. We do not know why this is or how the rest of the year will play out. The current model cannot be expected to precisely capture how the IFQ sector would behave between small variations in the integrated alternatives like the ones we are comparing here. Over time and with enough contrast in ACLs, we may become more confident in the model's projections to analyze small changes in ACLs.

Also, potential impacts of the IFQ fisheries to fishing communities was a major focus of the Council's consideration of Amendment 20. Vessel consolidation was a key factor in those deliberations. The Amendment 20 EIS contained an economic model to consider the number and size of vessels participating in the fishery at different levels of revenue. The traditional fishing grounds of a port and the of bycatch stocks like canary was another factor. Our point here is that increases or decreases in the canary ACL would change these dynamics. In general, decreases in the canary ACL would be expected to increase fleet consolidation in the non-whiting sector and the increases in the ACL would have the opposite effect. A higher canary allocation would be expected to increase fishing activity shoreward of the RCA and possibly increase the number of smaller vessels participating. Again, however, we cannot say if the changes considered here would have any effect on consolidation. The analysis does not seek to answer that question or to update what was analyzed in Amendment 20.

Lastly, the Council has been very clear so far in other contexts about the importance of reducing costs in the IFQ and co-op programs. For example, the Council received presentations this week under Agenda Item I.4 about how electronic monitoring might lower costs to the fleet. To draw a connection to our discussion above, higher canary ACLs would be expected to lower the harvesting costs relative to lower ACLs. These higher costs, again, come from the need to avoid canary rockfish. The model and analysis of integrated alternatives are not able to capture these differential costs given that data that it uses. In the future, with the information collected from the mandatory economic data collection, we expect to gain better understanding of the cost side of the harvesting equation.

Trends in Catch

Under agenda Item I.3, the GMT was asked to further explain the trends in recent removals of canary rockfish by sector. Most sectors showed low variability, low changes in absolute removals, and no trend in removals across years, though 2010 had some of the largest removals in 5 of the 7 sectors considered. One exception to this was the limited entry trawl fishery, which showed a declining trend in catch. This is significant because this sector had been the largest contributor to total removals. The non-nearshore fixed gear sector demonstrated the largest overall variability (155%), though the magnitude of those changes was small (a range of 0 to 1.9 mt).

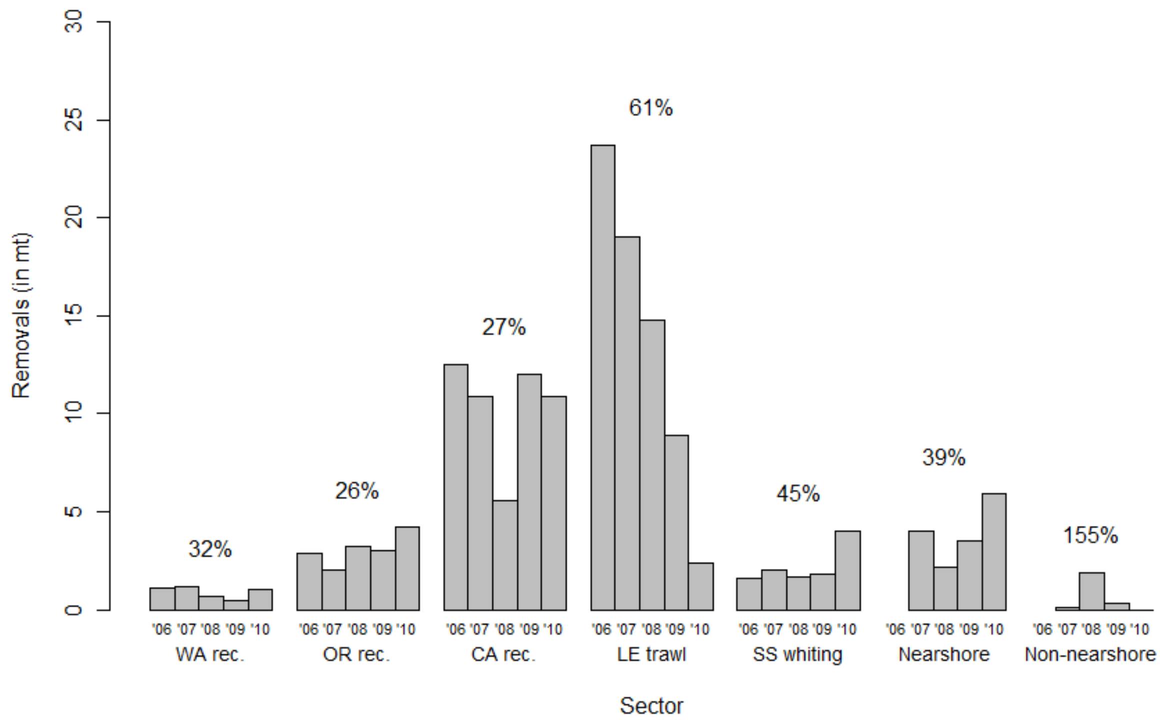


Figure 1. Variability in canary rockfish removals by sector, 2006-2011.

