

GROUND FISH MANAGEMENT TEAM (GMT) REPORT ON
2007-08 GROUND FISH MANAGEMENT MEASURES

Under agenda item F.1., the Council adopted preferred ABCs and OYs for all non-overfished species, as well as high and low OY alternatives for overfished species. Since 2000, management measures for target groundfish fisheries have been shaped and constrained by the need to reduce incidental interception of overfished species. The GMT received guidance from the GAP on shaping season structure in the commercial and recreational fisheries under either the high or low overfished species OY alternatives.

Based on the range of ABCs and OYs that the Council adopted, and in collaboration with the GAP, the GMT drafted a suite of potential management measures to address the high and low overfished species OY alternatives. The GMT notes that, given the magnitude of the catch restrictions associated with the low overfished species OY alternative, there is no buffer for uncertainty included, which the GMT had identified as needed for 2007-08 management in its report under agenda item F.1. The low overfished species OY also does not allow any EFPs to be conducted in 2007-2008, and it reduces the amount of yelloweye rockfish available for research. The GMT also notes that the yelloweye rockfish OY ramp-down strategy will require management agencies to monitor 2007 fisheries to determine whether additional restrictive measures are needed for 2008 fisheries in order to constrain them within the lower 2008 OY.

The GMT discussed strategies for achieving annual reductions in the yelloweye OY that will result from the ramp-down strategy the Council selected as their preferred alternative. The GMT recognizes that this strategy relies on management tools that have not yet been developed, and that future research is necessary to develop tools that will achieve OY reductions without having dramatic economic consequences to fishing communities. GMT members have discussed a research approach for developing these tools and include ideas such as gear research, area-based research on yelloweye bycatch, area-based research on habitat areas where yelloweye may reside, and working with industry members to identify other possible methods for decreasing the catch of yelloweye rockfish. While it is unknown at this time which tools will achieve the necessary reductions in the OY, members of the GMT have pledged to work with state agencies, federal agencies, and industry members to develop the best suite of tools for achieving the OY reductions included in the Council's preferred alternative. The GMT notes that some of this work has already been initiated, for example, Oregon and Washington have proposed - and California is considering - new Yelloweye Rockfish Conservation Areas as part of the 2007-2008 proposed management specifications.

In drafting suites of potential management measures, the GMT assumed that the estimated overfished species catch amounts for the following fisheries would remain unchanged:

- tribal fisheries;
- incidental groundfish catch in these fisheries -- California halibut fisheries, California gillnet, California sheephead, coastal pelagics wetfish and squid, Dungeness crab, highly migratory species, pink shrimp, ridgeback prawn, salmon troll, sea cucumber trawl, spot prawn.

Pacific halibut fisheries are managed to keep overfished groundfish species bycatch as close to zero as possible, which requires a variety of management measures, particularly area closures.

Further details on the management measures proposed for analysis are also provided in tribal recommendations and state reports and briefing book attachments, and 5 attachments to this report.

Creation of New Management Lines, Conservation Areas, and Fishing Areas

To draft management measures for both of the Council's OY alternatives, the GMT plans to analyze several closures that would move fisheries shoreward of relatively shallow boundary lines (10-15-20-25 fm). At its May meeting, the GMT will discuss whether any of these lines need to be defined by coordinates in Federal regulations. The GMT also plans a general review of RCA boundary lines for mistakes in coordinates.

The States of Washington and Oregon are drafting potential new Yelloweye Rockfish Conservation Areas and plan to bring analysis on the effects of implementing those areas restrictions to the May GMT meeting. California is considering a Yelloweye Rockfish Conservation Area for the area north of 40°10' N. lat., a Darkblotched Rockfish Conservation Area for the area north of 38° N. lat., and potential Canary Rockfish Conservation Areas in Federal waters off California. California is also proposing to analyze modifications to the boundaries of the Cowcod Conservation Areas. CDFG plans to bring analyses of the effects of implementing these areas to the May GMT meeting.

Amendment 18 to the FMP introduced Groundfish Fishing Areas as a potential management tool. These would be bounded geographic areas where fishing for a particular species or species group could be concentrated because it is an area of high abundance for target species and low abundance for overfished species. California is drafting 3-4 potential new Groundfish fishing areas for flatfish, one area off northern California between Eureka and Crescent City, and three areas between Point Reyes and Santa Cruz. CDFG plans to bring analyses of the effects of implementing these areas to the May GMT meeting.

Gear Regulations

In addition to the measures discussed below, the GMT intends to review federal gear regulations and requirements at its May meeting to ensure that they are consistent with the intent of 2007-2008 management measures.

Scottish Seine Gear between 40°10' N. latitude and 34°27' N. latitude

Scottish seine gear is a legal type of small footrope trawl gear that employs a more passive strategy when compared to traditional trawl gear (Table 1).

These differences and associated lower impact to bottom habitat while trawling was cited as the reason this gear was granted an exemption from federal trawl closure areas adjacent to California that were adopted under Groundfish Essential Fish Habitat in 2005.

A Scottish seine vessel requested the opportunity to participate in an EFP in waters adjacent to San Francisco and Princeton Ports to demonstrate the gear’s ability to target flatfish with minimal bycatch of overfished species. The vessel participated in three flatfish EFP studies conducted by CDFG (2002, 2003, and 2004), resulting in total bycatch estimates of no more than 0.0002 lb per target species lb for any one of the nine groundfish species declared overfished by NMFS, for both the modified and unmodified versions of this gear fished to over 100 fm. Current regulations require Scottish seine to adhere to trawl RCA closures. RCAs are in place to reduce bycatch of overfished species, and Scottish seine gear may present a reasonable alternative for successful avoidance of bycatch of overfished species. Therefore, an option to exempt Scottish seine gear from trawl RCA closures from 40°10' N. latitude to 34°27' N. latitude is requested for analysis for the 2007 to 2008 fishing season as follows:

- *Option 1:* Exempt Scottish seine gear from trawl RCA closures in all depths
- *Option 2:* Exempt Scottish seine gear from trawl RCA closures in waters less than 100 fm only
- *Option 3:* Exempt Scottish seine gear from trawl RCA closures when using gear modified according to selective flatfish trawl gear design specifications implemented north of 40°10' N. latitude, with modifications tested for this gear type in the 2003 and 2004 California EFPs.

Selective Flatfish Trawl Gear South of 40°10' N. latitude

The GMT recommends exploring an option to require use of selective flatfish trawl gear while fishing shoreward of the RCA in the area south of 40°10' N. latitude. Results from the California Selective Flatfish EFP conducted in 2003 and 2004 and reviewed by the

Table 1. Comparison of Scottish seine and bottom small footrope trawl gear attributes.		
Gear Attribute	Scottish Seine	Bottom Trawl
door	None	Yes
footrope (leadline)	2” iron ringlets	8” rollers
headrope (floatline)	longer than footrope	shorter than footrope
warps	rope; length ~1 mile	steel; length ~ 150’
tow speed	½ knot/hour	~ 3.0 knot/hour
tow substrate	soft bottom: sand and mud	variable: sand, mud, and cobble

GMT suggested that use of these gear configurations result in lower bycatch of some overfished rockfish (particularly canary); however, due to difficulty in recruiting EFP participation, the EFP-based bycatch rates were derived from two vessels only, one of

which was Scottish seine gear with only nominal bycatch rates for overfished species, and therefore may not be comprehensive enough to warrant implementation. This is particularly a concern due to uncertainty around its effectiveness in reduction of bocaccio rockfish bycatch rates. However, implementation of the gear in the area south of 40°10' N. latitude would provide fleetwide opportunities to collect bycatch rates from WCGOP sampling. If implemented, the GMT would evaluate what bycatch rates are appropriate for use in the limited entry bycatch model for management purposes. The GMT recommends that consideration be given to require Selective Flatfish Trawl gear when fishing shoreward of the trawl RCA south of 40°10' N. latitude in 2007 and 2008.

Catch Sharing and Harvest Guidelines

Based on the guidance provided by the Council and contained in the Allocation Committee report, the GMT has the following recommendations:

Black Rockfish Sharing Between Oregon and California

The black rockfish OY in the area south of 46°16' N. lat is subdivided with separate HGs being set for the area north of 42° N. lat (419 mt/58 percent) and for the area south of 42° N. lat. (303 mt/42 percent). For the area north of 42° N. lat. 318.4 (+/- 10%) mt is estimated to be taken in the recreational fishery, resulting in a commercial HG of 100.6 (+/- 10%) mt. Of the 303 mt of black rockfish attributed to the area south of 42° N. lat., a HG of 181.8 mt (60 percent) will be applied to the area north of 40°10 min N. lat. and a HG of 121.2 mt (40 percent) will be applied to the area south of 40°10 min N. lat. For the area between 42° N. lat. and 40°10' N. lat., 70.8 mt is estimated to be taken in the recreational fishery, resulting in a commercial HG of 111 mt. For the area south of 40°10 min N. lat., 97.2 mt is estimated to be taken in the recreational fishery, resulting in a commercial HG of 24 mt. Black rockfish was included in the minor rockfish north and other rockfish south categories until 2004.

Harvest Guidelines for Canary and Yelloweye Rockfish

The GMT recommends that the Council set separate harvest guidelines for canary and yelloweye rockfish for the recreational fisheries, which would be divided at the Oregon/California border (42 deg N. lat.). The harvest guidelines for the different OY alternatives are described in the attached table.

The understanding would be for the states to manage their respective recreational fisheries to stay within those harvest guidelines specified. The GMT requests guidance from the Council regarding the states' management responses, which will be taken when any of these recreational harvest guidelines are projected to be exceeded.

Action Between Council Meetings

For 2007-2008, the GMT plans to explore a monitoring and management trigger process that would work as follows:

- NMFS would monitor commercial catches and OY attainments throughout the year, as usual;

- The Council would make recommendations to NMFS on harvest triggers and recommended response actions to be taken between Council meetings (e.g. “If the petrale sole harvest is rapid enough such that the fishery would have to be shut down before the end of the year, NMFS will reduce trawl trip limits beginning September 1.”)
- NMFS would finalize the Council recommendations through an inseason Federal Register notice.

State Nearshore Management

Oregon and Northern California

The GMT summarized at-sea observer data from the West Coast Groundfish Observer Program (WCGOP) to estimate 2006 bycatch of overfished species by depth zone, and region, for the nearshore hook and line fishery north of 40°10' N.lat. Although lingcod has been designated as rebuilt it was included as an important part of the analysis. Table 2 shows the estimated 2006 bycatch of yelloweye rockfish, canary rockfish, widow rockfish and lingcod by three depth zones (0-10 fm, 11-20 fm, and 21-30 fm), and two regions (Oregon and California north of 40°10' N. lat.)

