GROUNDFISH MANAGEMENT TEAM STATEMENT ON VERMILION ROCKFISH STOCK ASSESSMENT STATUS

There are several species for which assessments are being attempted and/or presented to Stock Assessment Review (STAR) Panels for the first time in 2005. There is uncertainty about whether any of these assessment efforts will lead to STAR-Panel approved assessment models. Given the costs associated with holding a STAR panel, the Groundfish Management Team believes that all authors should be provided with the opportunity to bring forward their best effort at developing an assessment model for their species. If a STAR Panel concludes the available data are inadequate to support a scientifically sound assessment, it is their prerogative to forward that recommendation.

PFMC
04/04/05

Agenda Item B.1.b
Supplemental SSC Report
April 2005

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON VERMILION ROKFISH STOCK ASSESSMENT STATUS

At the March Council meeting, the Scientific and Statistical Committee (SSC) reviewed information provided by Dr. Alec MacCall summarizing previously unavailable 1970's California commercial passenger fishing vessel size composition data for vermilion rockfish. Dr. MacCall reported that these new data now make a conventional length-based assessment of vermilion rockfish feasible and are likely to produce results that can be used for fishery management. The SSC concurs and recommends that a full stock assessment be attempted.

For species not previously assessed, it is often not possible to know in advance if a full stock assessment will be feasible. Once a decision is made to conduct a stock assessment, the assessment should be developed to the extent possible and presented to the Stock Assessment Review (STAR) Panel for evaluation. Even analyses that do not result in a full stock assessment will produce a data summary useful for management and identify data gaps that need to be filled to develop a full assessment. The decision on whether or not the assessment is adequate for management should be made by the STAR Panel and, if necessary, the SSC.

PFMC
04/04/05

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON INSEASON MANAGEMENT RESPONSE POLICY

The Groundfish Advisory Subpanel (GAP) reviewed the proposed policy on groundfish inseason adjustments and came to the same conclusion that it reached on this issue at the March 2005, Council meeting.

The GAP agrees that March is too early to allow increases in commercial groundfish cumulative limits or recreational seasons and bag limits, absent a data or modeling error. However, by April, sufficient data exists to begin making adjustments, especially since increases could provide benefits to the early summer fishery in May and June. The GAP reminds the Council of the problem that occurred in 2004 with an early increase in slope rockfish and excessive darkblotched rockfish catches resulted from a monitoring problem, not a cumulative limit problem. The Groundfish Management Team (GMT) has already taken steps to rectify the monitoring problem, and the GAP supports this effort.

As a further example, the Council will immediately be faced, under Agenda Items B.6 and B.7, with potential exceptions to the policy: a request to liberalize California recreational seasons and a request to fix (finally) a data problem involving slope rockfish in northern California that has been controversial for at least two years. As we will discuss further under those agenda items, both of these changes are warranted based on new data and both meet the National Standard 1 goal of achieving the optimum yield. Yet, a strict application of the proposed policy would preclude both of these changes, thereby causing hardship for fishermen, processors, and local coastal communities.

The Council has engaged in conservative management for a number of years; and while the GAP has not always agreed with the degree of conservatism, the Council cannot be accused of refusing to take necessary management measures. If an inseason increase is not warranted, we expect the GMT will not recommend, it and the Council will not approve it. However, we do not believe a blanket policy of this type that can cause hardship to many users is necessary.

PFMC
04/05/05

Agenda Item B.2.b
Supplemental GMT Report
April 2005

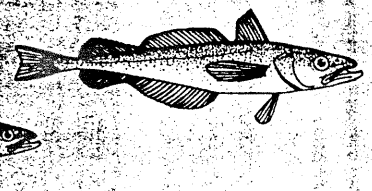
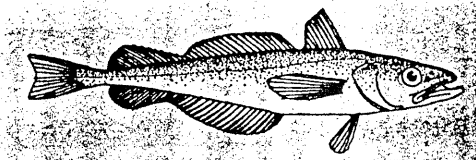
GROUNDFISH MANAGEMENT TEAM REPORT ON INSEASON MANAGEMENT RESPONSE POLICY

The Groundfish Management Team (GMT) looks forward to clarification by the Council regarding their preferred option for the development of an inseason management policy. In anticipation of this clarification, the GMT interprets the Council's intent to be that management measures should not be liberalized based on new information until the June Council meeting, unless such measures are necessary to rectify technical mistakes or non-trivial errors in data, model, or model results that may have resulted in overly constraining management measures. This intent was based, in part, on the GMT's recommendations to the Council in November 2004, and the Ad Hoc Groundfish Information Policy Committee (GIPC) also concluded that this would be a sound policy for the Council to consider. The motion adopted by the Council was that "Management measures should not be liberalized until the June Council meeting at the earliest, unless data errors or model errors warrant earlier consideration" (Council motion, March 2005).

Inseason actions that are proposed based on new or updated data or analysis would require an exception to this policy, and the GMT recognizes that in limited, specific circumstances such exceptions could be warranted. For example, at the March meeting the Council suggested that inseason adjustments could be made to the California recreational groundfish fisheries in April 2005, in response to the release of the California Recreational Fishery Survey (CRFS) dataset. The GMT believes that the introduction of CRFS, a new recreational catch accounting methodology, in the middle of a management cycle is a unique situation. Therefore, potential inseason adjustments to California recreational fishery management measures have been deliberated by the GMT in anticipation of allowances being made for such exceptions.

Although the GMT continues to support a policy that would not liberalize management measures prior to the June Council meeting, the GMT also recognizes that the Council may wish to maintain some level of flexibility to make adjustments throughout various phases of the management cycle. The complex nature of groundfish management in recent years continues to result in unpredictable results and ongoing tuning of seasonal and area closures, trip limits, and other routine management measures continue to be necessary to balance both conservation and economic objectives. Any such adjustments are intended to adjust the trajectories of landings towards the optimum yield set in the management specifications. The GMT looks forward to receiving final clarification on the inseason management policy from the Council.

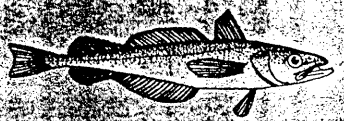
PFMC
04/05/05

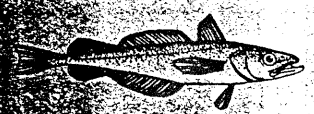



2004 WOC GROUNDFISH

Daily Fishing and Cumulative Production

LOGBOOK





(for catcher/processors over 125' in length;
and for catcher boats delivering to processing vessels)

Vessel Name
WOC Groundfish Permit No.

Starting Date
Ending Date

Steve Freese
B.3.a

PLEASE READ: **The Daily Fishing and Cumulative Production Logbook has been prepared by the National Marine Fisheries Service (NMFS) in conjunction with the Pacific Fishery Management Council. This log is for use by operators of catcher/processor vessels greater than 125 feet in length, or of catcher vessels that deliver to processing vessels. All catcher vessels must have a valid Federal groundfish permit (with the appropriate gear endorsement) to harvest groundfish off the coasts of Washington, Oregon and California (WOC). Maintenance and submission of these logs currently are voluntary. The information will be used to confirm, and occasionally supplement, observer data, and may be used for other analyses. These logs will be required in the future; your comments and suggestions are encouraged. Logbook information will remain confidential, although NMFS may release aggregated logbook data that do not identify individual vessels.**

Submit copies of logbooks to:

National Marine Fisheries Service
Northwest Region - F/NWO2
Fisheries Management Division
7600 Sand Point Way N.E.
Seattle, WA 98115

Phone: 206-526-6140
Fax: 206-526-6736

LOGBOOK MAINTENANCE

1. The operator of a catcher or catcher/processor vessel must retain the original copy of this logbook on board the vessel until the end of the fishing year and for as long after the end of the fishing year as fish or fish products recorded in the logbook are retained on board that vessel.

2. No person may remove any original page of the logbook. Information recorded in the logbook must be made in indelible ink. No person may alter or change any entry in the logbook except that an inaccurate or incorrect entry may be corrected by single-lining out the original and inserting the correction, provided that the original entry or record remains legible.

INSTRUCTIONS FOR THE WOC START AND STOP REPORTS*

The WOC Start and Stop Report is required of all permitted processing vessels, and must record the following information on a periodic basis:
The WOC Start and Stop Report must be completed and submitted via fax to Northwest Region Fax: 206-526-6736 within 24 hours of the initiation of fishing, receiving fish, or processing groundfish, and at least 24 hours prior to leaving the WOC.

1. The full vessel name, Federal Fishing Permit for the WOC groundfish fishery and the international radio call sign must be recorded.