Variability in Rebuilding Parameter Estimates

The GMT had a discussion with SSC Economic and Groundfish Subcommittees at this meeting about how to interpret changes between assessments. That dialogue was both productive and informative. The Council will be receiving a report of that meeting from the full SSC in June. While we are working toward greater understanding of the policy, science and management interplay in rebuilding for the 2015-2016 biennium and beyond, those discussions have already informed our thinking of how to present changes in rebuilding. The following graphics help illustrate how our understanding of canary's ability to rebuild has changed over time both in a relative and an absolute sense. The figure below shows the target year in successive rebuilding analyses as a percentage of the time period between $T_{F=0}$and T_{MAX} computed in each rebuilding analysis. The computation is $(T_{TARGET} – T_{F=0}) / (T_{MAX} – T_{F=0})$. The percent values are shown in the table below the graph. This metric might be useful when discussing rebuilding policies. For example, generally changes in the parameters have trended towards target years that represent a smaller fraction of the maximum number of years in those potentially allowed for choosing a target year $(T_{MAX} – T_{F=0})$.

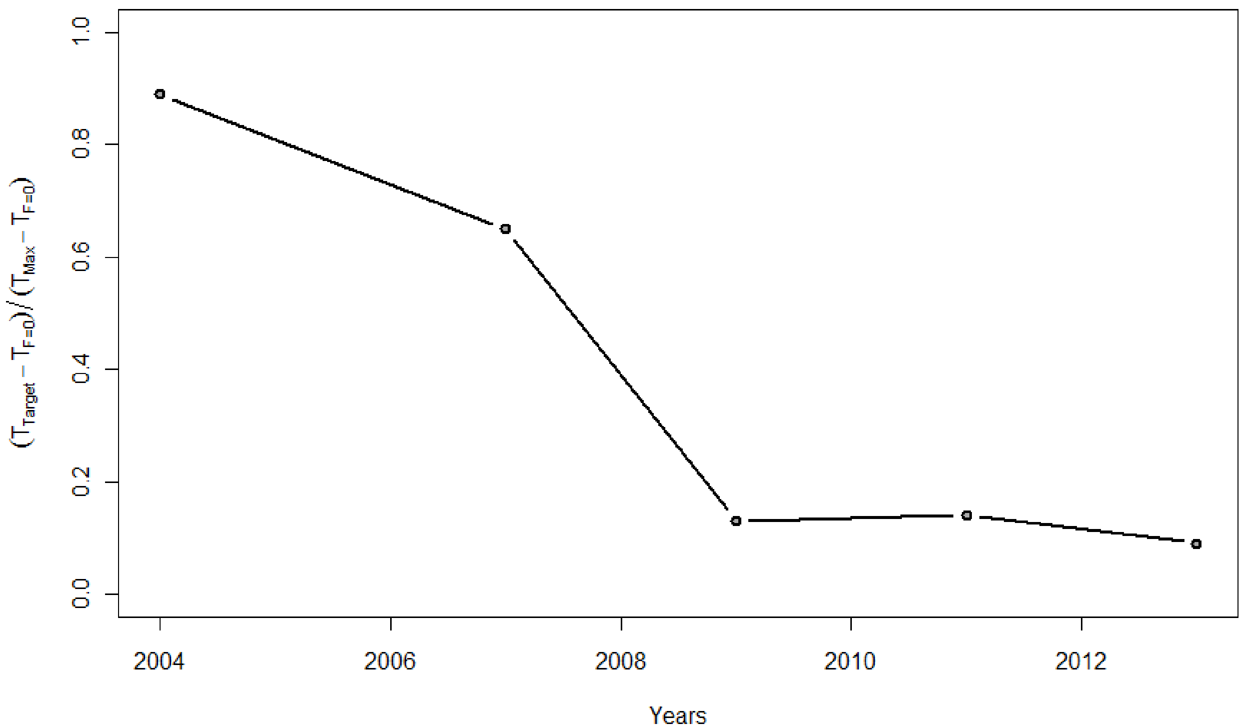


Figure 2. Target year in successive rebuilding analyses as a percentage of the time period between $T_{F=0}$ and T_{MAX} computed in each rebuilding analysis.

The following figure shows T_{MAX}, T_{MIN} or $T_{F=0}$, and T_{TARGET} from successive canary rebuilding analyses. The chart illustrates the degree of variability in parameter estimates in those rebuilding analyses. It depicts the absolute changes in parameters rather than the relative or "normalized" metric shown in the figure above. It should be noted that there a difference in the probability of achieving T_{TARGET} among years. In 2004 and 2007 the Council policy focused on the probability of rebuilding by T_{MAX} rather than specifying the T_{TARGET}.