Table 2 -- Estimated bycatch mortality of rebuilding species associated with landed catch of nearshore species in Oregon and California (Eureka area) in 2006 under status quo management measures.

Species / Area	Estimated Bycatch Mortality			
	0 - 10 fm	11 - 20 fm	21 - 30 fm	Total
Yelloweye Rockfish	0.08	1.28	0.94	2.31
Oregon	0.05	0.85	0.50	1.40
Calif - Eureka	0.03	0.43	0.44	0.90
Canary Rockfish	0.05	1.16	0.54	1.75
Oregon	0.03	0.77	0.29	1.09
Calif - Eureka	0.02	0.39	0.25	0.66
Widow Rockfish	0.03	0.03	0.01	0.06
Oregon	0.02	0.02	0.00	0.03
Calif - Eureka	0.01	0.01	0.01	0.03
Lingcod	18.99	29.64	6.30	54.93
Oregon	11.42	19.67	3.37	34.46
Calif - Eureka	7.57	9.97	2.93	20.47

For the development of 2007-2008 management options the GMT assumed: (1) a status quo fishery during 2007 or 2008 would produce a very similar distribution of bycatch impacts, and (2) a reduced OY for yelloweye rockfish (or other overfished stocks that are encountered in the nearshore fishery) might result in the need to constrain the nearshore hook and line fishery to shallower depths to reduce bycatch impacts.

Four possible depth restriction actions were examined (25, 20, 15 and 10 fm), and two assumptions of effort redistribution were included (no effort shift or some effort shift). This resulted in six options:

- *Option 1:* Status Quo
- *Option 2:* Restrict the fishery to inside 25 fm (assume no effort shift, assume impact on overfished species reduced by 50% in the 21-30 fm bin)
- *Option 3a:* Restrict the fishery to inside 20 fm (assume no effort shift)
- *Option 3b:* Restrict the fishery to inside 20 fm (assume 50% effort shift from 21-30 fm bin)
- *Option 4a:* Restrict the fishery to inside 15 fm (assume no effort shift, assume impact on overfished species reduced by 50% in the 11-20 fm bin)
- *Option 4b:* Restrict the fishery to inside 15 fm (assume 50% effort shift from 16-30 fm bin)
- *Option 5a :* Restrict the fishery to inside 10 fm (assume no effort shift)
- *Option 5b:* Restrict the fishery to inside 10 fm (assume 50% effort shift from 11-20 fm bin)

Table 3 shows the expected bycatch and reduction from status quo. The GMT notes that this analysis is highly subjective relative to the decisions individual fisherman might make when faced with shallower depth restrictions. Options with and without effort shift were presented to provide a range of the potential angler behaviors (to fish or not fish.) The GMT has not had time to evaluate the feasibility of some of these options relative to safety and fleet conflict issues. If adopted, most (if not all) of the depth restriction waypoints will need to be adopted via state rulemaking.

Table 3. -- Estimated annual bycatch mortality (mt) and reduction from status quo (mt) for overfished species encountered in the nearshore hook & line fishery in Oregon and California (Eureka area), under various 2007-2008 management measures.

Option	Option							
	1	2	3a	3b	4a	4b	5a	5b
Yelloweye Rockfish Impacts	2.31	1.84	1.36	2.08	0.72	1.19	0.08	1.37
<i>Impact Reduction</i>	0.00	0.47	0.95	0.24	1.59	1.12	2.23	0.94
Canary Rockfish Impacts	1.75	1.48	1.21	1.62	0.63	0.90	0.05	1.21
<i>Impact Reduction</i>	0.00	0.27	0.54	0.14	1.12	0.85	1.70	0.54
Widow Rockfish Impacts	0.06	0.06	0.05	0.06	0.04	0.05	0.03	0.05
<i>Impact Reduction</i>	0.00	0.00	0.01	0.00	0.02	0.01	0.03	0.01
Lingcod Catch	54.93	51.78	48.55	53.36	33.81	36.96	18.99	48.63
<i>Catch Reduction</i>	0.00	3.15	6.38	1.58	21.12	17.97	35.94	6.30

In addition to depth restrictions, the GMT will analyze reduced season length and reduced target species trip limits as a mechanism for lowering the impact on overfished species.

Central and Southern California

The California Department of Fish and Game (CDFG) will continue with the nearshore management strategies previously established for black rockfish, blue rockfish, nearshore rockfish (other north, minor south), California scorpionfish, cabezon and greenling for 2007 and 2008. To implement regional needs where possible, CDFG has proposed that commercial nearshore management options and approaches contained in Agenda Item F.5.b CDFG Report 2 be adopted for analysis. These include options relative to modifying the current lingcod spawning closure duration to allow lingcod retention during a month that was closed in 2005 and 2006. The nesting closure in place for 2005 and 2006 is December through March in the recreational fishery and December through April in the commercial nearshore fishery.

In light of the suite of low OY options adopted for overfished species, CDFG believes the following additional options need to be analyzed:

- Option 1: Maintain the current near-year-round fishery and reduce trip limits to stay within harvest targets;
- Option 2: Consider reducing the season length to less than 12 months north of 40°10' N. latitude and/or less than the status quo ten-month season south of 40°10' N. latitude in order to retain more economically-viable trip limits.

Option 3: Expand the non-trawl RCA (shoreward and/or seaward) to reduce encounters with overfished species.

Tribal Fisheries

The coastal treaty tribes plan to provide the Council with recommendations for 2007-2008 tribal fisheries management measures consistent with the Council guidance provided for 2007-08 harvest specifications.

Commercial Management Measures

Limited Entry Trawl

The GMT recommends that the commercial trawl trip limits described in Attachment 1 be approved for review. The GMT will explore setting trip limits that would accommodate incidental catch levels without encouraging unintended targeted fisheries in an effort to reduce bycatch while meeting rebuilding needs.

The commercial (non-tribal) whiting fishery is managed separately from the trawl trip limit fisheries. Historically, the whiting fishery has been managed with sector-specific whiting allocations and seasons, observation coverage appropriate to the particular whiting sector, and in more recent years, overfished species bycatch limits. In past seasons, fishery participants have balanced bycatch concerns for Chinook salmon, and darkblotched, widow, and canary rockfish by moving their fishing operations to areas

where bycatch species can be avoided. Because these species are found in different areas at different times of year, and because their distribution varies from year to year, whiting fishery participants have relied on flexibility of movement to constrain their bycatch of all species of concern.

The GMT proposes to analyze the following management measure suites for the two overfished species OY alternatives:

- For the high overfished species OY alternative, the whiting fishery would continue to be managed under its current management regime, with the addition of a Chinook salmon conservation area triggered inseason, and which closes the area inshore of the 100 fm line when the 11,000 fish threshold is projected to be reached.
- Under the low overfished species OY, if the whiting fishery were moved offshore of 150 fm to keep to the low canary rockfish OY, the U.S. whiting OY could be as high as 213,000 mt without risking the low darkblotched rockfish OY. Without moving the fishery offshore, the whiting OY would have to be constrained to 154,000 mt to meet all of the low overfished species OY constraints. The GMT proposes to analyze these two potential management scenarios for managing the whiting fishery under the low overfished species OY alternative.

Limited Entry Fixed Gear and Open Access

The GMT recommends that the commercial limited entry and open access trip limits described in Attachment 1 be approved for review. The GMT will explore setting trip limits that would accommodate incidental catch levels without encouraging targeting overfished species in an effort to reduce bycatch while meeting rebuilding needs.

The limited entry fixed gear primary sablefish fishery's tier limits under the Council's preferred sablefish OY alternative would be: Tier 1, 48,500 lb; Tier 2, 22,000 lb; and Tier 3, 12,500 lb. Rockfish Conservation Area boundaries would likely have to be moved farther offshore under the Council's low overfished species OY alternative than under the high overfished species OY alternative.

Under the phase-in yelloweye rockfish OY, in 2007, the amount of yelloweye rockfish estimated to be caught by the limited entry fixed gear and open access spiny dogfish fisheries will likely accommodate the status quo fishery. However, with the phase-in yelloweye reduction in 2008, dogfish catch reductions, perhaps as much as 50% of current levels, would likely be needed to stay within the lower yelloweye OY, if the fishery continued to be prosecuted in its present area. Yelloweye encounters in the dogfish fishery could also be reduced by extending the current non-trawl RCA seaward boundary from 100 fms to 150 fms. Due to the depth at which fishable concentrations of dogfish aggregate, fishers have indicated that such a measure would likely make a longline dogfish fishery impractical. They also stated that this would severely affect the sablefish fishery off northern Washington given the configuration of the non-trawl RCA.

In addition to the trip limit tables, the GMT also proposes to analyze the following potential area management measures. The GMT may recommend implementing one or more of the options below, in other words, they may be additive. (Options 1 and 2 would require changes to the Pacific Halibut Catch Sharing Plan as well as the groundfish regulations):

- *Option 1:* Add a yelloweye rockfish conservation area off the northern coast, which would be closed to limited entry and open access fixed gear fisheries, including salmon troll, as defined by the following coordinates
Beginning at 48° 02.23' N by 125° 17.87' W
Then to 48° 01.42' N by 125° 15.89' W
Then to 47° 59.11' N by 125° 18.03' W
Then to 47° 59.97' N by 125° 19.92' W, and back to the point of origin.

(Note: This is described in Supplemental WDFW Report 3, which is changed from Agenda Item F.5.b, WDFW Report)

- *Option 2:* Add a yelloweye rockfish conservation area off the northern Washington coast, which would be closed to limited entry and open access fixed gear fisheries and the salmon troll fishery, as defined by the following coordinates:
Beginning at 48° 11.77' N by 125° 13.03' W
Then to 48° 16.43' N by 125° 07.55' W
Then to 48° 14.72' N by 125° 01.84' W
Then to 48° 13.36' N by 125° 03.20' W
Then to 48° 12.74' N by 125° 05.83' W
Then to 48° 11.55' N by 125° 04.99' W
Then to 48° 09.96' N by 125° 06.63' W
Then to 48° 09.68' N by 125° 08.75' W, and back to the point of origin.