2. The current date (year-month-day) and time (local time).

3. The current position in geographical coordinates.

4. The WOC reporting area (670, 710, 720, 730, or 740).

* Notwithstanding any other provision of the law, no person is required to respond to, no shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number. Public reporting burden for this collection of information is estimated to average approximately 1 minute per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the National Marine Fisheries Service - Northwest Region, Fisheries Management Division, 7600 Sand Point Way NE, Seattle WA 98115. OMB Number: 0648-0271. Expiration Date: 08/31/03. This data collection will be mandatory upon implementation of a final rule under 50 CFR 660, subpart G, and is confidential under Section 402(b) of the Magnuson-Stevens Fishery Conservation and Management Act.

INSTRUCTIONS FOR THE DAILY FISHING AND CUMULATIVE PRODUCTION LOGBOOK (DFCPL)*

The Daily Fishing and Cumulative Production Logbook (DFCPL) is required from all permitted vessels that process their own catch. Catcher vessels that deliver to a permitted processing vessel also are required to prepare the DFCPL except for section III. on production.

Entries in the DFCPL as to haul or set number, date, time, position, and estimated catch weight must be recorded within two hours after the completion of the applicable haul or set. All other information required in the DFCPL must be recorded by noon of the following day. Notwithstanding other time limits, all required information must be recorded prior to the time when the vessel's catch is off-loaded.

The operator of a catcher vessel or a catcher/processor vessel must submit the yellow copy of the DFCPL within 14 days after the vessel checks out of the fishery, or quarterly if the vessel does not check out of the fishery during the quarter to the Northwest Region of NMFS. The copy of the logbook for fishing and processing activities conducted during the first quarter of the year must be submitted by March 31, for the second quarter by June 30, for the third quarter by September 30, and for the fourth quarter by December 31 of the current year.

The DFCPL must record the following information on a daily basis:

1. The page number. This number must be consecutive beginning with page one for the first day the vessel conducted any fishing operation after the start of the fishing year in the WOC and continuing throughout the logbook for the remainder of the fishing year. A separate page in the logbook must be used for each day's fishing activity. If fishing activity is conducted with more than one gear type, or in more than one reporting area, or for more than one target species during any day, a separate page in the logbook must be used for each gear type, reporting area, or target species.

2. The date (year-month-day).

3. The vessel's full name.

4. The Federal permit number assigned for WOC groundfish fishery for the current year.

5. The three digit Federal WOC reporting area where the vessel is conducting fishing activity.

6. The gear type used by the vessel. See the list of codes at the end of this section.

7. The last name and first initial of the NMFS observer(s) on board or "none" if fishing without observer coverage.

8. The total number of the crew engaged for fishing and/or processing.

9. The signature of the operator of the vessel.

10. If the target species is <u>not</u> Pacific whiting, write the target species name next to the title at the top of the page.

I. Effort Log
The following information must be recorded for each haul or set, as appropriate to the gear type employed:

11. The haul or set number. This number must be consecutive beginning with number one for the first haul or set for the first day the vessel conducted any fishing operation after the start of the fishing year in the WOC and continuing throughout the logbook for the remainder of the fishing year.

12. The beginning time (24 hour clock, local time) of the haul or set, when the haul or set reaches fishing depth.

13. The beginning position in geographic coordinates of the vessel must be when the haul or set is at fishing depth.

14. The sea depth and trawl depth (in fathoms) at the beginning of the haul or set.

15. The ending time (24 hour clock, local time) of the haul or set when the winches begin to retrieve the haul or set.

16. The ending position of the vessel in geographic coordinates when the winches begin to retrieve the haul or set.

17. The total time of fishing is the duration of the trawl or set in whole minutes.

18. The number of hooks or pots must be the total amount of number of hooks or pots set at the beginning of the set.

19. The estimated total weight of the catch for the haul or set in round weight to the nearest tenth of a metric ton (0.1 mt).

20. Processor name. If for a catcher vessel's logbook, then enter the full name of the processing vessel receiving the catch. Otherwise, leave blank.

II. Catch Log
21. The species code must be the appropriate three digit WOC Federal species code. See the list of codes at the end of this section.

22. The discarded and retained weights are the total round weights of the catch to the nearest hundredth of a metric ton (0.01 mt) for that gear type, area, and day for each groundfish species or species group. If there are no discard amounts, enter zero (0).

23. Prohibited species. These species include all salmon, Pacific halibut and Dungeness crab off WOC. The whole number of individuals must be recorded for that area, gear type, and day. If no prohibited species are caught, enter zero (0).

24. The balance forward information must be the previous cumulative total catch weight for that gear type, week, and area. On the first day of the fishing week, the balance forward must be zero.

25. The cumulative total is calculated separately for each fishing week, so that on the first day of the fishing week, the balance forward is zero (0) and the cumulative total is the same as the daily total. Within the week, the cumulative total must be the sum of the current day's amount (of discarded or retained weight for groundfish and numbers for prohibited species) added to the balance forward from the previous day for that gear type, and area.

III. Production Log

The species product information for each day of processing activity which is the complete product information for all of the hauls or sets completed in that day by area and gear type. Fish product weight must be specified to the nearest hundredth of a metric ton (0.01 mt). Product information for groundfish harvested from different reporting areas or with different gear types must be maintained separately during a weekly reporting period. Product information must include the following information for any product resulting from the processing of any groundfish species or species group with a WOC species code.

26. The species codes and corresponding product codes as they apply to primary and ancillary products. Precede the product code with "P" for primary product and "A" for Ancillary products . (Ancillary products are secondary products from a fish that was used primarily for a different product.)

27. The average PRR (product recovery weight) for each major product listed for the species and product codes above it on the DFCPL.

28. The daily total. The total amount of the product produced during the day by species and product codes in product weight to the nearest hundredth of a metric ton (0.01 mt).

29. The balance forward of the total product produced during the reporting week for that area and gear type. The balance forward is zero (0) on the first day of the fishing week.

30. The cumulative total product by species and product type must be the sum of the daily total product, for that gear type and area, added to the balance forward for the same gear type and area.

* Notwithstanding any other provision of the law, no person is required to respond to, no shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number. Public reporting burden for this collection of information is estimated to average approximately 13 minutes per response for catcher vessels and 26 minutes per response for catcher/processors, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the National Marine Fisheries Service - Northwest Region, Fisheries Management Division, 7600 Sand Point Way NE, Seattle WA 98115. OMB Number: 0648-0271. Expiration Date: 08/31/03. This data collection will be mandatory upon implementation of a final rule under 50 CFR 660, subpart G, and is confidential under Section 402(b) of the Magnuson-Stevens Fishery Conservation and Management Act.

INSTRUCTIONS FOR THE WEEKLY PRODUCTION REPORT

The Weekly Production Report (WPR) is required from all permitted processing vessels.
The WPR must be completed and submitted via fax or telex to the Northwest Region, NMFS (Fax: 206-526-6736) by Thursday at 2400 hours local time, 48 hours after the end of the fishing week. The fishing week begins Wednesday at 0001 hours and ends on the following Tuesday at 2400 hours local time. The WPR is divided into two sections for entries of multiple gear types and areas during the weekly reporting periods. Extra WPR forms may be used if more than two sections are required. If a catcher/processor harvests and receives catch from a catcher vessel during the same week, a separate weekly report must be submitted for each operation. If a vessel fishes for or receives a target species other than Pacific whiting, a separate weekly report must be submitted with the name of the target species written at the top of the weekly report form.

The DFCPL and DRCPL are the basis for all the information in the WPR. The WPR must include the following information on a weekly basis:

1. The full vessel name, Federal Fishing Permit for WOC the groundfish fishery and the international radio call sign must be recorded.

2. The week ending date (year-month-day) for the reporting week. The reporting week starts on Wednesday and ends on Tuesday at midnight (23 hours 59 minutes, local time).

3. The submitter's legal name, contact phone number and fax or telex number.

4. The WOC reporting area (670, 710, 720, 730, or 740).

5. The gear type. See the list of codes at the end of this section.

6. The total number of days fished or received fish from a harvesting vessel, to the nearest full day by area and gear type. Any fishing activity or receipt of fish during a day constitutes a full day.

7. The total number of harvesting vessels which delivered to the processor during the week, by area and gear type. A catcher/processor vessel which does not receive outside tows must enter zero (0) in this cell. If a catcher/processor harvests and receives catch from a catcher vessel during the reporting week, then both the DFCPL and DRCPL logbooks would be used and separate WPRs would be submitted from each log.

8. The total number of hauls or sets made or received during the reporting period by area and gear type.

9. Prohibited species. The prohibited species of salmon, Pacific halibut and Dungeness crab must be recorded as the whole number of individuals caught or received during the reporting week by area and gear type.

10. The species code must be the appropriate three digit WOC Federal species code for the total catch for that WOC reporting area, gear type and fishing day. See the list of codes at the end of this section.

11. The retained weight information must be the total round weight of the retained catch to the nearest hundredth metric ton (0.01 mt) for that gear type, area and reporting week. The cumulative total weight information for the full reporting week must be equal to the retained round weight for the

reporting week by gear type and area.