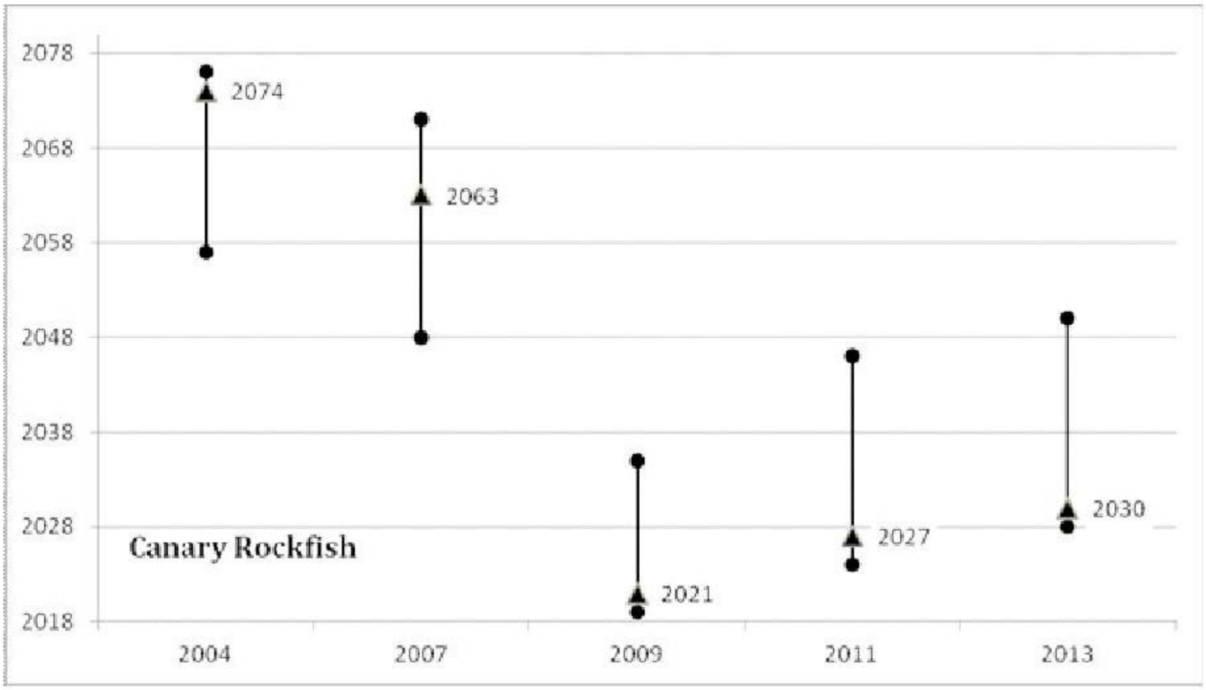


Figure 3. Absolute change in rebuilding parameters (i.e. T_{MIN}, T_{MAX}, and T_{Target}) between rebuilding analyses.

In general these graphics help illustrate the fact that there is little measurable difference in the ACL alternatives being considered compared to uncertainty around the rebuilding parameters for canary. We will have more dialogue with the SSC in June and expect that they will provide more guidance on how to use this type of information to inform progress toward rebuilding and understand the policy trade-offs in rebuilding decisions. In the meantime we wanted to illustrate the absolute and relative changes to rebuilding parameter estimates over time to inform the Council's deliberations.

Details from the DEIS

Integrated alternative 1 combines the preliminary preferred Pacific ocean perch (POP) annual catch limits (ACLs; 150/153 mt) with the preliminary preferred canary rockfish ACLs (116/119 mt) (Table 4-6 in the DEIS). The preliminary preferred POP ACL (150/153 mt) is also paired with the one lower canary rockfish ACL (101/104 mt) under Alternative 2. To date, an integrated alternative has not been analyzed that combines the preliminary preferred POP ACL (150/153 mt) with a 147/151 mt canary rockfish ACL, however it is within the range analyzed and thus some information is available to inform potential impacts.

Table 1. Selected integrated alternatives for 2013-2014, including No Action.

Alternative	Canary (mt)	POP (mt)
No Action	107	157 a/
Alternative 1 (PPA)	116/119	150/153
Alternative 2	101/104	150/153
Alternative 4	48/49	247/251
Alternative 7	147/151	222/226

a/ The POP ACL in 2012 is 183 mt, however mortality is managed to the ACT of 157 mt.

As mentioned above, there are no proposed management measure changes for the non-nearshore, nearshore, and recreational fishery as a result of the higher (147/151 mt) canary rockfish ACLs (101/104 mt; see Section 2.4.8.2 of the preliminary DEIS, Agenda Item I.3.a, Attachment 5). This is because the lower proposed yelloweye rockfish ACL (18 mt) and associated two-year allocations are the primary constraints which limit access to target species. That is, there is little flexibility to consider less restrictive management measures (i.e., increased bag limits, trip limits, or modifications to areas closures) for these fisheries since doing so would result in higher yelloweye rockfish mortality. Further, no changes to management measures are proposed given the accuracy of the canary rockfish mortality estimates and the variability of the actual mortalities. For example, changes to the seaward boundary of the non-trawl rockfish conservation area (RCA) to provide greater access to target species were considered but rejected since there is not a sufficient buffer to accommodate the variability in the canary rockfish projections. In addition, changes to the non-trawl RCA boundary would also be expected to increase bycatch of yelloweye and bocaccio rockfish. Since changes to management measures are not proposed, there are no predicted changes to revenue (except the trawl sector, as described below) or angler trips between Alternatives 1, 2, and 7. Under Alternative 4, the lowest canary rockfish ACL analyzed, changes to management measures are proposed to reduce canary rockfish mortalities, which result in decreases in revenue and angler trips.