(Note: This is described in Supplemental WDFW Report 3, which is changed from Agenda Item F.5.b, WDFW Report)

- *Option 3:* Consistent with the salmon troll regulations off Oregon, allow the retention of lingcod in the salmon troll fishery when fishing shoreward of a line approximating 30 fathoms north of 40°10'N. lat.
- *Option 4:* Prohibit the retention of lingcod in the salmon troll fishery shoreward of the non-trawl RCA seaward boundary (e.g., shoreward of 100 fathoms north of 40°10' N. lat. under status quo).

Recreational Management Measures

The GMT is recommending a range of recreational management measures to facilitate rebuilding of overfished rockfish and to stay within the state harvest targets, which in turn, stay within the range of Council-preferred OYs for all species. The range of management measures include the continuation of and additional conservation areas for overfished rockfish, particularly yelloweye, cowcod, and canary. The GMT recommends

continuing to prohibit the retention of canary, yelloweye, and cowcod rockfish in recreational fisheries coastwide to discourage any potential targeting of these sensitive stocks. These prohibitions are recommended even in light of the fact that they result in creating some limited discard, again, in order to remove the incentive to target these species. The GMT also supports considering a lower minimum size limit for lingcod to reduce the amount of time that anglers spend on the water (and, in turn, the potential bycatch of overfished rockfish). Specific state recreational management measures include:

Washington

The Washington Department of Fish and Wildlife (WDFW) is not proposing any changes to the bottomfish bag limit or lingcod season dates, which are listed below.

Bottomfish Bag Limits All Areas: 15 bottomfish aggregate bag limit, which includes a sublimit of 10 rockfish, and 2 lingcod with a 24-inch minimum size limit, but does not include halibut (which has a daily bag limit of 1). Retention of canary and yelloweye rockfish is prohibited, regardless of area caught.

Lingcod Seasons

- Marine Areas 1-3 (OR/WA border to Cape Alava): Open the Saturday closest to March 15 (which is March 17 in 2007 and March 15 in 2008) through the Saturday closest to October 15 (which is October 13 in 2007 and October 18 in 2008).
- Marine Area 4 (Cape Alava to U.S./Canada border): Open April 16 through October 13 in 2007 and open April 16 through October 15 in 2008.

Area Closures For all options, the “C-shaped” yelloweye rockfish conservation area in the north coast would remain in effect for recreational halibut and bottomfish fisheries. The GMT may recommend implementing one or more of the options below, in other words, they may be additive.

The proposed preliminary range of additional 2007-2008 management measure alternatives that WDFW supports for public review include:

Statewide – Lingcod Minimum Size Limit:

- *Status quo (2006 season)* – There is a minimum size limit of 24 inches for lingcod.
- *Option 1:* Reduce the minimum size limit for lingcod to 20 inches in Marine Areas 1-4.

North Coast Seasons (Washington Marine Areas 3 and 4)

- *Status quo (2006 season)* – Prohibit retention of rockfish and lingcod seaward of a line approximating 20 fathoms from May 22 through September 30, except on days that halibut fishing is open (e.g., June 22 and 24). The retention of canary and yelloweye rockfish is prohibited. It is prohibited to fish for, retain, or possess bottomfish and halibut in the “C-shaped” yelloweye rockfish conservation area.

- *Option 1:* Prohibit retention of rockfish and lingcod seaward of a line approximating 20 fathoms from May 1 through June 30, except on days that halibut fishing is open, and from August 1 through September 30; prohibit retention of rockfish and lingcod seaward of a line approximating 10 fathoms during the month of July.
- *Option 2:* Prohibit retention of rockfish and lingcod seaward of a line approximating 10 fathoms during the months of May and September; close the North Coast to halibut fishing, except in Area 4B; prohibit retention of rockfish and lingcod seaward of a line approximating 20 fathoms from June 1 through August 31.
- *Option 3:* Prohibit retention of rockfish and lingcod seaward of a line approximating 10 fathoms during the months of May, August and September; close the North Coast to halibut fishing, except in Area 4B; prohibit retention of rockfish and lingcod seaward of a line approximating 20 fathoms from June 1 through July 31.
- *Option 4:* Add another yelloweye rockfish conservation area off the northern coast, which would be closed to recreational bottomfish and halibut fishing, as defined by the following coordinates:
Beginning at 48° 02.23' N by 125° 17.87' W
Then to 48° 01.42' N by 125° 15.89' W
Then to 47° 59.11' N by 125° 18.03' W
Then to 47° 59.97' N by 125° 19.92' W, and back to the point of origin.

(This option is further described in Supplemental WDFW Report 4, which is changed from Agenda Item F.5.b, WDFW Report.)

Options 2, 3, and 4 would require changes to the Pacific Halibut Catch Sharing Plan as well as to the bottomfish regulations.

South Coast (Washington Marine Area 2)

Status quo (2006 season) – Prohibit retention of rockfish and lingcod seaward of a line approximating 30 fathoms from lingcod opening day (March 18 in 2006) through June 15. The retention of canary and yelloweye rockfish is prohibited.

- *Option 1:* Prohibit retention of rockfish and lingcod seaward of a line approximating 30 fathoms from lingcod opening day through July 31.
- *Option 2:* Prohibit retention of rockfish and lingcod seaward of a line approximating 30 fathoms from lingcod opening day through August 31.
- *Option 3:* Prohibit retention of rockfish and lingcod seaward of a line approximating 30 fathoms from lingcod opening day through July 31; prohibit retention of rockfish and lingcod seaward of a line approximating 20 fathoms from August 1 through September 30.

Columbia Area (Washington Marine Area 1)

There is very little yelloweye and canary rockfish (0.03 mt and 0.02 mt, respectively, in 2005) caught in Marine Area 1; therefore, WDFW proposes to keep the status quo bottomfish fishing regulations in place through 2007 and 2008. These are: Prohibit

retention of bottomfish, except sablefish and Pacific cod, with halibut onboard from May 1 through September 30. The retention of canary and yelloweye rockfish is prohibited.

Oregon

The Oregon Department of Fish and Wildlife (ODFW) is proposing a range of management measures for its recreational fisheries in 2007 and 2008 and is exploring which measures may be necessary to meet the constraints of the high and low overfished species OYs. These management measures include:

Season: The season alternatives proposed by the ODFW include a mixture of time and depth closures. These alternatives are shaped to address various levels of yelloweye and canary rockfish impacts. The most liberal alternative is the “status quo” alternative, reflecting the initial 2006 season. The most conservative alternative results in a recreational groundfish fishery that is conducted from July 1 through Labor Day (~2 months), and is restricted to the waters shoreward of the 20 fathom RCA. Proposed season structures and associated yelloweye and canary rockfish impacts are shown in the table below.

1	GF open all depth	GF open <40 fm	GF open all depth	4.3	5.5
2	GF open <40 fm			3.6	4.2
3	GF open <40 fm	GF open <25 fm	GF open <40 fm	3.2	3.8
4	GF open <20 fm			2.4	2.8
5	CLOSED	GF open <20 fm	CLOSED	1.9	1.7
6	CLOSED	GF open <20 fm *	CLOSED	1.6	2.3

* Option 6 results in a 55% reduction in yelloweye rockfish impacts in the Pacific halibut fishery. This would be accomplished using tools such as reduced Pacific halibut catch and time on the water.

Daily Bag Limit: Two definitions of “marine fish” are being explored; one that includes all flatfish species except sanddabs (status quo), and one that separates flatfish species into a separate daily bag limit. A daily bag limit for flatfish species (except Pacific halibut) of 25 fish is being proposed. A range of 1-10 marine fish is included in the alternatives, as well as a range of 2-3 lingcod. No retention of yelloweye rockfish and canary rockfish.

Minimum Length Limits: In order to access the increased lingcod OY without increasing impacts to overfished species, length limits ranging from 24-inches (status quo) to 20-inches is being proposed. No adjustments to the length limits for cabezon (16-inches) or kelp greenling (10-inches) are being proposed.

YRCA Closures: A Yelloweye Rockfish Conservation Area (YRCA) closure is being proposed for the area known as Stonewall Bank, located off the coast of Newport, Oregon. ODFW is proposing coordinates for an analysis area at this Council. Specific YRCA coordinates will be developed for the June Council meeting. The ODFW is

proposing a process for implementing additional YRCA closures for 2008, in response to the potential need for further reduction to yelloweye rockfish impacts.

These alternatives are outlined in Agenda Item F.5.b Supplemental ODFW Report, titled “Proposed Management Measures for 2007-08 Oregon Recreational Groundfish Fishery” and Agenda Item F.5.b Supplemental ODFW Report 2, titled “Oregon Department of Fish and Wildlife Proposal for Adoption of a Range of Management Measures for the 2007-2008 Oregon Recreational Groundfish Fishery”.

California

The California Department of Fish and Game is proposing a range of options for structuring the 2007-2008 recreational groundfish fisheries with the intent of remaining within harvest guidelines (HGs), particularly for species under rebuilding plans. This range of options includes the following: Options are considered that meet the suite of high or low rebuilding OYs.

- Continued non-retention of cowcod, canary and yelloweye rockfish statewide
- Management specifications which are structured around constituent’s preferred fishing season while still providing as much fishing opportunity as possible
- Alternatives that allow for more access to deeper waters when possible, paired with bycatch reduction tools (hot spots, gear restrictions)
- Use of closed seasons, depth restrictions, bag limits, and size limits in combination to manage recreational catch to specified harvest limits.

General Approach: Manage recreational fisheries through a regional management approach to address specific management and fishery needs in each of three Rockfish and Lingcod Management Areas (RLMAs) in the north (42° N. Lat. to 40°10’), central (40°10’ to Pt. Conception), and South (Pt. Conception to Mexico border). The Central RLMA is further subdivided into two or three smaller areas to accommodate regional differences in fisheries and resources.

Management Specifications to Consider Keeping Status Quo for 2007-2008

- Continue exemption for all divers and shore-based anglers from closures for rockfish, cabezon, greenlings, California scorpionfish, and lingcod closures outside the spawning closures. Lingcod spawning closures continue to apply.
- In all RLMAs, prohibit the retention of lingcod during the primary spawning and nesting season (possible closed months: January, February, March, November, and December).
- Prohibit the retention of lingcod during any rockfish closure due to concerns about bycatch of rockfish in the lingcod fishery.
-

Bag limits

- RCG (all rockfish, cabezon, kelp greenling, and rock greenling) keep as 10 per bag with following sub-bag limits:
 - Bocaccio north of 40° 10’ N. lat. status quo 2 fish
 - Black Rockfish status quo 10 fish

- Blue Rockfish status quo 10 fish
- Scorpionfish status quo 5 fish
- “Other flatfish” status quo: 20 fish except for Pacific sanddab and starry flounder which have no bag limit

Size limits

Bocaccio status quo: 10 inches TL

Cabazon status quo: 15 inches TL

Kelp greenling (and other species of the genus Hexagrammos) status quo: 12 inches TL

California scorpionfish status quo: 10 inches TL

Filet size limits

All others (except lingcod): status quo

Gear restrictions

Rockfish status quo: limit of 2 hooks and 1 line

Lingcod status quo: limit of 2 hooks and 1 line

“Other flatfish” status quo: limit of up to 12 hooks, “Number 2” or smaller, which measure no more than 11 mm point to shank, and up to 2 pounds of weight per line

Specific Fishing Area Prohibitions

Cordell Banks: Status Quo

Recreational fishing for groundfish prohibited in waters less than 100 fm (183 m) around the Cordell Banks as defined by specific latitude and longitude coordinates except that recreational fishing for “other flatfish” is permitted given the restrictions described above.