12. The species codes and corresponding product codes to the nearest hundredth of a metric ton (0.01 mt), by gear type and area. See the list of codes at the end of this section. Ancillary product codes must be preceded by the letter "A", primary product code must be preceded by the letter "P". If the product is to be set aside for foodbank donation, the code "D" should be used.

13. The average PRR (product recovery ratio) for each major product listed during that weekly recording period.

14. The weekly total product weight. The total amount of each product produced during the week, by area, gear type, species and product type, in product weight to the nearest hundredth of a metric ton (0.01 mt).

* Notwithstanding any other provision of the law, no person is required to respond to, no shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number. Public reporting burden for this collection of information is estimated to average approximately 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the National Marine Fisheries Service - Northwest Region, Fisheries Management Division, 7600 Sand Point Way NE, Seattle WA 98115. OMB Number: 0648-0271. Expiration Date: 08/31/03. This data collection will be mandatory upon implementation of a final rule under 50 CFR 660, subpart G, and is confidential under Section 402(b) of the Magnuson-Stevens Fishery Conservation and Management Act.

INSTRUCTIONS FOR THE PRODUCT TRANSFER/OFFLOADING LOGBOOK

The Product Transfer/Offloading Logbook is required of all permitted processing vessels, and must be submitted as follows:
The duplicate copy of the Product Transfer/Offloading log must be submitted to Northwest Region of NMFS within 14 calendar days after the vessel leaves the fishery, or the fishery is closed. Duplicate pages of the logs must be faxed, sent by mail or hand-delivered.

The Product Transfer/Offloading Logbook must record the following information on a periodic basis:
The Product Transfer/Offloading Logbook will be maintained for each transfer or offloading of WOC groundfish in the EEZ, outside the EEZ, or within the boundaries of any State. All required data must be recorded within 12 hours of the completion of the transfer.

1. The page number. This number must be consecutive beginning with page one for the first day the vessel conducted any fishing operation after the start of the fishing year in the WOC and continuing throughout the logbook for the remainder of the fishing year. A separate page in the logbook must be used for each day a transfer or offload occurs.

2. The full name of the transferring vessel, Federal Fishing Permit for WOC the groundfish fishery and the current date (year-month-day) and time (Pacific Standard Time).

3. The full name of the receiving vessel or facility, Federal Fishing Permit for WOC the groundfish fishery, the transfer or offload position in geographical coordinates, and the intended port destination.

4. The WOC reporting area (670, 710, 720, 730, or 740).

5. Fish or fish products retained in excess of trip limits under the *Bycatch Reduction and Full Utilization Program for At-sea Processors* 50 CFR 660.323 (a)(3)(vi), whether donated to a hunger relief agency or converted to meal, must be entered separately on the PTOL so that it is distinguishable from fish or fish products that are retained under trip limits.

6. If fish are donated to a hunger relief agency, the column for total value must have either a value of "0" or "donation," followed by the name of the hunger relief agency receiving the fish.

* Notwithstanding any other provision of the law, no person is required to respond to, no shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number. Public reporting burden for this collection of information is estimated to average approximately 20 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the National Marine Fisheries Service - Northwest Region, Fisheries Management Division, 7600 Sand Point Way NE, Seattle WA 98115. OMB Number: 0648-0271. Expiration Date: 08/31/03. This data collection will be mandatory upon implementation of a final rule under 50 CFR 660, subpart G, and is confidential under Section 402(b) of the Magnuson-Stevens Fishery Conservation and Management Act.

GROUNDFISH SPECIES CODES

ROUNDFISH:

280	***Pacific whiting***
110	Pacific cod
130	Lingcod
710	Sablefish

FLATFISH:

121	Arrowtooth flounder
124	Dover sole
128	English sole
131	Petrale sole
125	Rex sole
123	Rock sole
129	Starry flounder
120	Other flatfish

ROCKFISH:

137	Bocaccio rockfish
146	Canary rockfish
176	Chilipepper RF
141	Pacific ocean perch
177	Shortbelly RF
143	Thornyhead RF
156	**Widow rockfish**
155	**Yellowtail RF**
139	Other rockfish

OTHER:

100	Other groundfish: cabezon, ratfish, morids, and grenadiers.
999	Other species: invertebrates and miscellaneous items.

NON-GROUNDFISH:

285	Pacific sardine
290	Jack mackerel
295	Pacific mackerel

LOG BOOK CODES

PRODUCT TYPE CODES [1]

1	Whole fish/food fish
2	Whole bait
3	Bled only
4	Gutted only
5	Headed and gutted (H & G)
6	H & G with roe
7	H & G, Western cut
8	H & G, Eastern cut
9	H & G, with pectoral girdle
10	H & G, tail removed
11	Kirimi
12	Salted and split
13	"Wings"
14	Roe only
15	Pectoral girdle only
16	Heads
17	Cheeks and chins
19	Belly flaps
20	Fillets with skin and ribs
21	Fillets with skin, no ribs
22	Fillets with ribs, no skin
23	Fillets, no skin or ribs
24	Fillets, deep-skin
30	**Surimi**
31	**Minced fish**
32	**Fish meal**
33	**Fish oil**
34	Milt
35	Stomachs (organ)
36	Octopus/squid mantles
37	Split, no backbone
39	Bones
97	Other - specify

GEAR TYPE CODES [2]

BTR	Bottom trawl
PTR	**Pelagic trawl**
BOB	Bobbin or roller trawls
HKL	Hook and line or longline
POT	Pots or traps

1/ Main products should be recorded with a "P". Additional (ancillary) products from the same fish should be recorded with the appropriate product code preceded by the letter "A" (EXAMPLE: A32 is meal from a fish whose main product has already been recorded.) If the fish is to be set aside for fookbank donation, a "D" should also be used.

2/ See current regulations at 50 CFR Part 660, subpart G for legal definitions of gear and gear restrictions. (Available from the Northwest Region, NMFS).

PROHIBITED SPECIES CODES:

(codes not required to be entered in logs)

101	Pacific halibut
220	Non-chinook salmon
222	Chinook salmon

INPFC STATISTICAL AREAS IN THE US EEZ

OFF WASHINGTON, OREGON, AND CALIFORNIA

US-Canada border

VANCOUVER (area 670)

47d30' N lat.

Columbia River Salmon Conservation Zone

COLUMBIA (area 710)

43d00' N lat.

EUREKA (area 720)

Klamath River Salmon Conservation Zone

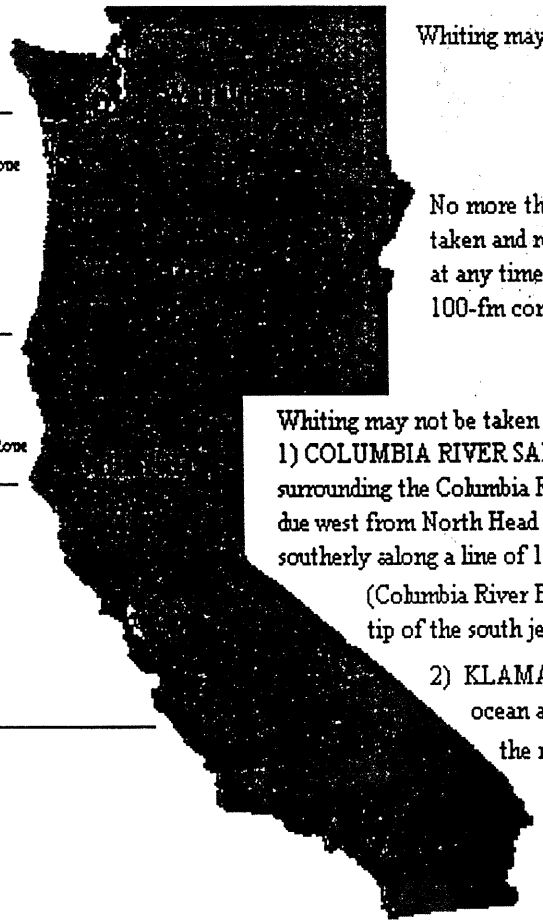
40d30' N lat.

MONTEREY (area 730)

36d00' N lat.

CONCEPTION (area 740)

US-Mexico border



Whiting may not be processed at sea south of 42 d N lat.

No more than 10,000 lb (4,536 kg) of whiting may be taken and retained, possessed, or landed by a vessel that, at any time during a fishing trip, fished shoreward of the 100-fm contour in the Eureka area

Whiting may not be taken and retained in the following areas:

1) COLUMBIA RIVER SALMON CONSERVATION ZONE: The ocean area surrounding the Columbia River mouth bounded by a line extending for 6 nm due west from North Head along 46d18' N lat. to 124d13'18" W long., then southerly along a line of 167 True to 46d11'06" N lat. and 124d11' W long. (Columbia River Bouy), then northeast along Red Bouy Line to the tip of the south jetty.

2) KLAMATH RIVER SALMON CONSERVATION ZONE: The ocean area surrounding the Klamath river mouth bounded on the north by 41d38'48" N lat. (approx. 6 nm north of the Klamath river mouth) on the west by 124d23'W long. (approx. 12 nm from shore), and on the south by 41d26'48' N lat. (approx. 6 nm south of the Klamath river mouth).