There is a cost between the alternatives if projections of canary mortality inseason are higher than the projected mortality pre-season (i.e., during the biennial analysis). As discussed in the preliminary DEIS and the GMT statement under I.3., model imprecision, uncertain recruitment, and catch monitoring uncertainty are reasons why inseason estimates are sometimes different than pre-season estimates. If inseason projections of canary mortality are higher than pre-season projections in the recreational fisheries, reductions to the season lengths, increased depth restrictions, or decreases to bag limits may be necessary. In the commercial fishery, reductions to trip limits or adjustments to the RCAs may be necessary to reduce canary rockfish mortality. The impacts of such changes are best understood by evaluating Alternative 4, the lowest canary alternative analyzed. If inseason projections are different than preseason projections, management measure adjustments under the higher canary rockfish ACLs may not need to be as restrictive as under Alternative 4. The magnitude of the difference between the two projections would dictate the types of management measures needed. Under Alternatives 4a and 4b, anglers trips are estimated to decrease from 2 to 12 percent coastwide, compared to No Action (see Table 4-8 in the DEIS). All commercial revenues are estimated to decrease by approximately $15.5 million under Alternative 4 compared to No Action. Revenues under Alternative 1 are estimated to decrease by $8.9 million. Conversely, there may be an increase in fishing opportunities, if inseason projections are lower than preseason projections and management measures are adjusted to provide greater access to target species.

Our ability to analyze the impacts of higher ACLs and allocations to the shorebased individual fishing quota (IFQ) system and at-sea sectors is limited. As we highlighted in our supplemental report under Agenda Item I.3., for the shorebased IFQ fishery, revenue projections are likely to be somewhat lower than actual achievement due to incomplete data and preliminary nature of the model being used. Furthermore, the analysis assumes that the at-sea sectors will need their overfished species allocations to achieve their whiting allocation. That is, no attempt is made to model the overfished species allocations necessary to achieve their whiting allocation. As such, there are no estimated changes to revenue in the at-sea sectors across the alternatives.

In essence, under a rationalized system the shorebased IFQ allocation and at-sea allocations of canary rockfish are performance standards. In other words, the rationalized fisheries will catch as little or as much as of their allocation that is necessary to attain their target species. The benefit of the overfished species allocations is solely related to leveraging of target species. Based on the limitations described in the previous paragraph, the results of the analysis are unable to quantify the benefit of increased access to target species for each vessel or the fishery as a whole. However, under the higher ACL alternative, we can say that increased quota pounds will provide greater flexibility in harvest strategies, which may increase profits. Industry representatives stated that they spend the vast majority of their time and management effort on bycatch avoidance. Therefore while we do not see increased revenue from the higher canary rockfish ACL, it is likely that profits may increase due to the cost of bycatch management going down. That is, industry will find the most cost-effective way to utilize those extra fish.

Adopt Preliminary Preferred Option for Flexible Management of Set-asides

The GMT supports the intent of the proposed changes to create a process that increases access to the annual harvest amounts for groundfish, by allowing redistribution of unused set-asides to other sectors in the groundfish fishery, when appropriate. However, the GMT does not see a need to create a new standard (e.g. "accurate catch accounting methodologies") when the current long-standing use of the best available information is already available. We see no value in constraining the flexibility in the type of data that is used, as long as we are explicit in our explanation relative to the degree of certainty and risk associated with the estimates that inform the Council's decisions on a case by case basis.

The GMT expects that the most likely available sources of unused set-aside amounts would be from exempted fishing permits (EFPs) and research. We generally have inseason information from these two sources that would indicate if there are un-harvested set asides that could be made available to other sectors. There is some data from the incidental open access sector (salmon, pink shrimp, California halibut, sea cucumber, etc.) that could be available inseason from PacFIN, but we have not developed models to track and project whether or not that sector is expected to fully harvest their set-aside amount for a given year. Tribal set asides should not be included in the consideration of flexibility as they are not likely to be released back to the non-tribal sectors inseason. They are set conservatively so as not to require changes inseason to accommodate treaty tribal fisheries and conversely would require that all affected tribal fisheries be closed for the season and agreement reached with all affected tribes to reapportion those fish.

The GMT recommends that there should be flexibility in reapportioning unused harvest to other sectors. Similar to the flexibility in the data that is used to inform our decisions, we feel reapportionment decisions can be made in a fair and equitable manner by considering the circumstances on a case by case basis. This approach may require more analysis but it allows us to better respond to potential inseason issues and possibly prevent exceeding an allocation or HG through access to available harvest amounts to more fully utilize ACLs.