Farallon Islands: Status Quo

Recreational fishing for groundfish prohibited between the shoreline and the 10-fm (18-m) depth contour around the Farallon Islands except that recreational fishing for “other flatfish” is permitted given the restrictions described above

Management Specifications to Consider Changing for 2007-2008

Changes to fishing management areas, seasons and depths: The proposed options provide for the use of closed seasons and depths for rockfish, lingcod and associated species (*i.e.*, cabazon, greenlings, California scorpionfish, California sheephead, and ocean whitefish). The proposed fishing seasons and depths vary by Rockfish and Lingcod Management Area (RLMA) and, in some cases, by species or species group. The currently proposed changes to management areas, seasons and depths are presented below, but may be modified prior to adoption by the Council.

Most of California’s proposed changes are contained in Agenda Item F.5. b CDFG Report 2. Options shown in **BOLD** below represent modifications provided for

consideration to meet potential impacts resulting from the adopted rebuilding OY alternatives. Analyses of the impacts of Options that meet the suite of high or low rebuilding OYs adopted by the Council are provided in Tables 4 and 5.

Seasons and Depth Restrictions

North Coast Region

Seasons: 6 - 9 months open for groundfish fishing

South Coast Region

Seasons: 8 -11 months open for groundfish fishing;

Bag limits

Within 20 finfish bag limit, the following ranges would be analyzed with the option for differential bag limits for boat and shore anglers (with diver limits set to those of shore anglers):

- Lingcod 2 - 3 fish; status quo 2 fish
- Bocaccio south of 40° 10' N. lat. 1 – 2 fish
- Greenlings 1 – 2 fish
- Cabezon 1-2 fish

Size limits: Lingcod 22 -26 inches TL; status quo of 24 inches TL

Filet size limits: Lingcod filet size changed if size limit changed; status quo: 16 inches and must bear an intact 1 inch square patch of skin

Harvest Guidelines : California has separate Federal Harvest Guidelines to take action to accommodate recreational bycatch of canary and yelloweye rockfish and will consider additional HGs for the recreational fishery for bocaccio and widow rockfish.

Rockfish Conservation Areas: California will also be considering the potential use of Area RCAs as inseason measures to be used during the 2007 and 2008 fishing periods or for the full year to mitigate for unanticipated bycatch of rebuilding species. One inseason implementation of Area RCAs could include closing areas of higher canary rockfish encounters for the recreational fishery during the boat-based fishery season. California is still analyzing the impacts of these proposed areas and will provide specific boundaries for these areas in June. The Farallon Islands are one area being considered.

Farallon Islands:

Option 1 - Recreational fishing for groundfish prohibited between the shoreline and the 10-fm (18-m) depth contour around the Farallon Islands and deeper than the 20-fm depth contour except that recreational fishing for “other flatfish” is permitted given the restrictions described above.

Option 2 - Recreational fishing for groundfish prohibited around the Farallon Islands during inseason action taken to move the RCA boundary inshore to protect overfished

species, except that recreational fishing for “other flatfish” is permitted given the restrictions described above.

Table 4.
2007-2008 Option A
(Opt A = Reb. Alt 5)

Changes to 2006 Expected (SQ):

DEPTHS: North area - all open months to 0-20 fm; South area - all open months 0-30 fm

MONTHS: North Central area - Close October

RCG SEASON BY REGION:

Region	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
North region	---	---	---	---	??	> 20fm Closed						??
North Central	---	---	---	---	---	---	> 20fm Closed			---	> 20fm Closed	
South Central - Monterey	---	---	---	---	---	---	> 20fm Closed				---	---
South Central - Morro Bay	---	---	---	---	> 40fm Closed					---	---	---
South Region	---	---	> 30fm Closed									

NOTES AND KEY:

Shore fishing allowed in all waters in all months

RCG = Rockfish, cabezon, greenlings

--- = Closed to boat-based fishing for RCG

LINGCOD SEASON IS OPEN **ONLY** WHEN RCG IS OPEN, EXCEPT CLOSED DEC, JAN, FEB, MAR FOR SPAWNING

ESTIMATED IMPACTS FROM OPTION:

Region	Estimated Impacts (mt)			
	Yelloweye	Canary	Cowcod	Bocaccio
North region	0.8	0.5	N/A	N/A
North Central	0.4	3	0	0.2
South Central - Monterey	0	0.2	0	1.8
South Central - Morro Bay	0	1	0	1.8
South Region	0	0.3	0	13.4
TOTAL CALIFORNIA	1.2	5.0	0	17.2

Table 5.

2007-2008 Option F
(Opt F = Reb. Alt 3)

Add to 2006 Expected (SQ):

DEPTHS: North, North Central, and Monterey South Central areas - 0-40 fm; Morro Bay South Central area - 0-60 fm; South area - 0-60 fm for Sept-Oct

MONTHS: North Central area - open June; Monterey South Central area - open June; Morro Bay South Central area - open April & October

OTHER CHANGES: Bocaccio bag limit increase to 2 fish for south of 40° 10' N. lat

RCG SEASON BY REGION

Region	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
North region	---	---	---	---	> 40fm Closed							
North Central	---	---	---	---	---	> 40fm Closed						
South Central - Monterey	---	---	---	---	---	> 40fm Closed						
South Central - Morro Bay	---	---	---	> 60fm Closed					---	---	---	
South Region	---	---	> 60fm Closed									

NOTES AND KEY:

Shore fishing allowed in all waters in all months

RCG = Rockfish, cabezon, greenlings

--- = Closed to boat-based fishing for RCG

LINGCOD SEASON IS OPEN ONLY WHEN RCG IS OPEN, EXCEPT CLOSED DEC, JAN, FEB, MAR FOR SPAWNING

ESTIMATED IMPACTS FROM OPTION:

Region	Estimated Impacts (mt)			
	Yelloweye	Canary	Cowcod	Bocaccio ^{a/}
North region	0.7	0.7	N/A	N/A
North Central	0.5	5.2	0	0.6
South Central - Monterey	0	0.4	0	5.9
South Central - Morro Bay	0.2	1.4	0	24.2
South Region	0	0.3	0.3	57.4
TOTAL CALIFORNIA	1.4	8.0	0.3	88.1

ADDITIONAL ESTIMATED IMPACTS WITH ADDED MONTHS:

Additional Months by Region	Estimated Impacts (mt)			
1. Add June to North Central	0	0.9	0	0.1
2. Add June to South Central-Mon	0	0.1	0	0.9
3. Add April to South Central-MB	0	0.2	0	3.4
4. Add October to South Central-MB	0.1	0.3	0	5.1
Total Additional Impacts (1-4)	0.1	1.5	0	9.5

a/ Does not yet include impacts from proposed bag limit increase; anticipate increase in harvest less than double the harvest with 1 fish/bag.

GMT Recommendations

1. Approve the range of recreational harvest guidelines for canary and yelloweye rockfish in the attached table for public review.
2. Approve the GMT recommended catch sharing for the southern black rockfish OY of 58% to Oregon and 42% to California for review.
3. Approve the GMT-proposed limited entry trawl, limited entry fixed gear, tribal, and groundfish-directed open access management measure alternatives for public review.
4. Approve the proposed state recreational management measure alternatives for public review.
5. Approve the proposed Oregon and California Nearshore management approaches for public review.
6. Identify Council-preferred management measures to help focus the analyses in the EIS.

Attachment 1

Limited Entry Bottom Trawl Regulations and Impacts Under Council Preferred OYs

Cumulative Limits and RCA Boundaries for Higher Council OYs

SUBAREA	PERIOD	RCA BOUNDARIES		CUMULATIVE LIMITS							SLOPE	
		INLINE	OUTLINE	SABLEFISH	LONGSPN	SHORTSP	DOVER	OTR FLT	PETRALE	ARROWTTH	ROCK	
North 40 10 seaward of RCA	1	75	200*	14,000	12,000	6,000	60,000	110,000	100,000	120,000	4,000	
	2	75	200	14,000	12,000	6,000	60,000	110,000	35,000	120,000	4,000	
	3	75	250	17,000	12,000	6,000	60,000	110,000	35,000	120,000	4,000	
	4	100	250	17,000	12,000	6,000	60,000	110,000	35,000	120,000	4,000	
	5	75	200	17,000	12,000	6,000	60,000	110,000	35,000	120,000	4,000	
	6	75	200*	14,000	12,000	6,000	60,000	110,000	100,000	120,000	4,000	
North 40 10 shoreward of RCA	1	75	200*	5,000	3,000	3,000	24,000	40,000	16,000	40,000	4,000	
	2	75	200	9,000	3,000	3,000	24,000	40,000	25,000	40,000	4,000	
	3	75	250	11,000	3,000	3,000	24,000	40,000	25,000	40,000	4,000	
	4	100	250	11,000	3,000	3,000	24,000	40,000	25,000	40,000	4,000	
	5	75	200	9,000	3,000	3,000	24,000	40,000	25,000	40,000	4,000	
	6	75	200*	5,000	3,000	3,000	24,000	40,000	16,000	40,000	4,000	
38 - 40 10	1	75	150	15,500	22,000	7,000	60,000	110,000	100,000	10,000	15,000	
	2	75	150	15,500	22,000	7,000	60,000	110,000	35,000	10,000	15,000	
	3	75	150	15,500	22,000	7,000	60,000	110,000	35,000	10,000	15,000	
	4	100	200	15,500	22,000	7,000	60,000	110,000	35,000	10,000	15,000	
	5	75	150	15,500	22,000	7,000	60,000	110,000	35,000	10,000	15,000	
	6	75	150	15,500	22,000	7,000	60,000	110,000	100,000	10,000	15,000	
S 38	1	75	150	15,500	22,000	7,000	60,000	110,000	100,000	10,000	40,000	
	2	100	150	15,500	22,000	7,000	60,000	110,000	35,000	10,000	40,000	
	3	100	150	15,500	22,000	7,000	60,000	110,000	35,000	10,000	40,000	
	4	100	150	15,500	22,000	7,000	60,000	110,000	35,000	10,000	40,000	
	5	100	150	15,500	22,000	7,000	60,000	110,000	35,000	10,000	40,000	
	6	75	150	15,500	22,000	7,000	60,000	110,000	100,000	10,000	40,000	