DAILY FISHING AND CUMULATIVE PRODUCTION LOGBOOK (DFCPL)

PAGE	YEAR-MNTH-DAY	VESSEL NAME	WOC PERMIT NUMBER	AREA	GEAR	OBSERVER NAME	NUMBER CREW	OPERATOR'S SIGNATURE
001	00 05 24	Mega Dragger	GF 0 0 0 0	7 1 0	PTR	I.R. Sampling R.U. Sleeping	Fishing: 10 Processing: 80	William Bligh

Estimated catch weight to the nearest 0.1 mt — EFFORT LOG

HAUL/ SET	BEGIN TIME	BEGINNING POSITION LATITUDE	BEGINNING POSITION LONGITUDE	SEA DEPTH	TRAWL DEPTH	ENDING TIME	ENDING POSITION LATITUDE	ENDING POSITION LONGITUDE	TOTAL TIME	#HOOKS or POTS	ESTIMATED CATCH WT.	PROCESSOR NAME
1	0001	4700	12603	122	68	0300	4702	12601	179	N/A	60.00	Hornet Nest
2	0400	4705	12600	106	70	0700	4703	12601	180	N/A	50.00	Mamma Boat
3	0800	4703	12601	110	70	1030	4701	12602	150	N/A	72.00	Hornet Nest

SAMPLE CATCHER VESSEL LOGBOOK

Round weight to the nearest 0.01 mt — CATCH LOG

SPECIES CODE									PROHIBITED SPECIES			
RETAINED WEIGHT												
BALANCE FORWARD									Number Caught			
CUMULATIVE TOTAL WT.									Balance Forward			
RETAINED WEIGHT									Cumulative Total No.			
BALANCE FORWARD												
CUMULATIVE TOTAL WT.												

Product weight to the nearest 0.01 mt — PRODUCTION LOG

SPECIES CODE											
PRODUCT TYPE											
NUMBER OF PIECES											
WEIGHT TOTAL											
BALANCE FORWARD											
CUMULATIVE TOTAL											

OMB Number: 0648-02[illegible] Expiration Date: 06/30/00.

DAILY FISHING AND CUMULATIVE PRODUCTION LOGBOOK (DFCPL)

PAGE	YEAR-MNTH-DAY	VESSEL NAME	WOC PERMIT NUMBER	AREA	GEAR	OBSERVER NAME	NUMBER CREW	OPERATOR'S SIGNATURE
001	00 05 24	Mega Dragger	GF.0000	710	PTR	I.R. Sampling R.U. Sleeping	Fishing: 10 Processing: 80	William Bligh

Estimated catch weight to the nearest 0.1 mt — EFFORT LOG

HAUL/ SET	BEGIN TIME	BEGINNING POSITION LATITUDE	BEGINNING POSITION LONGITUDE	SEA DEPTH	TRAWL DEPTH	ENDING TIME	ENDING POSITION LATITUDE	ENDING POSITION LONGITUDE	TOTAL TIME	#HOOKS or POTS	ESTIMATED CATCH WT.	PROCESSOR NAME
1	0001	4700	12603	122	68	0300	4702	12606	179	N/A	140.00	
2	0400	4705	12600	106	70	0700	4703	12603	180	N/A	120.00	
3	0800	4703	12601	110	70	1030	4701	12602	150	N/A	110.00	

Round weight to the nearest 0.01 mt — CATCH LOG

SPECIES CODE	280	100	155	290	999			
DISCARDED WEIGHT	5.00	0.15	0.05	12.50	0.01			
BALANCE FORWARD	0	0	0	0	0			
CUMULATIVE TOTAL WT	5.00	0.15	0.50	12.50	0.50			
RETAINED WEIGHT	352.29	0	0	0	0			
BALANCE FORWARD	0	0	0	0	0			
CUMULATIVE TOTAL WT	352.29	0	0	0	0			

PROHIBITED SPECIES	Salmon	Halibut	Dung-Crab
Number Caught	1	0	0
Balance Forward	0	0	0
Cumulative Total No.	1	0	0

Product weight to the nearest 0.01 mt — PRODUCTION LOG

SPECIES CODE	280	280	280							
PRODUCT TYPE	P30	P 32	A 32							
AVERAGE PRR	20.00	12.00	12.00							
DAILY TOTAL	70.00	0.30	20.00							
BALANCE FORWARD	0	0	0							
CUMULATIVE TOTAL	70.00	0.30	20.00							

MB Number: 0648-0271. Expiration Date: 06/30/00.

WOC START & STOP NOTICE - OMB Number: 0648-0271. Expiration Date: 08/31//01.

VESSEL NAME	WOC FEDERAL PERMIT	RADIO CALL SIGN
	GF-	

START or **STOP** (Circle only one)

DATE			PACIFIC LOCAL TIME	START or STOP POSITION		WOC AREA
YR	MTH	DAY		LATITUDE	LONGITUDE	

Send to: Northwest Region, Fisheries Management Division, NMFS; 7600 Sand Point Way NE; Seattle WA 98115.

FAX: 206-526-6736 Phone: 206-526-6140

WOC GROUNDFISH WEEKLY PRODUCTION REPORT

WEEK ENDING YR-MNTH-DAY			VESSEL NAME	WOC PERMIT NUMBER	IRCS	PHONE NUMBER	FAX NUMBER	SUBMITTER'S FULL NAME
00	05	27	Mega Bounty	GF. 0000	WHAM	xxx-xxx-xxxx	xxx-xxx-xxxx	William Bligh

AREA	GEAR TYPE	No. DAYS PROCESSED	No. DELIVERY VESSELS	No. DELIVERIES	PROHIBITED SPECIES:		ALL SALMON SPECIES	PACIFIC HALIBUT	DUNGENESS CRAB
710	PTR	1	0	3	NUMBER CAUGHT AND DELIVERED:		1	0	0
SPECIES CODE	280	100	155	290	999				TOTAL WEIGHT
RETAINED ROUND WT	352.29	0	0	0	0				
DISCARDED ROUND	5.00	0.15	0.05	12.50	0.01				
SPECIES CODE		280	280	280					
PRODUCT TYPE		P30	P 32	A 32					
AVERAGE PRR		20.00	12.00	12.00					
WEEKLY PRODUCT WEIGHT		70.00	0.30	20.00					

AREA	GEAR TYPE	No. DAYS PROCESSED	No. DELIVERY VESSELS	No. DELIVERIES	PROHIBITED SPECIES:		ALL SALMON SPECIES	PACIFIC HALIBUT	DUNGENESS CRAB
					NUMBER CAUGHT AND DELIVERED:				
SPECIES CODE									TOTAL WEIGHT
RETAINED ROUND WT									
DISCARDED ROUND									
SPECIES CODE									
PRODUCT TYPE									
AVERAGE PRR									
WEEKLY PRODUCT WEIGHT									

OMB Number: 0648-0271. Expiration Date: 08/31/03.

PRODUCT TRANSFER/OFFLOADING LOGBOOK

PAGE	TRANSFERRING VESSEL NAME	WOC PERMIT NUMBER	YR-MTH-DAY	LOCAL TIME	OPERATOR'S SIGNATURE

RECEIVING COMPANY &/or VESSEL NAME	WOC FEDERAL PERMIT NUMBER	POSITION OF OFFLOAD		DESTINATION OF RECIPIENT (Name and location of port)
		LATITUDE	LONGITUDE	

Product weights to the nearest 0.001 mt

PRODUCT		UNIT			TOTAL	
SPECIES CODE	PRODUCT CODE	WEIGHT (Kg)	NUMBER	UNIT VALUE	WEIGHT (Kg)	VALUE

OMB Number 48-0271. Expiration Date: 08/31/03.

SSC Terms of Reference for Groundfish Rebuilding Analyses

Draft Revised Version
(Not Yet Fully Reviewed by the SSC)

1. Introduction

Amendment 11 to the Groundfish Fishery Management Plan (FMP) established a harvest control rule for determining optimum yields (OY). The 40:10 policy was designed to prevent stocks from falling into an overfished condition. Part of the amendment established a default overfished threshold equal to 25% of the unexploited population size[1] (B_0). By definition, groundfish stocks falling below that level are designated to be in an overfished state ($B_{25\%} = 0.25B_0$[2]). To prevent stocks from deteriorating to that point, the policy specified a precautionary threshold equivalent to 40% of B_0. At stock sizes less than $B_{40\%}$ the policy requires that OY, when expressed as a fraction of the allowable biological catch (ABC), be progressively reduced. Because of this linkage, $B_{40\%}$ has sometimes been interpreted to be a proxy measure of B_{MSY}, i.e., the stock biomass that results when a stock is fished at F_{MSY}. In fact, theoretical results support the view that a robust biomass-based harvesting strategy would be to simply maintain stock size at about 40% of the unfished level (Clark 1991, 2002). In the absence of a credible estimate of B_{MSY}, which can be very difficult to estimate (MacCall and Ralston, 2002), $B_{40\%}$ is a suitable proxy to use as a rebuilding target.