Spiny Dogfish Shark: RCA Configurations, and Temporal Distribution of Catch by At-sea Whiting Sectors

Council Request: A request was made by the Council under Item 4 within Agenda Item I.3.a Attachment 1 to: "With regard to trawl RCA configurations, for the IFQ fishery,…include a review of estimated effects on spiny dogfish, and provide recommendations and comments…".

The GMT notes that the full analysis is available in Appendix D of the preliminary DEIS (Agenda Item I.3.a, Supplemental Attachment 7). The following information, most of which was excerpted from Appendix D, may be helpful to the Council for evaluating RCA options. Detailed information regarding biological and socio-economic impacts of these RCA options are summarized at the end of this section and in full detail within Appendix D.

Distribution of spiny dogfish along the U.S. West Coast

The latitudinal distribution of spiny dogfish was analyzed in detail in Appendix D. Trawl survey data (Keller et al. 2008) demonstrated highest spiny dogfish concentrations were north of 47^{o}30' N. latitude in the U.S.-Vancouver INPFC area. Spiny dogfish was estimated to be the most abundant of all species caught by the trawl survey within this northern area. Note that the Monterey INPFC area represents the second highest concentration area among INPFC areas in the 2005 trawl survey data (Table X1).

Table 2. Mean catch per unit effort (CPUE; kg/ha) for dogfish shark caught during the 2005 west coast trawl survey by INPFC area. Data acquired from Keller et al. (2008). Excerpted from Table D-75 of Appendix D of the DEIS.

INPFC Area	Southern boundary	CPUE (kg/ha)
U.S.-Vancouver	47^{o}30' N. latitude	43.6
Columbia	43^{o}00' N. latitude	< 0.5
Eureka	40^{o}30' N. latitude	2.6
Monterey	36^{o}00' N. latitude	10.1
Conception	Southern boundary of EEZ	< 0.5

Catch and catch rates of spiny dogfish by area and depth for non-whiting trawl and non-trawl

West Coast Groundfish Observer Program (WCGOP) data were used to evaluate relative catch rates (CPUE) and catch of spiny dogfish among areas (depth and latitude) for non-whiting trawl and non-trawl fisheries to develop the RCA options. These data are presented in Table 3 and Table 4 (excerpted from Appendix D). No Action RCAs are also provided for comparison. (see Table 5 and Table 6, excerpted from Appendix D). These data were used to develop alternatives 4 – 6 shown in Appendix D.

Table 3. Observed catch (lbs.) of spiny dogfish by depth north of 45°46' N latitude by depth (fm) for fixed gear and trawl sets (or hauls) for 2002-2010. CPUE (lbs./hour) and % of total catch by area are also provided. Some depth bins were collapsed due to confidentiality concerns. Gray shading represents the least restrictive 2012 RCA throughout the year for fixed gear (seaward) and trawl (shoreward and seaward). Data were acquired from WCGOP. Excerpted from Table D-77 of Appendix D.

	Fixed gear				Trawl			
Area 1	Depth (fm)	Catch (lb.)	%	CPUE	Depth (fm)	Catch (lb.)	%	CPUE
North of 48°10'	0-100	0	0.0	0.00	0-100	279,868	53.6	40.32
	100-150	46,066	25.1	60.49	100-150	191,974	36.8	50.80
	150-200	28,240	15.4	49.19	150-200	49,013	9.4	118.03
	200-250	22,257	12.1	31.42	200-250	220	0.0	3.23
	250-300	32,376	17.6	46.77	250-300	709	0.1	4.45
	300-350	18,070	9.8	55.57	300-350	12	0.0	0.95
	350+	36,557	19.9	113.30	350+	5	0.0	0.77
	Total	183,566				521,800		

Area 2	Depth (fm)	Catch (lb.)	%	CPUE	Depth (fm)	Catch (lb.)	%	CPUE
48°10' - 45°46'	0-50	0	0.0	0.00	0-50	14,692	1.0	6.13
	50-100	6,358	0.9	343.66	50-100	678,475	45.4	20.72
	100-150	264,741	38.5	44.43	100-150	239,244	16.0	43.41
	150-200	200,465	29.2	31.26	150-200	62,063	4.2	33.91
	200-250	110,152	16.0	30.16	200-250	311,495	20.8	28.76
	250-300	67,221	9.8	42.41	250-300	122,284	8.2	14.90
	300-350	6,928	1.0	12.91	300-350	55,518	3.7	9.65
	350-400	4,836	0.7	49.90	350-400	10,319	0.7	5.57
	400+	26,735	3.9	81.95	400-450	621	0.0	1.54
					450-500	178	0.0	1.67
					500+	188	0.0	1.73
	Total	687,436				1,495,075		

Table 4. Observed catch (lbs.) of dogfish shark by depth south of 45°46’ N latitude by depth (fm) for fixed gear and trawl sets (or hauls) for 2002-2010. CPUE (lbs./hour) and % of total catch by area are also provided. Some depth bins were collapsed due to confidentiality concerns. Gray shading represents the most liberal 2012 RCA throughout the year for trawl (shoreward and seaward) and fixed gear (seaward). Data were acquired from WCGOP. Excerpted from Table D-78 of Appendix D of the DEIS.