* includes petrale areas

note: splitnose limits equal slope rockfish limits

Cumulative Limits and RCA Boundaries for Lower Council OYs

SUBAREA	PERIOD	RCA		CUMULATIVE LIMITS							SLOPE	
		INLINE	OUTLINE	SABLEFISH	LONGSPN	SHORTSP	DOVER	OTR FLT	PETRALE	ARROWTTH	ROCK	
N 40 10 seaward of the RCA	1	75	250*	10,000	5,000	3,000	65,000	10,000	70,000	5,000	2,000	
	2	75	250	8,000	5,000	3,000	10,000	10,000	10,000	5,000	2,000	
	3	60	250	8,000	5,000	3,000	10,000	10,000	10,000	5,000	2,000	
	4	60	250	8,000	5,000	3,000	10,000	10,000	10,000	5,000	2,000	
	5	75	250	8,000	5,000	3,000	10,000	10,000	10,000	5,000	2,000	
	6	75	250*	10,000	5,000	3,000	65,000	10,000	70,000	5,000	2,000	
N 40 10 shoreward of the RCA	1	75	250*	7,000	3,000	3,000	20,000	30,000	15,000	5,000	2,000	
	2	75	250	7,000	3,000	3,000	10,000	10,000	10,000	5,000	2,000	
	3	60	250	8,000	3,000	3,000	10,000	10,000	10,000	5,000	2,000	
	4	60	250	8,000	3,000	3,000	10,000	10,000	10,000	5,000	2,000	
	5	75	250	7,000	3,000	3,000	10,000	10,000	10,000	5,000	2,000	
	6	75	250*	7,000	3,000	3,000	20,000	30,000	15,000	5,000	2,000	
38 40 10	1	75	200*	12,000	22,000	7,000	20,000	70,000	70,000	5,000	4,000	
	2	75	200	12,000	22,000	7,000	20,000	70,000	10,000	5,000	4,000	
	3	75	200	12,000	22,000	7,000	20,000	70,000	10,000	5,000	4,000	
	4	75	200	12,000	22,000	7,000	20,000	70,000	10,000	5,000	4,000	
	5	75	200	12,000	22,000	7,000	20,000	70,000	10,000	5,000	4,000	
	6	75	200*	12,000	22,000	7,000	65,000	70,000	70,000	5,000	4,000	
S 38	1	75	150	12,000	22,000	7,000	65,000	70,000	70,000	5,000	40,000	
	2	75	150	12,000	22,000	7,000	20,000	70,000	10,000	5,000	40,000	
	3	75	150	12,000	22,000	7,000	20,000	70,000	10,000	5,000	40,000	
	4	75	150	12,000	22,000	7,000	20,000	70,000	10,000	5,000	40,000	
	5	75	150	12,000	22,000	7,000	20,000	70,000	10,000	5,000	40,000	
	6	75	150	12,000	22,000	7,000	65,000	70,000	70,000	5,000	40,000	

* includes petrale areas

note: splitnose limits equal slope rockfish limits

LE Bottom Trawl Impacts Under High set of Rebuilding OYs

		North	South	Total
rebuilding species	canary	4.2	2.8	7.0
	POP	86.4	0.0	86.4
	darkblotch	135.3	41.9	177.2
	widow	1.0	0.1	1.0
	bocaccio	-	35.6	35.6
	yelloweye	0.1	0.1	0.2
	cowcod	-	1.5	1.5
target species	sablefish	1,841.3	558.2	2,399.5
	longspine	178.1	577.4	755.6
	shortspine	598.5	376.4	974.8
	dover	7,849.4	2,596.8	10,446.2
	arrowtooth	4,467.3	26.5	4,493.8
	petrale	2,121.1	366.3	2,487.4
	other flat	592.2	674.2	1,266.4
	slope rock	172.8	340.8	513.6
Exvessel Revenue				\$ 22,600,000

LE Bottom Trawl Impacts Under Low set of Rebuilding OYs

		North	South	Total
rebuilding species	canary	1.5	1.7	3.2
	POP	36.9	0.0	36.9
	darkblotch	52.1	22.6	74.6
	widow	0.1	0.0	0.1
	bocaccio	-	15.7	15.7
	yelloweye	0.0	0.1	0.1
	cowcod	-	0.4	0.4
target species	sablefish	1,244.3	427.5	1,671.8
	longspine	173.3	577.1	750.5
	shortspine	303.6	375.4	679.0
	dover	3,755.2	1,382.0	5,137.2
	arrowtooth	1,403.5	19.2	1,422.7
	petrale	1,143.7	221.3	1,365.0
	other flat	152.2	418.4	570.6
	slope rock	113.0	208.7	321.7
Exvessel Revenue				\$ 13,000,000

Limited Entry Trawl Whiting Impacts Under Council Preferred OYs

LOW Rebuilding OYs

US OY	Sector	Allocation	Canary	Darkblotch POP	Widow	Yelloweye	
213,873.6	Tribal	30,000	1.3	0.0	0.6	5.2	-
	Mothership	43,650	0.4	3.3	1.2	18.6	0.0
	CP	61,837	0.3	3.4	1.0	55.5	0.0
	Shoreside	76,387	0.4	5.8	2.0	33.4	0.0
	Total		2.4	12.5	4.8	112.7	0.0
Exvessel Revenue		24,756,344					

High Rebuilding OYs (also status quo OY)

US OY	Sector	Allocation	Canary	Darkblotch POP	Widow	Yelloweye	
269069	Tribal	35,000	1.6	0.0	0.6	6.0	-
	Mothership	55,697	0.5	4.2	1.5	23.8	0.0
	CP	78,903	0.4	4.4	1.3	70.8	0.0
	Shoreside	97,469	0.5	7.4	2.6	42.6	0.0
	Total		2.9	16.0	6.0	143.2	0.0
Exvessel Revenue		31,205,640					

Limited Entry and Open Access Sablefish Impacts Under Council Preferred OYs

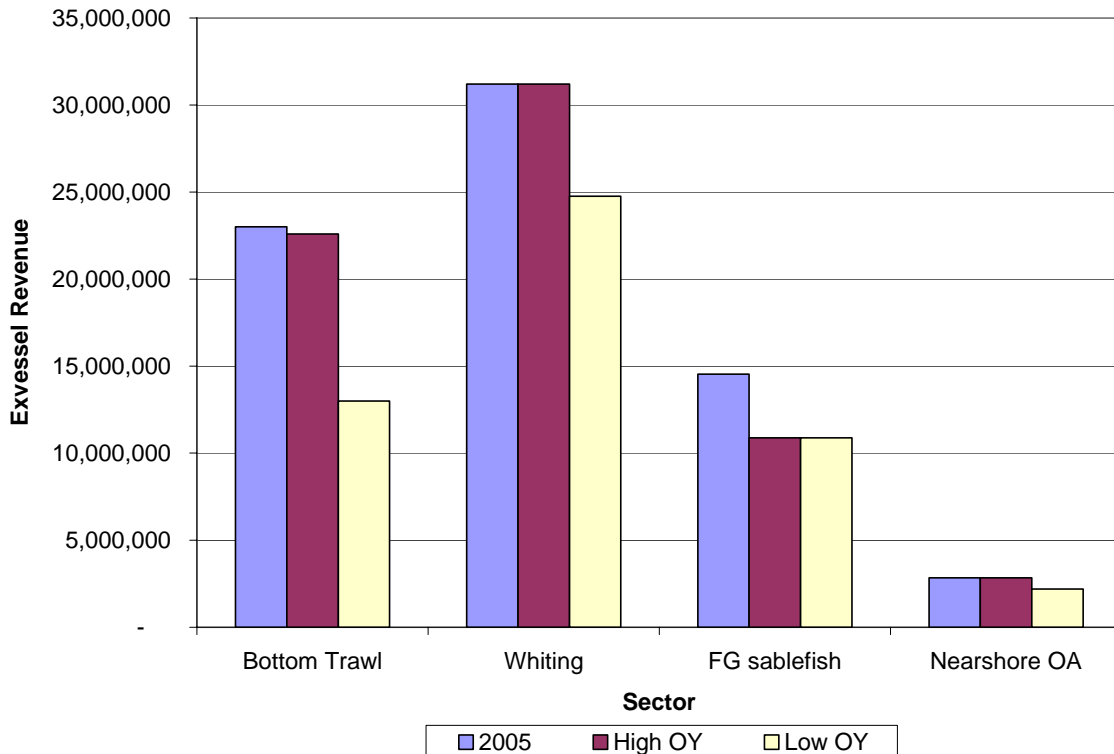
Rebuilding OY Alternatives and Impacts Corresponding to Sablefish Adopted OY

	High OY (100 fm)	Low OY (150 fm)	2005
LE and OA FG Sable (mt)	2394	2394	3080
widow	0	0	0
canary	0.5	0.1	1
yelloweye	1.2	0.4	1.5
bocaccio	0	0	0
cowcod	0	0	0
POP	0.3	0.3	0.4
darkblotched	0.8	1.1	1.1
Exvessel Revenue	10,883,747	10,883,747	14,531,241