Under the Magnusson-Stevens Act it is required that rebuilding plans need to be developed for stocks that have been designed to be in an overfished state. Amendment 12 of the Groundfish FMP provided a framework within which rebuilding plans for overfished groundfish resources could be established. Amendment 12 was challenged in Federal District Court and found not to comply with the requirements of the Magnusson-Stevens Act because rebuilding plans did not take the form of an FMP, FMP amendment, or regulation. In response to this finding, the Council developed Amendment 16-1 to the Groundfish FMP which covered three issues. One of these was the form and content of rebuilding plans.

Rebuilding Plans need to include several components, one of which is a rebuilding analysis. Simply put, a rebuilding analysis involves projecting the overfished resource ahead under a variety of alternative harvest strategies to determine the probability of recovery to B_{MSY} (or its proxy $B_{40\%}$) within a pre-specified time-frame.

2. Overview of the calculations involved in a rebuilding analysis

The document presents guidelines for conducting a basic groundfish rebuilding analysis that meets the minimum requirements that have been established by the Council's Scientific and Statistical Committee (SSC) and those of Amendment 16-1 of the Groundfish FMP. These basic calculations are required of all rebuilding analyses to provide a standard set of base case computations, which can then be used to compare and standardize rebuilding analyses among stocks. The steps when conducting a rebuilding analysis are:

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[1] The absolute abundance of the mature portion of a stock is loosely referred to here in a variety of ways, including: population size, stock biomass, stock size, spawning stock size, spawning biomass, spawning output; i.e., the language used in this document is sometimes inconsistent and/or imprecise. However, the best fundamental measure of population abundance to use when establishing a relationship with recruitment is spawning output, defined as the total annual output of eggs (or larvae in the case of live-bearing species). Although spawning biomass is often used as a surrogate measure of spawning output, for a variety of reasons a non-linear relationship often exists between these two quantities (Rothschild and Fogarty 1989; Marshall *et al.* 1998). Spawning output should, therefore, be used to measure the size of the mature stock when possible.

[2] Estimates of stock status are typically obtained by fitting statistical models of stock dynamics to survey and fishery data. Although a variety of statistical models may be employed, they fall into two broad categories, likelihood models and Bayesian models. For both types of model, a stock is considered to be in an overfished state if the best point estimate of stock size is less than 25% of unfished stock size. For likelihood models, this corresponds to the maximum likelihood estimate (MLE), while for Bayesian models, this corresponds to maximum of the posterior density function (MPD).

1. Estimation of B_0 (and hence B_{MSY} or its proxy).
2. Selection of a method to generate future recruitment.
3. Specification of the mean generation time
4. Calculation of the minimum rebuilding time, T_{MIN}.
5. Calculation of the maximum possible rebuilding time, T_{MAX}.
6. Identification and analysis of alternative harvest strategies.

The specifications in this document have been implemented in a computer package developed by Dr André Punt (University of Washington)[3]. This package can be used to perform rebuilding analyses for routine situations. However, the SSC encourages analysts to explore alternative calculations and projections that may more accurately capture uncertainties in stock rebuilding than the standards identified in this document, and which may better represent stock-specific concerns. In the event of a discrepancy between the generic calculations presented here and a stock-specific result developed by an individual analyst, the SSC groundfish subcommittee will review the issue and recommend which projections to use.

The SSC also encourages explicit consideration of uncertainty, including comparison of alternative harvest strategies using decision tables to quantify the impact of model uncertainty (see Section 8 below).

3. Estimation of B_0

B_0 can be estimated empirically using the estimates of recruitment or estimated from the fit of some form of spawner-recruit model. For the purpose of estimating B_0 empirically, analysts have selected a sequence of years, within which recruitment is believed to be reasonably representative of the natality from an unfished stock. These recruitments, in association with estimates of growth, maturity, fecundity, and natural mortality, can then be used to calculate equilibrium unfished spawning output.

In selecting the appropriate temporal sequence of recruitments to use, investigators have generally utilized years in which stock size was relatively large, in recognition of the paradigm that groundfish recruitment is positively related to spawning stock size (Myers and Barrowman 1996). Moreover, due to the temporal history of exploitation in the west coast groundfish fishery (see Williams, 2002), this has typically led to consideration of the early years from an assessment model time series[4]. Thus, for example, in the case of widow rockfish the time period within which recruitments were selected was 1958–82 (He *et al.* 2003).

An alternative view of the recruitment process is that it depends to a much greater extent on the environment than on adult stock size. For example, the decadal-scale regime shift that occurred in 1977 (Trenberth and Hurrell 1994) is known to have strongly affected ecosystem productivity and function in both the California Current and the northeast Pacific Ocean

[3] Reference to the latest version of the documentation [**to come**].

[4] Individual recruitments estimated from age-structured stock assessment models do not all exhibit the same precision or accuracy. Recruitments estimated at the very beginning of the modeled time period may suffer from mis-specification of the initial condition of the population (e.g., an assumed equilibrium age structure). Likewise, recruitments estimated at the end of the sequence may be imprecise due to partial recruitment of recent year-classes. Thus it may be advisable to trim the beginning and/or ending year classes to address this problem.

(Roemmich and McGowan 1995; MacCall 1996; Francis *et al.* 1998; Hare *et al.* 1999). With the warming that ensued, west coast rockfish recruitment was probably affected adversely (Ainley *et al.* 1993; Ralston and Howard 1995). Thus, if recruitment is environmentally forced, it would be more sensible to use the full time series of recruitments from the stock assessment model to estimate B_0. These two explanatory factors are highly confounded, i.e., generally high biomass/favorable conditions prior to 1980 and low biomass/unfavorable conditions thereafter. Using all recruitments to estimate B_0 will therefore usually result in lower values for B_0 and the target spawning output than when an abbreviated series of recruitment taken from early in the time series is utilized for this purpose.

At this time there is no incontrovertible information with which to distinguish between these two alternatives. If oceanic conditions along the west coast have shifted to a productive cold regime following the La Niña event of 1999, we may soon have observations of recruitment produced during a favorable environmental period from groundfish stocks at low spawning biomass. If the environmental and density-dependent effects are additive, it should be possible to determine the relative importance of each of the two factors (e.g., Jacobson and MacCall 1995). In the interim, however, it would be prudent to favor calculations of B_0 that are based on an abbreviated time series of recruitments taken from a period when the stock was at a relatively high biomass and to favor the density-dependent hypothesis. Both theoretical and observational considerations support the belief that groundfish recruitment will decline with spawning output (e.g., Myers and Barrowman 1996; Brodziak *et al.* 2001). Still, it may be informative to contrast rebuilding analyses in which B_0 is based on the early recruitment (density-dependent/stock size hypothesis) with those in which B_0 is based on the entire time series of recruitments (i.e., the environmental hypothesis). This was, in fact, discussed as a possible alternative in the Panel Report produced by the West Coast Groundfish Harvest Rate Policy Workshop sponsored by the SSC in March, 2000 (**ref**). With both numbers available, it should be possible to evaluate the implications of each hypothesis for the calculation of stock reference points.

For each of these two methods, the actual distribution of B_0 can be approximated by re-sampling recruitments, from which the probability of observing any particular stock biomass can be examined under each hypothesis. This approach was taken in the original bocaccio rebuilding analysis (**ref**), where it was concluded that the first year biomass was unlikely to have occurred if the entire sequence of recruitments were used to determine B_0.

4. Selection of a method to generate future recruitment

Given the current state of the population from the most recent stock assessment (terminal year estimates of numbers-at-age and their variances) and the rebuilding target, one can project the population forward once how future recruitments are generated has been specified. There are several ways of generating future recruitment, but they fundamentally reduce to two basic kinds of approaches. These are: (1) base future recruitments on an empirical evaluation of spawner-recruit estimates and (2) use the results of a fitted spawner-recruit model (e.g., the Beverton-Holt or Ricker curves). To date, some rebuilding analyses have used empirical methods to generate future recruitment (e.g., cowcod, **ref**; widow rockfish, He *et al.* 2003; lingcod, Jagielo 2004; bocaccio, MacCall 2003; darkblotched rockfish, Rogers 2003), others have been based on the fit of a theoretical model to spawner-recruit data (e.g., yelloweye rockfish, Methot and Piner 2002a;

canary rockfish: Methot and Piner 2002b) and one rebuilding analysis used both of these approaches (e.g., Pacific Ocean Perch, Punt *et al.* 2003). Both of these approaches are acceptable when conducting rebuilding analyses although due consideration needs to be given to the advantages and disadvantages of each approach. Ideally, reference points obtained from both approaches (e.g., B_0, B_{MSY}, and F_{MSY}) should be compared to better delineate the actual extent of uncertainty associated with these quantities.