	Fixed gear				Trawl			
Area 3	Depth (fm)	Catch (lb.)	%	CPUE	Depth (fm)	Catch (lb.)	%	CPUE
45°46 - 40°10	0-150	19,035	20.9	9.59	0-100	46,327	9.2	4.68
	150-200	44,160	48.6	7.29	100-150	41,547	8.2	8.66
	200-250	23,028	25.3	5.26	150-200	25,418	5.0	22.39
	250-300	3,985	4.4	4.27	200-250	295,398	58.5	19.18
	300+	661	0.7	1.92	250-300	76,364	15.1	6.97
					300-350	18,155	3.6	3.64
					350-400	944	0.2	1.27
					400-450	350	0.1	1.10
					450-500	158	0.0	1.14
					500-550	88	0.0	1.06
					550-500	32	0.0	0.83
					600+	26	0.0	1.27
	Total	90,870				504,807		

Area 4	Depth (fm)	Catch (lb.)	%	CPUE	Depth (fm)	Catch (lb.)	%	CPUE
South of 40°10'	0-100	963	7.3	2.26	0-50	15,356	4.0	2.45
	100-150	0	0.0	0.00	50-100	49,910	13.0	5.37
	150-200	382	2.9	6.12	100-150	133,889	34.8	38.67
	200-250	6,132	46.7	7.89	150-200	40,335	10.5	20.78
	250-300	2,456	18.7	3.43	200-250	118,243	30.8	34.07
	300-350	1,441	11.0	1.13	250-300	22,564	5.9	8.55
	350-400	1,255	9.6	2.93	300-350	3,396	0.9	3.25
	400-450	126	1.0	1.05	350-400	459	0.1	1.33
	450-500	102	0.8	1.59	400+	88	0.0	0.59
	500-550	72	0.5	0.52				
	550-600	52	0.4	1.09				
	600+	142	1.1	0.79				
	Total	13,123				384,239		

Table 5. Limited entry non-whiting trawl RCAs effective January 1, 2012 (= No Action). Depth is in fathoms (fm). Excerpted from Table D-71 of Appendix D.

<table>
<tr><th>Year</th><th>Area (N. latitude)</th><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>Jun</th><th>Jul</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
<tr><td rowspan="6">2012</td><td>North of 48°10'</td><td colspan="2">0 - ^{m}200</td><td colspan="2">0 - 200</td><td colspan="4">0 - 150</td><td colspan="2">0 - 200</td><td colspan="2">0 - ^{m}200</td></tr>
<tr><td>48°10' - 45°46'</td><td colspan="2" rowspan="2">75 - ^{m}200</td><td colspan="2">75 - 150</td><td colspan="2">75 - 150</td><td colspan="2">100 - 150</td><td colspan="4">75 – 150</td></tr>
<tr><td>45°46' - 40°10'</td><td colspan="4">75 - 200</td><td colspan="2">100 - 200</td><td colspan="2">75 - 200</td><td colspan="2">75 - ^{m}200</td></tr>
<tr><td>40°10' - 34°27'</td><td colspan="12" rowspan="2">100 – 150</td></tr>
<tr><td>South 34°27' (mainland)</td></tr>
<tr><td>South 34°27' (islands)</td><td colspan="12">0 – 150</td></tr>
</table>

Table 6. Non-trawl RCAs effective January 1, 2012 (= No Action). Depth is in fathoms (fm). Excerpted from Table D-72 of Appendix D.

Limited Entry and Open Access Fixed Gear

<table>
<tr><th>Year</th><th>Area (N. lat.)</th><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>Jun</th><th>Jul</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
<tr><td rowspan="7">2012</td><td>North 46 16</td><td colspan="12">0 - 100</td></tr>
<tr><td>45 03 83 - 46 16</td><td colspan="12" rowspan="2">30 - 100</td></tr>
<tr><td>43 00 - 45 03 83</td></tr>
<tr><td>42 00 - 43 00</td><td colspan="12">20 - 100</td></tr>
<tr><td>40 10 - 42 00</td><td colspan="12">20 - 100</td></tr>
<tr><td>34 27 - 40 10</td><td colspan="12">30 - 150</td></tr>
<tr><td>South 34 27 (+ islands)</td><td colspan="12">60 - 150</td></tr>
</table>

D.

Biological and Socio-economic Impacts of RCA Options 4-6

RCA options shown in Appendix D for reducing spiny dogfish mortality were:

- Option 4: Extend shoreward trawl RCAs from 75 fm to 50 fm between 45°46'- 48°10' N latitude.
- Option 5: Extend seaward trawl RCA from 150 fm to 200 fm north of 48°10' N latitude and from 150/200 fm to 250 fm south of 48°10' N latitude.
- Option 6: Extend seaward fixed gear RCA from 100 to 150 fm north of 45°46' N latitude.