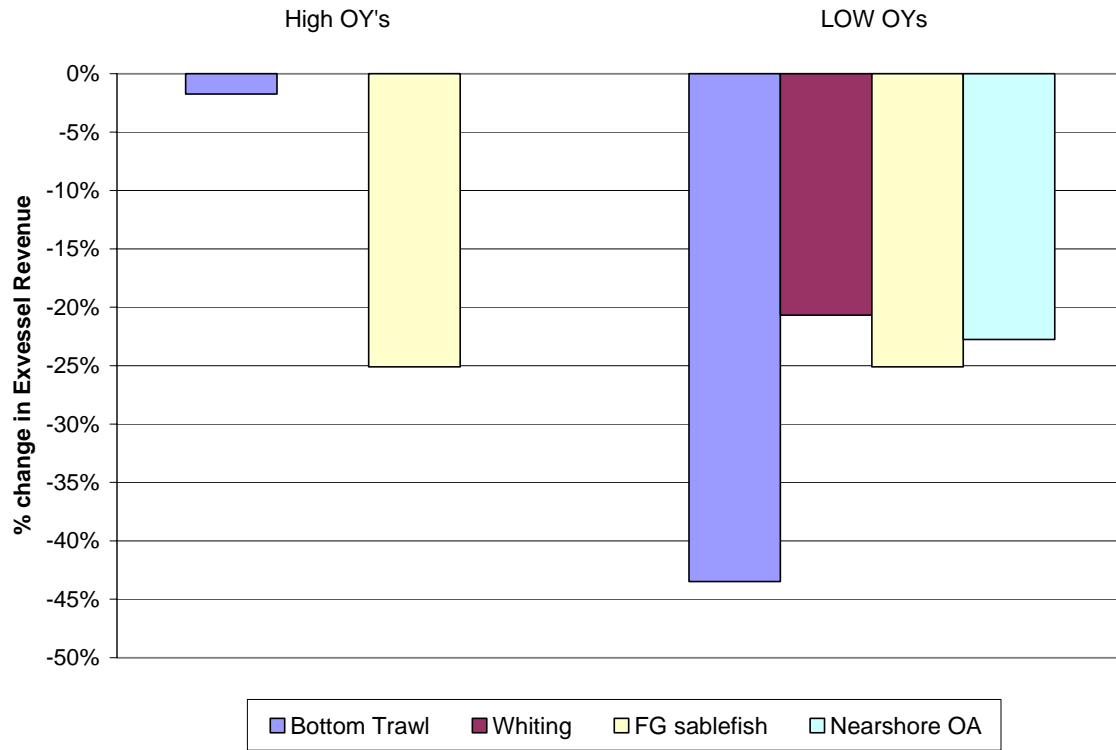
Nearshore Open Access Impacts Under Council Preferred OYs

Nearshore OA	Species	Low OYs	High OYs
South	shallow nearshore	49	55
	deeper nearshore	42	48
	cabezon	41	46
	kelp greenling	3	3
	canary	0.29	0.33
	exvessel rev	\$ 1,512,320	\$ 1,718,545
North	black rockfish	35	176
	blue rockfish	11	11
	other minor nearshore	10	10
	cabezon	31	31
	kelp greenling	23	23
	canary	0.8	1.65
	yelloweye	1.05	2.12
	widow	0.03	0.07
	exvessel rev	\$ 686,717	\$ 1,128,082
Total	canary	1.09	1.97
	yelloweye	1.05	2.12
	widow	0.03	0.07
	exvessel rev	\$ 2,199,037	\$ 2,846,627

Exvessel Revenue by Sector and Rebuilding OY



Percent Change in Exvessel Revenue by Sector and Rebuilding OY



Attachment 2

Council-adopted alternatives for acceptable biological catches (ABCs) and total catch optimum yields (OYs) (mt) for 2007 and 2008. (Overfished stocks in CAPS; Stocks with new assessments in bold). a/

Stock	No Action Alternative				2007 and 2008 Action Alternatives a/												
	2005 ABC	2005 OY	2006 ABC	2006 OY	Alt 1 2007 ABC	Alt 2 2007 ABC	Alt 1 2008 ABC	Alt 2 2008 ABC	Alt 1 OY	Alt 2 OY	Alt 3 OY	Alt 4 OY	Alt 5 OY	Alt 6 OY	Council 2007 ABC b/	Council 2008 ABC b/	Council OY b/
Lingcod - coastwide	2,922	2,414	2,716	2,414	6,706		5,853		6,280	6,088					6,280	6,280	
Columbia and US-Vanc. areas		1,694		1,694					5,428	5,428							
Eureka, Monterey, and Conception areas		719		719					852	660							
N. of 42 (OR & WA)		1,801		1,801					5,558	5,558							5,558
S. of 42 (CA)		612		612					722	530							612
Pacific Cod	3,200	1,600	3,200	1,600	3,200		3,200		1,600						3,200	3,200	1,600
Pacific Whiting (U.S.)	269,545	269,069	488,850	269,069	244,425	733,275	244,425	733,275	134,534	403,604					To be determined in March 2007 and 2008		
Sablefish (Coastwide)	8,368	7,761	8,175	7,634	6,210		6,058		4,574	5,934					6,210	6,058	5,934
N. of 36 (Monterey north)		7,486		7,363					4,411	5,723							
S. of 36 (Conception area)		275		271					162	210							
PACIFIC OCEAN PERCH	966	447	934	447	900		911		0	87	405	514	749		900	911	44 or 100
Shortbelly Rockfish	13,900	13,900	13,900	13,900	13,900		13,900		13,900						13,900	13,900	13,900
WIDOW ROCKFISH	3,218	285	3,059	289	5,334		5,144		0	329	456	917	1,369		5,334	5,144	120 or 368
CANARY ROCKFISH	270	47	279	47	172		179		0	24	44	68			172	179	32 or 44
Chillipepper Rockfish	2,700	2,000	2,700	2,000	2,700		2,700		2,000	2,700					2,700	2,700	2,000
BOCACCIO	566	307	549	309	602		618		0	149	218	315	424		602	618	40 or 218
Splitnose Rockfish	615	461	615	461	615		615		461						615	615	461
Yellowtail Rockfish	3,896	3,896	3,681	3,681	4,585		4,510		4,548						4,548	4,548	4,548
Shortspine Thornyhead - coastwide					2,488		2,463		1,661	2,476					2,476	2,476	
Shortspine Thornyhead - N. of 34deg27'	1,055	999	1,077	1,018					1,240	1,634							1,634
Shortspine Thornyhead - S. of 34deg27'									421	841							421
Longspine Thornyhead - coastwide	2,851	2,656	2,851	2,656	3,953		3,860		2,696	3,930					3,907	3,907	
Longspine Thornyhead - N. of 34deg27'		2,461		2,461					2,220	2,989							2,220
Longspine Thornyhead - S. of 34deg27'		195		195					476	941							476
COWCOD - S. of 36 (Conception area)	5	2.1	5	2.1	17		17		0	4	7	9	11		17	17	
COWCOD - Monterey area	19	2.1	19	2.1	19		19		0	4	7	9	11		19	19	4 or 8 d/
DARKBLOTCHED	269	269	294	200	456		487		0	130	229	330	472		456	487	130 or 229
YELLOWEYE	54	26	55	27	26		26		0	12	17	24	24	27	26	26	12.6 or ramp-down e/
Nearshore Species																	
Black Rockfish (WA)	540	540	540	540	540		540		540						540	540	540
Black Rockfish (OR-CA)	753	753	736	736	725		719		722						722	722	722
Minor Rockfish North	3,680	2,250	3,680	2,250	3,680				2,250	2,270	2,290				3,680	3,680	2,270
Nearshore Species		122		122					122	142	162						142
Shelf Species		968		968			968		968	968	968						968
Slope Species		1,160		1,160			1,160		1,160	1,160	1,160						1,160
<i>Remaining Rockfish North f/</i>	1,612	1,216	1,612	1,216	1,612		1,612		1,216								
<i>Bocaccio</i>	318	239	318	239	318		318		239								
<i>Chillipepper - Eureka</i>	32	32	32	32	32		32		32								
<i>Redstripe</i>	576	432	576	432	576		576		432								
<i>Sharpchin</i>	307	230	307	230	307		307		230								
<i>Silvergrey</i>	38	29	38	29	38		38		29								
<i>Splitnose</i>	242	182	242	182	242		242		182								
<i>Yellowmouth</i>	99	74	99	74	99		99		74								
<i>Other Rockfish North f/</i>	2,068	1,034	2,068	1,034	2,068		2,068		1,034								

Council-adopted alternatives for acceptable biological catches (ABCs) and total catch optimum yields (OYs) (mt) for 2007 and 2008 (continued) (Overfished stocks in CAPS; Stocks with new assessments in bold).

Stock	No Action Alternative				2007 and 2008 Action Alternatives a/												
	2005 ABC	2005 OY	2006 ABC	2006 OY	Alt 1 2007 ABC	Alt 2 2007 ABC	Alt 1 2008 ABC	Alt 2 2008 ABC	Alt 1 OY	Alt 2 OY	Alt 3 OY	Alt 4 OY	Alt 5 OY	Alt 6 OY	Council 2007 ABC b/	Council 2008 ABC b/	Council OY b/
Minor Rockfish South	3,412	1,968	3,412	1,968	3,403		3,403		1,753	1,855	1,931	2,006			3,403		1,904
Nearshore Species		615		615					413	515	591	666					564
Shelf Species		714		714					714	714	714	714					714
Slope Species		639		639					626	626	626	626					626
Remaining Rockfish South f/	854	689	854	689	854		854		689								
Bank	350	263	350	263	350		350		263								
Blackgill	343	305	343	305	292		292		292								
Gopher	97	48.5	97	48.5	302		302		49	151	227	302					
Sharpchin	45	34	45	34	45		45		34								
Yellowtail	116	87	116	87	116		116		87								
Other Rockfish South f/	2,558	1,279	2,558	1,279	2,558		2,558		1,279								
California scorpionfish	Not specified - managed as part of Minor RF South				137	219		219	137	219					219	219	175
Cabezon (off CA only)	103	69	108	69	94		94		69						94	94	69
Dover Sole	8,522	7,476	8,589	7,564	28,522		28,442		16,500	28,482					28,522	28,442	16,500
English Sole	3,100	3,100	3,100	3,100	6,773		5,701		6,237						6,237	6,237	6,237
Petrale Sole (coastwide) c/	2,762	2,762	2,762	2,762	2,917		2,919		1,921	2,499	2,883				2,917	2,919	2,499
Columbia and US-Vanc. areas									910	1,347	1,347						
Eureka, Monterey, and Conception areas									1,012	1,152	1,536						
N of 40deg10'									1,176	1,651	1,752						
S of 40deg10'									745	848	1,131						
Arrowtooth Flounder	5,800	5,800	5,800	5,800	5,800		5,800		5,800						5,800	5,800	5,800
Starry Flounder	Not specified - managed as part of Other Flatfish				1,221		1,395		890	1,186					1,221	1,221	890
Other Flatfish	6,781	4,909	6,781	4,909	6,731		6,731		4,884						6,731	6,731	4,884
Other Fish	14,600	7,300	14,600	7,300	14,600		14,600		7,300						14,600	14,600	7,300
Kelp Greenling HG (OR)									No Fed HG	fed HG = state HG							No Fed HG

a/ The Council elected to average OY projections for 2007 and 2008 and analyze/specify the average OYs for each year. ABCs, in some cases, are specified similarly for some species with quantitative assessments. Otherwise, ABCs are year-specific.

b/ Council ABC and Council OY represent the Council's preferred harvest alternative for 2007 and 2008.

c/ Area OYs/HGs are stratified according to the assessment areas and alternatively adjusted by management areas for lingcod and petrale sole.

d/ The preferred OY is for the Conception and Monterey areas combined.

e/ The ramp-down strategy ramps the harvest rate down from the status quo harvest rate and resumes a constant harvest rate strategy in 2011. The 2007-2010 OYs are 23 mt, 20 mt, 17 mt, and 14 mt, respectively.

f/ The Remaining Rockfish and Other Rockfish categories are shown to understand how the Minor Rockfish complex harvest specifications are derived. These are not management targets.