4.1. Empirical approaches

There are two ways to use empirical estimates of recruitment to generate future recruitment, both of which utilize contemporary recruitment estimates at the tail end of the time series (i.e., the most recent figures), and both of which form the basis for rebuilding analyses that have been accepted by the SSC.

(1) Recent recruitment is standardized to the size of the adult population (recruits-per-spawner; R/S_i). Annual R/S_i is then randomly resampled and multiplied by S_i to obtain year-specific stochastic estimates of R_i.

(2) Recent recruitment is randomly resampled to determine the year-specific stochastic estimates of R_i.

Note that use of R/S_i as the basis for projecting the population forward ties recruitment values in a directly proportional manner to stock size; if stock size doubles, resulting recruitment will double, all other things being equal. As the stock rebuilds this becomes an increasingly untenable assumption because there is no reduction in reproductive success at very high stock sizes, which is to say there is no compensation (i.e., steepness = 0.20)[5]. In contrast, resampling R_i values, errs in the opposite direction. Namely, recruitment does not increase as stock size increases, as would be expected of most rebuilding stocks. This type of calculation effectively implies perfect compensation (i.e. steepness = 1.00). Thus, these two ways of projecting the population forward (using re-sampled R_i or re-sampled R/S_i) includes a range of alternatives that is likely to encompass the real world.

Because stocks that have declined into an overfished condition are more likely to be unproductive (i.e., low steepness), in the absence of any other information, rebuilding projections based on re-sampling recruits-per-spawner are generally to be favored over projections based on absolute recruitment. Note that the implied lack of compensation in rebuilding projections using this method is not likely to be a serious liability over the long term because it is based on re-sampling contemporary recruits-per-spawner. As progress toward rebuilding is evaluated in the future, the set of R/S_i values used to generate future recruitment will be revised based on a new set of recent recruitments obtained from the latest stock assessment. The R/S_i series will tend to a lower mean value if the stock actually demonstrates a compensatory response during the course of rebuilding. Although projections based on R/S_i represent a standard default way of proceeding, projections that use absolute recruitments (R_i) would be quite useful in establishing the overall uncertainty in the rebuilding analysis by providing an alternative model specification scenario. Moreover, a credible argument that a stock is relatively productive, as evidenced perhaps by

[5] The "steepness" of a spawner-recruit curve is related to the slope at the origin and is a measure of a stock's productive capacity. It typically is expressed as the proportion of virgin recruitment that remains when a stock has been reduced to $B_{20\%}$.

observed high recruitment at low spawning biomass, may serve as a basis for favoring projections that utilize recent absolute recruitments (see Figure 1).

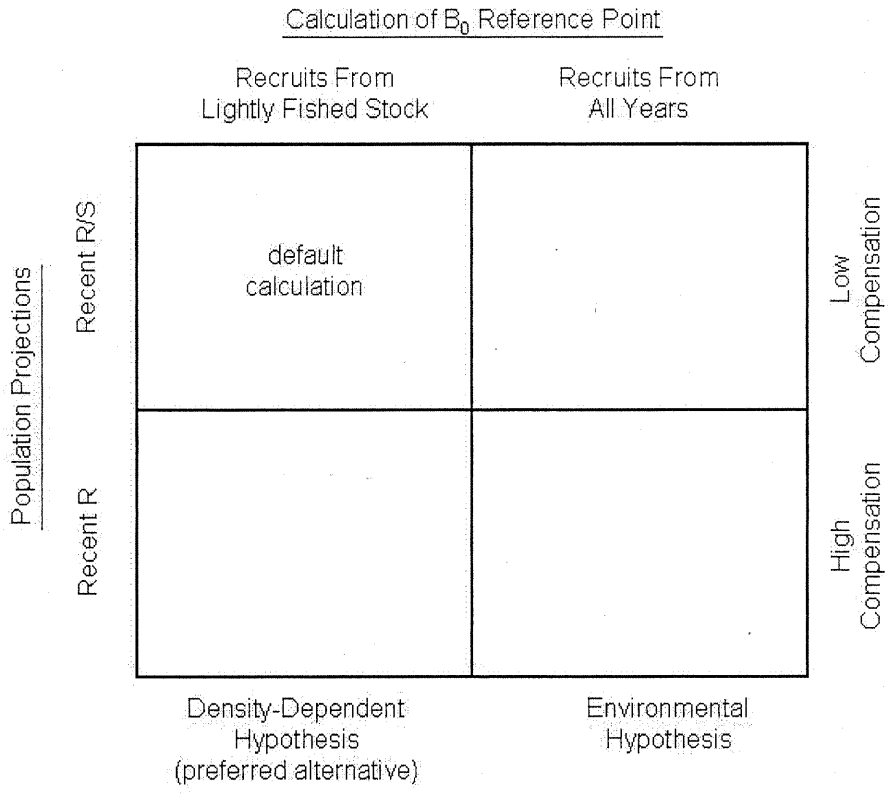

Figure 1. Overview of the alternative methods for estimating B_0 and generating future recruitment.

4.2. Fitting a spawner-recruit model

It is also possible to estimate B_0 and generate future recruitment by fitting spawner-recruit models to the full time series of spawner-recruit data (see Ianelli *et al.* 2000; Ianelli, 2002; Methot and Pinter 2002c). Ideally, the use of spawner-recruit models allows the data to determine the extent of compensation rather than assuming one of two extremes (steepness=0.2 / 1). However, this approach is subject to the criticism that stock productivity is constrained to behave in a pre-specified manner according to the particular model chosen and there are different models to choose from, including Beverton-Holt and Ricker. These two models can produce strongly contrasting management reference points (e.g., B_{msy} and SPR_{msy}) but are seldom distinguishable statistically. Moreover, there are statistical issues that need to be considered when deciding whether to use to a spawner-recruit model to generate future recruitments, including time series bias (Walters 1985), the "errors in variables" problem (Walters and Ludwig 1981), and non-homogeneous variance and small sample bias (MacCall and Ralston, 2002).

Thus, analyses based on a spawner-recruit model should mention the basis for the selection of the spawner-recruit model used, and refer to the estimation problems highlighted above and whether they are likely to be substantial for the case under consideration. Moreover, in situations where a spawner-recruit meta-analysis is available (e.g., Dorn 2002), those results should be evaluated and considered.

5. Determination of minimum and maximum times to recovery.

The minimum time to recovery (denoted T_{MIN}) is defined as the median time to rebuild from when rebuilding commenced to the target level in the absence of fishing. The mean generation time has been calculated as the mean age of the net maternity function. The maximum time to recovery (denoted T_{MAX}) is ten years if T_{MIN} is less than 10 years or T_{MIN} plus one mean generation time if T_{MIN} is greater than or equal to 10 years.

The calculation of the minimum time to recovery involves projecting the population ahead taking account of uncertainty about future recruitment. The uncertainty associated other parameters, such as the rate of natural mortality and the current age-structure of the population, can also be taken into account (e.g. Punt *et al.* 2003) although, at present, most rebuilding analyses only consider a single source of uncertainty, namely future recruitment.

6. Harvest during rebuilding

It is the Council's prerogative to establish yields during the rebuilding period, as long as the stock recovers to the target ($B_{40\%} \equiv B_{MSY}$) within the specified time period (T_{MAX}) with at least a probability of rebuilding by T_{MAX}, P_{MAX}, of 0.5. Nevertheless, the simplest rebuilding harvest policy to simulate and implement is a constant harvest rate or "fixed F" policy. All rebuilding analyses should, therefore, calculate the fixed fishing mortality rates during the rebuilding time period that allow rebuilding to occur by T_{MAX} for a range for the probability of recovery by P_{MAX}. Values for P_{MAX} from 0.5 to 0.9 in, for example, steps of 0.1 should be sufficient to illustrate the trade-off between the rate of the rebuild and the harvests during the rebuild period. Analysts should include the year in which recovery to $B_{40\%}$ / B_{MSY} is expected to occur with 50% probability, T_{TARGET}, for each choice of P_{MAX}. Note that selecting a value for P_{MAX} greater than 0.5 is equivalent to electing to rebuild sooner than T_{MAX} with probability equal to 0.5 (i.e. if $P_{MAX} > 0.5$, $T_{TARGET} < T_{MAX}$).

Many other harvest policies could be implemented by the Council, based on whatever circumstances may mitigate against a constant harvest rate approach. For example, the initial canary rockfish rebuilding plan (**ref**) was based on a constant fixed yield over the entire period of rebuilding. Thus, as the stock rebuilds, the exploitation rate must decline, which makes bycatch avoidance a serious concern. For this reason the SSC recommends that the Council generally favor constant harvest rate policies over constant catch policies for all groundfish rebuilding plans. This would alleviate the problem of accelerating bycatch producing accelerated discard, an undesirable feature of constant catch policies. Similarly, the Council may wish to implement some other form of variable rate harvest policy, e.g., a 40:10 adjustment similar to the default policy currently in use. Consequently, researchers conducting rebuilding analyses should be prepared to respond to requests by the Council for stock-specific projections on an individual case-by-case basis.