Although it is expected that the biological impact of Options 4-6 may be significant relative to No Action, the actual savings in total mortality cannot be estimated using the data obtained from the WCGOP; additional data is required to provide a reasonable estimate of impacts to the resource. Note that although the recommended seaward RCA options (5 and 6) would eliminate fishing in areas with high spiny dogfish catch and CPUE, large dogfish catches and CPUEs may continue to occur far beyond these seaward RCA options.

It is important to note that most spiny dogfish encounters and landings occur north of 40°10' N latitude. Landings are highest in the Vancouver and Columbia INPFC areas; Northern Puget Sound (trawl and fixed gear) and Columbia River Oregon (trawl) port groups receive most dogfish landings. Coastwide dogfish landings and revenue are relatively low because of low prices and high discard – more than 90% of dogfish encounters have been discarded in recent years.

Ex-vessel revenue loss caused by a reduction in dogfish landings may be relatively small relative to other associated economic and safety impacts of the RCA options. This measure would (a) force fishers off some of their most productive fishing grounds and on to less productive areas,

(b) require more fishing effort to catch targeted species at levels similar to status quo, (c) require fishers to travel greater distances and spend more time on the water to catch targeted species at levels similar to status quo, and (d) concentrate fishers into a smaller fishing area, resulting in likelihood of increased gear impacts. These impacts will either reduce landings of target species (e.g., sablefish), or increase time and expense (e.g., fuel, number of trips, and days at sea) to maintain status quo landings of target species. The additional time at sea, distance to fishing grounds, and potential gear conflicts may result in increased accidents at sea. Finally, the anticipated savings in spiny dogfish encounters under this measure may be offset by the need to increase fishing effort to levels necessary for attaining quota pounds, tier limits, and trip limits of target species.

Council Request: Under Item 4 within Agenda Item I.3.a Attachment 1, the request was made for an analysis of potential spiny dogfish Bycatch Reduction Areas for the shoreside whiting fishery.

Evaluation of potential bycatch reduction areas for the shoreside and at sea whiting fishery sectors:

Regulations provide for the use of bycatch reduction areas in the whiting fisheries (i.e., vessels using mid-water gear). Vessels using mid-water gear could be restricted to depths greater than 75-fm, 100-fm, or 150 fm to reduce bycatch (based on the RCA boundaries that approximate depth contours). Potential bycatch reduction areas to reduce dogfish mortality were not analyzed for the whiting fishery in Appendix D but can be provided for the draft DEIS. The analysis will be similar to the trawl RCA analysis provided for non-whiting trawl in Appendix D.

Council Request: Regarding the whiting start date described in Agenda Item I.4.a Attachments 1 and 2, a request was made to evaluate monthly catches of spiny dogfish by the at-sea whiting sectors to provide inference regarding moving the start date from June 15 to May 15 for the shoreside-whiting fishery.

The GMT analyzed NORPAC data for at-sea whiting fisheries to evaluate the temporal distribution of spiny dogfish catch (Tables 7). This data may be used to evaluate the biological impacts of moving the season start date for the shoreside whiting sector from June 15 to May 15.

Table 7. Spiny dogfish catch (mt) by year and month for at-sea whiting sectors (catcher/processor and mothership). Gray shading represents the highest spiny dogfish catch per year.

Catcher processor

	Month								
Year	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	**Total**
2004	12	1	0	1	21	289	7		331
2005	33	3	0	0	4	1			42
2006	1	2	1		2	0			6
2007	9	1				6	7	40	63
2008	49	27		3		0	70	340	489

2009	0	0	0	0	1	1	14	11	28
2010	6	0	1	7	21	14	14	47	110
2011	6	1			19	10			35
Total	116	35	2	11	68	322	113	438	1,106

Mothership

	Month								
Year	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	**Total**
2004	10	0							10
2005	9	1				11	6		28
2006	3	12		0	2				17
2007	18	5	0						23
2008	6	10	0	6		0	1		24
2009	7	0							7
2010	33	5			2	6			45
2011	1	1			14	12			28
Total	86	34	1	6	18	29	8		182

Spiny dogfish catch is variable among years for both at-sea whiting sectors (Table 7). Catch was almost 10x higher for the catcher/processor sector than for mothership sector. Most spiny dogfish catch was observed during October-December by the catcher/processor sector and May-June for the mothership sector.

Two-Year Trawl and Non-Trawl Allocation of Cowcod

The Council requested that an additional allocation scheme of 34 percent trawl, 66 percent non-trawl be analyzed for cowcod south of 40°10' N latitude for inclusion in the 2013-14 biennial harvest specifications and management measures analysis. The GMT did not have time to fully analyze the impacts of a revised allocation at this meeting, but provides some general information for Council consideration. The GMT intends to provide a more complete analysis in time for the DEIS.