Attachment 3

Estimated Total Mortality Impacts For 2007 HIGH OY ALT - April 2006 Council Meeting

4/12/2006 13:47

Fishery	Bocaccio a/	Canary	Cowcod	Dkbl	POP	Widow	Yelloweye
Limited Entry Trawl- Non-whiting	47.4	7.7	2.7	160.3	63.3	1.0	0.3
Limited Entry Trawl- Whiting							
At-sea whiting motherships				4.7	1.0	200.0	0.0
At-sea whiting cat-proc		4.7		6.3	2.9		0.0
Shoreside whiting				5.2	1.8		0.0
Tribal whiting		1.6		0.0	0.6	6.1	0.0
Tribal							
Midwater Trawl		1.8		0.0	0.0	40.0	0.0
Bottom Trawl		0.8		0.0	3.7	0.0	0.0
Troll		0.5		0.0	0.0		0.0
Fixed gear		0.3		0.0	0.0	0.0	2.3
Limited Entry Fixed Gear	13.4	1.2	0.1	1.3	0.4	0.5	2.9
Open Access: Directed Groundfish	10.6	3.0	0.1	0.2	0.1	0.1	3.0
Open Access: Incidental Groundfish							
CA Halibut	0.1	0.1		0.0	0.0		
CA Gillnet b/	0.5			0.0	0.0	0.0	
CA Sheephead b/				0.0	0.0	0.0	0.0
CPS- wetfish b/	0.3						
CPS- squid c/							
Dungeness crab b/	0.0		0.0	0.0	0.0		
HMS b/		0.0	0.0	0.0			
Pacific Halibut b/	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pink shrimp	0.1	0.1	0.0	0.0	0.0	0.1	0.1
Ridgeback prawn	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Salmon troll	0.2	1.6	0.0	0.0	0.0	0.3	0.2
Sea Cucumber	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spot Prawn (trap)							
Recreational Groundfish d/							
WA							6.7
OR		8.4				1.4	
CA	98.0	9.2	0.4			8.0	3.7
Research: Includes NMFS trawl shelf-slope surveys, the IPHC halibut survey, and expected impacts from SRPs and LOAs.							
	3.0	3.0	0.1	3.8	3.6	3.0	3.0
Non-EFP Total	173.7	44.0	3.4	181.9	77.4	260.4	22.3
EFPs e/							
EFP Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	173.7	44.0	3.4	181.9	77.4	260.4	22.3
2007 High OY Alt	218	44.0	8.0	229	100	368	23
Difference	44.3	0.0	4.6	47.2	22.6	107.6	0.7
Percent of OY	79.7%	99.9%	42.5%	79.4%	77.4%	70.8%	96.8%
Key	= either not applicable; trace amount (<0.01 mt); or not reported in available data						

a/ South of 40°10' N. lat.

b/ Mortality estimates are not hard numbers; based on the GMT's best professional judgement.

c/ Bycatch amounts by species unavailable, but bocaccio occurred in 0.1% of all port samples and other rockfish in another 0.1% of all port samples (and squid fisheries usually land their whole catch). In 2001, out of 84,000 mt total landings 1 mt was groundfish. This suggests that total bocaccio was caught in trace amounts.

d/ Values for yelloweye in California represent specified harvest guidelines.

e/ Values are proposed EFP bycatch caps, not estimates of total mortality. The EFP is terminated inseason if the cap is projected to be attained

Estimated Total Mortality Impacts For 2008 HIGH OY ALT - April 2006 Council Meeting

4/12/2006 13:48

Fishery	Bocaccio a/	Canary	Cowcod	Dkbl	POP	Widow	Yelloweye
Limited Entry Trawl- Non-whiting	47.4	7.7	2.7	160.3	63.3	1.0	0.3
Limited Entry Trawl- Whiting							
At-sea whiting motherships				4.7	1.0		0.0
At-sea whiting cat-proc		4.7		6.3	2.9	200.0	0.0
Shoreside whiting				5.2	1.8		0.0
Tribal whiting		1.6		0.0	0.6	6.1	0.0
Tribal							
Midwater Trawl		1.8		0.0	0.0	40.0	0.0
Bottom Trawl		0.8		0.0	3.7	0.0	0.0
Troll		0.5		0.0	0.0		0.0
Fixed gear		0.3		0.0	0.0	0.0	2.3
Limited Entry Fixed Gear	13.4	1.2	0.1	1.3	0.4	0.5	2.5
Open Access: Directed Groundfish	10.6	3.0	0.1	0.2	0.1	0.1	2.6
Open Access: Incidental Groundfish							
CA Halibut	0.1	0.1		0.0	0.0		
CA Gillnet b/	0.5			0.0	0.0	0.0	
CA Sheephead b/				0.0	0.0	0.0	0.0
CPS- wetfish b/	0.3						
CPS- squid c/							
Dungeness crab b/	0.0		0.0	0.0	0.0		
HMS b/		0.0	0.0	0.0			
Pacific Halibut b/	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pink shrimp	0.1	0.1	0.0	0.0	0.0	0.1	0.1
Ridgeback prawn	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Salmon troll	0.2	1.6	0.0	0.0	0.0	0.3	0.2
Sea Cucumber	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spot Prawn (trap)							
Recreational Groundfish d/							
WA							5.8
OR		8.4				1.4	
CA	98.0	9.2	0.4			8.0	3.2
Research: Includes NMFS trawl shelf-slope surveys, the IPHC halibut survey, and expected impacts from SRPs and LOAs.							
	3.0	3.0	0.1	3.8	3.6	3.0	3.0
Non-EFP Total	173.7	44.0	3.4	181.9	77.4	260.4	20.0
EFPs e/							
EFP Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	173.7	44.0	3.4	181.9	77.4	260.4	20.0
2008 High OY Alt	218	44.0	8.0	229	100	368	20
Difference	44.3	0.0	4.6	47.2	22.6	107.6	0.0
Percent of OY	79.7%	99.9%	42.5%	79.4%	77.4%	70.8%	99.8%
Key	= either not applicable; trace amount (<0.01 mt); or not reported in available data						

a/ South of 40°10' N. lat.

b/ Mortality estimates are not hard numbers; based on the GMT's best professional judgement.

c/ Bycatch amounts by species unavailable, but bocaccio occurred in 0.1% of all port samples and other rockfish in another 0.1% of all port samples (and squid fisheries usually land their whole catch). In 2001, out of 84,000 mt total landings 1 mt was groundfish. This suggests that total bocaccio was caught in trace amounts.

d/ Values for yelloweye in California represent specified harvest guidelines.

e/ Values are proposed EFP bycatch caps, not estimates of total mortality. The EFP is terminated inseason if the cap is projected to be attained

Estimated Total Mortality Impacts For 2007 LOW OY ALT - April 2006 Council Meeting

4/12/2006 13:48

Fishery	Bocaccio a/	Canary	Cowcod	Dkbl	POP	Widow	Yelloweye
Limited Entry Trawl- Non-whiting	10.0	5.0	3.2	113.7	32.9	0.3	0.1
Limited Entry Trawl- Whiting							
At-sea whiting motherships				3.3	0.5	66.9	
At-sea whiting cat-proc		3.0		4.5	1.5		
Shoreside whiting				3.7	0.9		
Tribal whiting		1.6		0.0	0.6	6.1	0.0
Tribal							
Midwater Trawl		1.8		0.0	0.0	40.0	0.0
Bottom Trawl		0.8		0.0	3.7	0.0	0.0
Troll		0.5		0.0	0.0		0.0
Fixed gear		0.3		0.0	0.0	0.0	2.3
Limited Entry Fixed Gear	2.8	0.8	0.1	0.9	0.2	0.2	1.4
Open Access: Directed Groundfish	2.2	1.9	0.1	0.1	0.1	0.0	1.4
Open Access: Incidental Groundfish							
CA Halibut	0.1	0.1		0.0	0.0		
CA Gillnet b/	0.5			0.0	0.0	0.0	
CA Sheephead b/				0.0	0.0	0.0	0.0
CPS- wetfish b/	0.3						
CPS- squid c/							
Dungeness crab b/	0.0		0.0	0.0	0.0		
HMS b/		0.0	0.0	0.0			
Pacific Halibut b/	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pink shrimp	0.1	0.1	0.0	0.0	0.0	0.1	0.1
Ridgeback prawn	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Salmon troll	0.2	1.6	0.0	0.0	0.0	0.3	0.2
Sea Cucumber	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spot Prawn (trap)							
Recreational Groundfish d/							
WA							3.2
OR		5.5				0.5	
CA	20.7	6.0	0.5			2.7	1.8
Research: Includes NMFS trawl shelf-slope surveys, the IPHC halibut survey, and expected impacts from SRPs and LOAs.							
	3.0	3.0	0.1	3.8	3.6	3.0	2.0
Non-EFP Total	40.0	32.0	4.0	130.0	44.0	120.1	12.6
EFPs e/							
EFP Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	40.0	32.0	4.0	130.0	44.0	120.1	12.6
2008 Low OY Alt	40	32.0	4.0	130	44	120	12.6
Difference	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percent of OY	100.0%	99.9%	100.0%	100.0%	100.1%	100.0%	99.7%
Key	= either not applicable; trace amount (<0.01 mt); or not reported in available data						

a/ South of 40°10' N. lat.

b/ Mortality estimates are not hard numbers; based on the GMT's best professional judgement.

c/ Bycatch amounts by species unavailable, but bocaccio occurred in 0.1% of all port samples and other rockfish in another 0.1% of all port samples (and squid fisheries usually land their whole catch). In 2001, out of 84,000 mt total landings 1 mt was gr

d/ Values for yelloweye in California represent specified harvest guidelines.