Interpretation of the results for alternative values for P_{MAX} may be enhanced if the results of

projections are shown for the zero harvest rate policy and the Councils' default 40:10 policy.

7. Evaluating progress towards rebuilding

There are, at present, no agreed criteria for assessing the adequacy of progress towards rebuilding for species that are currently designated to be in overfished state and that are under a Rebuilding Plan. Authors of rebuilding analyses will be informed when criteria have been selected and should be prepared to revise their rebuilding analyses so that the criteria can be applied. However, authors of rebuilding analyses for species for which a Rebuilding Plan currently exists should:

- calculate the Spawning Potential Ratio (SPR) corresponding to the rebuild fishing mortality used most recently to determine OYs[6]; and
- conduct a projection based on setting the future exploitation rate based on this SPR and in which T_{MAX} is set equal to the value used in the most recently accepted rebuilding analysis to calculate the probability of recovery by T_{MAX} if future OYs are based on this SPR (this probability is denoted P_{REC}).

A group of academic and government scientists are developing a framework which could be used to evaluate alternative criteria (see, for example, Items F3.b. Attachment 1 and F.3.b Attachment 2 to the March 2005 Council meeting). However, the selection of criteria will involve interaction *inter alia* between the SSC and the Council and additional calculations. The analyses conducted to date are based on the following assumptions:

- Progress will be deemed adequate if P_{REC} exceeds the probability of recovery originally selected by the Council when it developed the Rebuilding Plan.
- Progress will be deemed inadequate P_{REC} is less than 50% as there is now predicted to be a less than 50% probability of recovery if OYs continue to be based on the current SPR.
- Decisions are still needed regarding whether progress is adequate when P_{REC} is greater than 50% but less than the probability of recovery originally selected by the Council when it developed the Rebuilding Plan.

8. Decision analyses / considering model uncertainty

A decision table is an appropriate means to express the implications of uncertainty in model structure. There are several reasons for considering model uncertainty when conducting a rebuilding analysis, including that several assessment model scenarios were considered equally plausible by the assessment authors and that one model scenario was preferred by the assessment authors, while another was preferred by the STAR Panel. Constructing decision tables when projections are based on a constant harvest rate policy is not entirely straightforward. One way to achieve this is to conduct projections for each model scenario in turn and record the median (or mean) time-trajectory of catches. The decision table is then based on projections with a set of

[6] The Spawning Potential Ratio is a measure of the spawning potential of stock given a particular fishing mortality and specifications for the biology of the stock. The commonly used reference point $F_{SPR\%}$ (e.g. $F_{40\%}$) corresponds to an SPR of SPR% (i.e. $F_{40\%}$ corresponds to 40%). The SPR needs to be converted into a fishing mortality rate (given the biology of the stock, which determines the relationship between SPR and fishing mortality) to calculate OYs.

pre-specified time-series of catches.

9. The consequences of spatial structure

Account of spatial structuring of groundfish populations should normally be accounted for by conducting spatially-structured stock assessments and then applying the guidelines of this document to each sub-population so defined. However, if this is not feasible, e.g. because of lack of sufficient data on the size-/age-composition of the catches, it is appropriate to conduct a stock assessment assuming a single homogenous population and then developing a way to stratify catches spatially so that the exploitation rate is the same for each (putative) sub-population. The ideal way to achieve this is to use survey data to pro-rate optimum yields spatially, but if this is not possible / appropriate, other methods, e.g. recent catches, or catch rates, should used. If the results of a spatially-aggregated stock assessment are expressed as regional optimum yields, the documentation associated with the rebuilding analyses must state why this has been done and the basis for how coastwide optimum yields are allocated regionally.

10. Documentation

It is important for analysts to document their work so that any rebuilding analysis can be repeated by an independent investigator at some point in the future. Therefore, all stock assessments and rebuilding analyses should include tables containing the specific data elements that are needed to adequately document the analysis. Clear specification of the exact assessment scenario(s) used as the basis for rebuilding analysis is essential. Therefore, linkages with the most recent stock assessment document should be clearly delineated (e.g. through references to tables or figures). This is important because assessments often include multiple scenarios that usually have important implications with respect to stock rebuilding.

The minimum information that should be presented in a rebuilding analysis is:

- Date on which the analysis was conducted, and specifications for the software used for the analysis (including the version number), along with an example of the program's input file.
- Rebuilding parameters. A table should be produced which lists: a) the year in which the rebuilding plan commenced, b) the present year, c) T_{MIN}, d) mean generation time, e) T_{MAX}, f) T_{TARGET} for each choice for P_{MAX}, e) the spawning output-per-recruit and f) the exploitation rate corresponding to each value for P_{MAX} (e.g. Table 1). The range of P_{MAX} values should be wide (e.g. 0.5-0.9) and results should also be presented for F=0 and the 40:10 rule.
- The information needed to assess the adequacy of progress (if the species is currently designated to be in an overfished state and is under a Rebuilding Plan).
- Median time-trajectories (from the year the rebuilding plan commenced to T_{MAX}) for each value of P_{MAX} considered and F=0 of: a) spawning output relative to the target level, c) probability of being at or above the target level, c) ABC and d) optimum yield (see Table 2, Fig. 2).
- Median and 95% intervals for: a) summary / exploitable biomass, b) spawning output (in absolute terms and relative to the target level), c) recruitment, c) catch, d) landings (if different from catch), e) ABC, and f) exploitation rate for the harvest strategy

selected by the Council (Fig. 3).

- The rationale for the approach used to estimate B_0 and generate future recruitment.
- The biological information on which the projections are based (show results for each alternative model)
    - Natural mortality rate by age and sex.
    - Individual weight by age and sex.
    - Maturity by age.
    - Fecundity by age.
    - Selectivity-at-age by sex (and fleet)
    - Population numbers (by age and sex) for the year in the rebuilding plan commenced.
    - Population numbers (by age and sex) for the present year.

Notes:

1. For cases in which the projections take account of uncertainty about the values for these biological parameters (e.g. using the results from bootstrapping or samples from a Bayesian posterior), some measure of the central tendency of the values (e.g. the mode) should be provided and the individual parameters values should be archived.
2. Rebuilding analyses may be based on selectivity-at-age vectors constructed by combining results over fleets. If this is the case, the rebuilding analysis needs to document how the composite selectivity-at-age vector was constructed.

Literature Cited

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SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON TERMS OF REFERENCE FOR GROUNDFISH REBUILDING PLAN

Since the last Council meeting, members of the Scientific and Statistical Committee (SSC) Groundfish Subcommittee have revised the SSC Terms of Reference for Groundfish Rebuilding Analyses (Agenda Item B.4.a, Supplemental SSC Terms of Reference, April 2005). The draft version of the document, which revises the guidelines in a number of important ways, was reviewed by the SSC. Some areas of significant revision include:

1. A more explicit procedure for determining the overfished, minimum stock size threshold is provided, (i.e., the maximum likelihood estimate of depletion or the maximum of the posterior density function).

2. Rebuilding projections based on a spawner-recruit curve estimated from a stock assessment are given equal standing with projections based on re-sampling of year-specific estimates of recruitment.

3. Terminology and notation is revised to be consistent with language used in amendments to the groundfish fishery management plan (FMP).

4. Additional requirements to include certain reporting elements requested by the Groundfish Management Team (GMT) are included (e.g., the estimate of P_{MAX} at F=0; see Agenda Item B.4.a, Attachment 1, April 2005: Groundfish Management Team Report on Terms of Reference for Groundfish Rebuilding Plan Review).

5. A section on Evaluating Progress Towards Rebuilding is included.

6. Decision tables to highlight the implications to management of model uncertainty are encouraged.

Based on its discussion of the draft document, the SSC endorses adoption of the revised guidelines. Notwithstanding that endorsement, the following recommendations were developed after some discussion.

1. $B_{40\%}$ should be maintained as the rebuilding target (B_{MSY} proxy) until a workshop can be convened to evaluate possible redefinition of biomass-based targets and thresholds that are in use by the Council. Even so, it is desirable to compare virgin biomass (B_0) estimated from the stock assessment model and from the rebuilding software to evaluate the consistency of these estimates.

2. Under Section 7 (Evaluating Progress Toward Rebuilding) the second paragraph and second set of bullet points should be deleted until more definitive progress has been made on establishing the Council's policy on this subject. A joint meeting (Council, SSC, Groundfish Advisory Subpanel (GAP), and GMT) scheduled for the June meeting should advance this issue forward

.

3. Section 9 (The Consequences of Spatial Structure) should be deleted. The SSC recognizes that there often is a need to spatially partition an optimum yield (OY), and stock assessment results are frequently insufficient to do so. This difficulty, however, is not unique to species under rebuilding plans, but pertains to healthy stocks as well. To help solve this problem, the SSC agreed to review the analytical approaches the GMT has used to spatially distribute an OY.