West Coast Groundfish Observer Program (WCGOP) data indicate that cowcod mortality has been variable among years and between sectors from 2004 to 2011 (Table 8). A summary of 2011 WCGOP IFQ data south of 40°10' N latitude revealed that 29 vessels participated in the entire area south of 40°10' N latitude and 4 vessels made landings south of 34°27' N latitude (note - these do not represent unique vessels). Only 39 lbs. of cowcod were encountered in the IFQ fishery by 4 vessels operating in the area between 40°10' N latitude and 34°27' N latitude; zero cowcod were encountered south of 34°27' N latitude.

Table 8. Summary of cowcod mortality by sector (trawl: non-trawl) from 2004-2011 summarized from West Coast Groundfish Observer Program (WCGOP) Total Mortality Reports. Non trawl is comprised of both the commercial fixed gear and recreational fleets.

Year	Trawl	Non-Trawl
2004	0.9	1.1
2005	1.4	0.5
2006	0.9	0.2
2007	2.9	0.3
2008	0.2	0.3
2009	0.5	0.3
2010	0.6	0.4
2011	39 lbs.	0.8*

*non-trawl data is not included

PFMC
04/05/12

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April 5, 2012

Mr. Dan Wolford, Chair
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, OR 97220

RE: Agenda Item I.8, Biennial Harvest Specifications for 2013-2014 Groundfish Fisheries

Dear Chairman Wolford and Council Members:

NRDC strongly advises the Council against selecting a canary rockfish Preferred Alternative of 147/151 metric tons for 2013-14.

The new assessment for canary shows that the stock has further to go to rebuild than was previously believed. In response, the Council appears to be considering *raising* catch levels. NRDC believes doing so would be a bad decision from a policy perspective, and would also fall outside the Council's legal authority under the Magnuson-Stevens Act.

As NRDC noted in a previous letter under Agenda Item I.3, the Magnuson-Stevens Act and subsequent case law establish that the primary goal of fisheries management in the United States is conservation. *See NRDC v. NMFS* , 421 F.3d 872, 879 (9th Cir. 2005); *NRDC v. Daley*, 209 F.3d 747 (D.C. Cir. 2000). In rebuilding situations in particular, "Congress intended to ensure that overfished species were rebuilt as quickly as possible, but wanted to leave some leeway to avoid disastrous short-term consequences for fishing communities." *NRDC v. NMFS*, 421 F.3d at 880.

The currently-selected PPA for canary of 116/119 metric tons clearly avoids disaster for the trawl sector, as it *already* represents an increase from the status quo—both in terms of catch levels and SPR harvest rate. The status quo ACL is 107 metric tons, which corresponds to a harvest rate of approximately 90%SPR. *See* John R. Wallace, *Rebuilding Analysis for Canary Rockfish Based on the 2011 Updated Stock Assessment*, at 8. The 116/119 metric ton ACLs for 2013 and 2014 are 9 and 12 metric tons higher, respectively, and correspond to a harvest rate of 88.7% SPR.

NRDC recognizes that canary is a constraining stock for the trawl sector, and that the proposed harvest increase would delay T_{target} by less than a year. NRDC also recognizes that less than the full ACL was caught last year, and there was difficulty trading canary under the trawl ITQ system in its first year of implementation. These things are true. But it is simply the wrong move to increase harvest rates when the stock has further to rebuild than previously believed. If a rebuilding plan has to be revised because a stock can no longer meet its goals, the situation calls for increased conservation, not increased exploitation.

The SSC and GMT had an all-day discussion on Monday about rebuilding policy, in an attempt to establish some basic rules for approaching rebuilding situations. NRDC believes that if any basic rule should be clear by now, it is that you do not increase the harvest rate upon learning that a stock has further to go to rebuild. This is common sense, and is also well-established by the court decisions in *NRDC v. NMFS* and *NRDC v. Locke*. In both of those cases, new assessments showed that certain stocks had further to go to rebuild than was previously believed, and instead of reducing the harvest rate, the Council attempted to raise harvest rates. In both cases, the courts found that the Council's decision fell outside the range of permissible options under the Magnuson-Stevens Act. *See NRDC v. NMFS*, 421 F.3d at 880-82; *NRDC v. Locke*, No. 01-cv-421, Slip Op. at 31-39 (N.D. Cal. Apr. 23, 2010).

We would suggest that the canary situation before you today fits the fact patterns of *NRDC v. NMFS* and *NRDC v. Locke* very well. In that sense, the GAP statement is right when it says, "We've been here before." April 2012 Briefing Book, Agenda Item I.8.b Supplemental GAP Report, at 2. NRDC agrees that the same facts are once again before the Council, and the same law applies. We therefore strongly discourage the Council from selecting a canary ACL of 147/151 metric tons for 2013-14.

Thank you for your consideration.

Sincerely,

Seth Atkinson

Seth Atkinson
Oceans Program Attorney
Natural Resources Defense Council