e/ Values are proposed EFP bycatch caps, not estimates of total mortality. The EFP is terminated inseason if the cap is projected to be attained

Estimated Total Mortality Impacts For 2008 LOW OY ALT - April 2006 Council Meeting

4/12/2006 13:49

Fishery	Bocaccio a/	Canary	Cowcod	Dkbl	POP	Widow	Yelloweye
Limited Entry Trawl- Non-whiting	10.0	5.0	3.2	113.7	32.9	0.3	0.1
Limited Entry Trawl- Whiting							
At-sea whiting motherships				3.3	0.5	66.9	
At-sea whiting cat-proc		3.0		4.5	1.5		
Shoreside whiting				3.7	0.9		
Tribal whiting		1.6		0.0	0.6	6.1	0.0
Tribal							
Midwater Trawl		1.8		0.0	0.0	40.0	0.0
Bottom Trawl		0.8		0.0	3.7	0.0	0.0
Troll		0.5		0.0	0.0		0.0
Fixed gear		0.3		0.0	0.0	0.0	2.3
Limited Entry Fixed Gear	2.8	0.8	0.1	0.9	0.2	0.2	1.4
Open Access: Directed Groundfish	2.2	1.9	0.1	0.1	0.1	0.0	1.4
Open Access: Incidental Groundfish							
CA Halibut	0.1	0.1		0.0	0.0		
CA Gillnet b/	0.5			0.0	0.0	0.0	
CA Sheephead b/				0.0	0.0	0.0	0.0
CPS- wetfish b/	0.3						
CPS- squid c/							
Dungeness crab b/	0.0		0.0	0.0	0.0		
HMS b/		0.0	0.0	0.0			
Pacific Halibut b/	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pink shrimp	0.1	0.1	0.0	0.0	0.0	0.1	0.1
Ridgeback prawn	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Salmon troll	0.2	1.6	0.0	0.0	0.0	0.3	0.2
Sea Cucumber	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spot Prawn (trap)							
Recreational Groundfish d/							
WA							3.2
OR		5.5				0.5	
CA	20.7	6.0	0.5			2.7	1.8
Research: Includes NMFS trawl shelf-slope surveys, the IPHC halibut survey, and expected impacts from SRPs and LOAs.							
	3.0	3.0	0.1	3.8	3.6	3.0	2.0
Non-EFP Total	40.0	32.0	4.0	130.0	44.0	120.1	12.6
EFPs e/							
EFP Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	40.0	32.0	4.0	130.0	44.0	120.1	12.6
2008 Low OY Alt	40	32.0	4.0	130	44	120	12.6
Difference	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percent of OY	100.0%	99.9%	100.0%	100.0%	100.1%	100.0%	99.7%
Key	= either not applicable; trace amount (<0.01 mt); or not reported in available data						

a/ South of 40°10' N. lat.

b/ Mortality estimates are not hard numbers; based on the GMT's best professional judgement.

c/ Bycatch amounts by species unavailable, but bocaccio occurred in 0.1% of all port samples and other rockfish in another 0.1% of all port samples (and squid fisheries usually land their whole catch). In 2001, out of 84,000 mt total landings 1 mt was groundfish. This suggests that total bocaccio was caught in trace amounts.

d/ Values for yelloweye in California represent specified harvest guidelines.

e/ Values are proposed EFP bycatch caps, not estimates of total mortality. The EFP is terminated inseason if the cap is projected to be attained

Attachment 4

Status Quo State Recreational Catch Sharing for Canary and Yelloweye Alternatives

Canary	2007		2007 HGs		2008		2008 HGs	
	High	Low	High	Low	High	Low	High	Low
OY	44	32			44	32		
Rec	17.6	11.5			17.6	11.5		
WA	1.7	1.1	8.4	5.5	1.7	1.1	8.4	5.5
OR	6.7	4.4			6.7	4.4		
CA	9.2	6.0	9.2	6.0	9.2	6.0	9.2	6.0

Yelloweye	2007		2007 HGs		2008		2008 HGs	
	High	Low	High	Low	High	Low	High	Low
OY	23	12.6			20	12.6		
Rec	10.4	5.0			9.0	5.0		
WA	3.5	1.7	6.7	3.2	3.0	1.7	5.8	3.2
OR	3.2	1.5			2.8	1.5		
CA	3.7	1.8	3.7	1.8	3.2	1.8	3.2	1.8

Attachment 5

Figure 1: Median rebuilding times anticipated under alternative harvest rate strategies in the 2009-2010 fishing year.

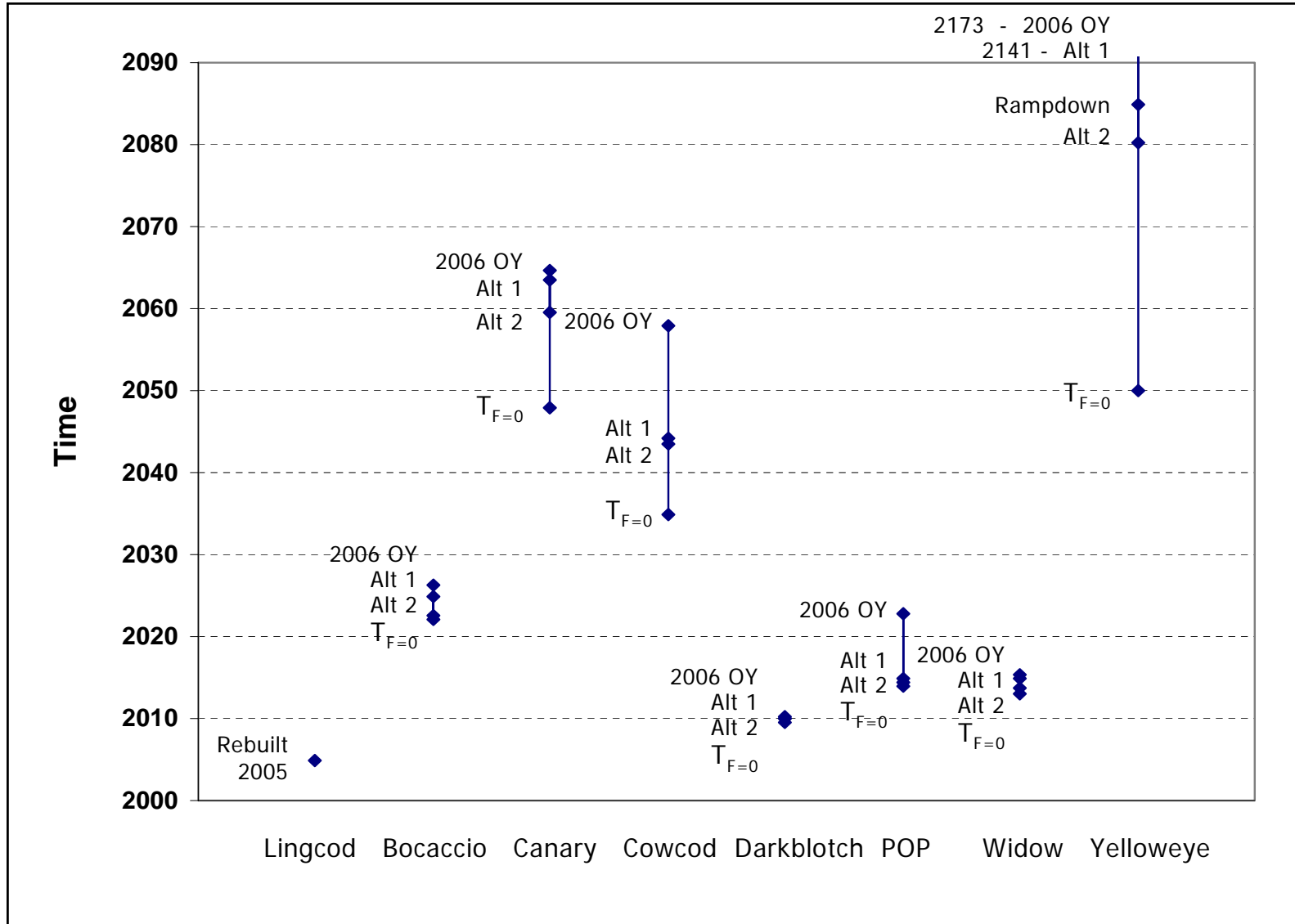


Table: Impacts on estimated rebuilding times projected from 2007-2008 OY Alternatives for rebuilding species

	OY Alternatives			Time to rebuild				Increase (in years) from $T_{F=0}$ ^a			Difference between Alt. 2 and 1
	status quo	2007-2008 Alternatives		F=0 from	status quo	2007-2008 Alternatives		status quo	2007-2008 Alternatives		
	2006 OY	Alt. 1	Alt. 2	2007-2008	(2006 OY)	Alt. 1	Alt. 2	(2006 OY)	Alt. 1	Alt. 2	
Bocaccio	309	40	218	2022	2026.2	2022.5	2025.0	4.2	0.5	3	2.5
Canary	47	32	44	2048	2064.6	2059.5	2063.6	16.6	11.5	15.6	4.1
Cowcod	4.2	4	8	2035	2044.1	2043.6	2057.9	9.1	8.6	22.9	14.3
Darkblotched	200	130	229	2009.5	2010.1	2009.9	2010.2	0.6	0.4	0.7	0.3
POP	447	44	100	2014	2022.8	2014.4	2015.0	8.8	0.4	1	0.6
Widow	289	120	368	2013	2014.9	2013.8	2015.4	1.9	0.8	2.4	1.6
Yelloweye ^b	27	12.6	23	2050	2173.4	2080.2	2141.2	123.4	30.2	91.2	61

Research catches impacts (if not included within the OY)

	Research catch		Increase in rebuild time	
	2005	2006	2005	2006
Bocaccio	1.7	2	<0.1	<0.1
Canary	2.3	3	0.8	1.1
Cowcod	0.1	0.1	0.1	0.1
Darkblotched	2.1	3.8	<0.1	<0.1
POP	1.8	3.6	<0.1	<0.1
Widow	1.1	0.9	<0.1	<0.1
Yelloweye*	0.6	2	0.3	1.6

a/ $T_{F=0}$ represents the estimated year that the stock would be rebuilt if there were no fishing beginning in 2007.

b/ The expected increase in the time to rebuild under the rampdown approach (23 mt in 2007 to 13.5 in 2011) would be approximately 35 years from $T_{F=0}$.

c/ Values not taken directly from rebuilding runs are interpolated, and subject to modest uncertainty.