4. An example presentation of the required documentation (Section 10) would be useful to analysts conducting rebuilding analysis.

5. The SSC's Groundfish Subcommittee agreed to complete these revisions and to provide the revised document to the Council within the next two weeks.

The SSC also examined "SSC Default Rebuilding Analysis – Technical specifications and User Manual (Version 2.8, January 2005)" by Dr. Andre Punt. This document describes in detail the software that has been used to forecast rebuilding for virtually all the Council's overfished stocks. The last time the software was reviewed by the SSC was in 2002, and a number of enhancements have been implemented to the program since that time. Consequently, the SSC reviewed the more recent changes (i.e., version 2.2 onwards) and offers the following two suggestions/recommendations.

1. As part of the calculations the program should determine the median extent of rebuilding that is expected to occur by T_{MAX}.

2. Better documentation is needed concerning how results of an MCMC analysis are incorporated into rebuilding projections. The SSC also highlighted the importance of stock assessment authors ensuring that an MCMC has converged before utilizing those results in a rebuilding analysis.

The software package developed by Dr. Punt is a powerful tool with which to conduct stock projections, and the SSC continues to endorse its use in rebuilding analyses used by the Council.

PFMC
04/06/05

Errata Sheet for:

The Draft Environmental Assessment, Regulatory Impact Review & Regulatory Flexibility Analysis for the Expanded Coverage of the Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery

On the following pages: 10, 14, 16, 53, 54, 57, 59, 60, 63, 66, 68, 72, 75, 77, 79, 83, 101, 103, 106 the number of vessels using pot gear to target groundfish is revised from 30 to 37, and the number of all pot vessels landing groundfish is revised from 128 to 135.

Page 16 - The last sentence of the first paragraph which reads "Because VMS cannot be used to determine where a particular species was caught, VMS was originally considered to be an effective enforcement tool for monitoring open access trip limit compliance by salmon troll vessels." is being revised as follows to include the word not: "Because VMS cannot be used to determine where a particular species was caught, VMS was originally considered **not** to be an effective enforcement tool for monitoring open access trip limit compliance by salmon troll vessels."

Page 33 - Table 3.3.3.8 should be removed, as this information was updated by Table 4.3.3.5.

Proposed Expansion of the West Coast VMS Program into the Open Access Fishery

VMS as an enforcement tool was first proposed during discussion of depth based management strategies at the June 2002 Council meeting. The West Coast VMS Program was established at the September 2002 Council meeting with the establishment of Rockfish Conservation Areas. Rational for requiring VMS was based upon these elements: ensuring the integrity of the RCAs; effective enforcement of RCAs using traditional methods is particularly difficult; boundaries are defined by numerous points of latitude and longitude; management measures allow some gear types and target fishing in all or a portion of the conservation areas; and scarce state and Federal resources limit enforcement.

VMS became required for Limited Entry Trawl and Fixed Gear vessels on January 1, 2004. Through the first quarter of 2005 there are 310 Limited Entry permitted vessels with activated VMS units installed. More than 3.1 million position reports have been logged into the VMS database. 1150 groundfish declarations have been made for vessels fishing in the Rockfish Conservation Areas (RCA).

NMFS and the states held eight public meetings, between January 10, 2005 and March 5, 2005 to provide the interested public with information regarding the current VMS systems, the expansion of the VMS program into the open access groundfish fisheries, and to provide information about how and when to provide comments to NMFS and the Council. These meetings occurred in communities with relatively high open access groundfish landings: Westport, WA; Astoria, OR; Port Orford, OR; Fort Bragg, CA; Morrow Bay, CA; San Francisco, CA; and Los Alamitos, CA.

Estimated number of vessels under each Alternative by gear and target fishery

Under agenda Item B.5.b, NMFS Report April 2005, **Expanded Coverage of the Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery,** there are nine alternatives for consideration. Alternatives 2-7, all propose an implementation date of October 2005.

Unlike limited entry, which has a Federal permit requirement, open access operates under state permits. A Federal nexus needs to exist to impose a Federal regulatory requirement. In this case, the Federal nexus is a two-prong test. Did the fishing occur in Federal waters and was groundfish taken and retained or possessed? Both criteria need to be met to create the Federal nexus.

Reading across the page and down, Alternatives 2 through 5b were originally developed and prioritized by the Ad Hoc VMS Committee in October of 2002. During those discussions, the committee prioritized longline, pot, trawl, and line gear, as risks to overfished rockfish. Alternatives 2 through 5a build across gear types per that risk assessment.

The Enforcement Consultants developed alternative 5b in the fall of 2003. Alternatives 6a and 7 were developed by the GAP at the September 2004 Council meeting, and Alternative 6b was developed by the Ad Hoc VMS Committee at its last meeting in October of 2004.

Estimated number of vessels under each Alternative, by gear and target fishery

Gear	**Target Species**	**Alt 1**	**Alt 2**	**Alt 3**	**Alt 4**	**Alt 5A**	**Alt 5B** Enf. Consult	**Alt 6A** Gap Majority	**Alt 6B** VMS Committee	**Alt 7** Gap Minority
Longline	Groundfish		131	131	131	131	131	131	131	131
	Pac. Halibut		31	31	31	31	31	49	49	49
	CA Halibut		1	1	1	1	1	1	1	1
	HMS		2	2	2	2		2	2	2
Pot	Groundfish			37	37	37	37	37	37	37
	Dungeness crab			45	45	45		45	45	45
	Prawn/shrimp			8	8	8	8	8	8	8
	Sheephead			8	8	8	8	8	8	8
Trawl	CA Halibut				17	17	17	34	34	34
	Sea Cucumber				6	6	6	14	14	14
	Ridgeback Prawn				18	18	18	32	32	32
Line	Groundfish					738	738	738	738	724
	CA Halibut					105	105	105	105	105
	HMS					12		12	12	12
	Salmon Troll						177	177	43-134	177
Net	CPS							3	3	3
Other	Other							4	4	4
	TOTAL	**0**	**165**	**263**	**304**	**1,159**	**1,277**	**1,400**	**1,266-1,357**	**1,378**

The most recent analysis of groundfish landings by non-recreational commercial fishing vessels is a rolling average of the past four years where statistics are available, compiled by NMFS NW Region. The following table shows the categories and number of vessels per category that have landed groundfish.

Summarized from Table 4.3.3.5, page 95, Number of vessels and exvessel revenues per vessel

		Number of vessels landing groundfish	Per vessel exvessel revenue of groundfish ($)	Per vessel exvessel revenue all fish taken with identified gear ($)
Longline	Groundfish	131	6,331	6,900
	Pac. Halibut	31	799	5,974
	CA Halibut	1	133	3,263
Pot	Groundfish	37	8,809	9,584
	Dungeness crab	45	2,555	74,275
	Prawn/shrimp	8	1,674	140,990
	Sheephead	8	1,584	47,357
Trawl	Sea cucumber	6	153	19,742
	CA halibut	17	729	12,050
	Ridgeback Prawn	18	740	41,750
Line	Groundfish	738	2,639	2,688
	CA halibut	105	225	184,367
	HMS	12	969	5,330
	Salmon troll (coastwide)	177	173	34,713
	Salmon troll (north only)	(134)	(176)	(29,251)
Net	CPS	3	358	67,026
Other	-----	4	114	31,240

Table 4.3.3.6 summarizes the number of vessels by groundfish ex-vessel revenue group. The take and retention or possession of groundfish would trigger the VMS requirement under all the various categories of vessels. Given a universe of 1345 open access vessels, vessels delivering 0-$1000 of groundfish annually total 864 vessels, or 65% of the open access fleet; vessels delivering $1000-2000 of groundfish total 149 vessels, or 11% of the open access fleet; vessels delivering $2000-3000 of groundfish total 82 vessels, or 6% of the open access fleet; and vessels delivering over $3000 of groundfish total 253 vessels, or 19% of the open access fleet.

Summarized from Table 4.3.3.6, page 98, Number of vessels by groundfish exvessel revenue group

		0-$1000	$1000-$2000	$2000-$3000	>$3000
Longline	Groundfish	33	18	13	68
	Pac. Halibut	21	6	2	1
	CA Halibut	1	0	0	0
Pot	Groundfish	10	4	4	20
	Dungeness crab	28	5	2	11
	Prawn/shrimp	6	1	0	1
	Sheephead	7	1	0	1
Trawl	Sea cucumber	6	0	0	1
	CA halibut	13	3	0	2
	Ridgeback Prawn	13	4	1	0
Line	Groundfish	429	105	59	146
	CA halibut	104	0	0	1
	HMS	10	1	1	1
	Salmon troll (coastwide)	176	1	0	0
	Salmon troll (north only)	(134)	(0)	(0)	(0)
Net	CPS	3	0	0	0
Other	-----	4	0	0	0
Total		864	149	82	253

VMS Unit Costs: VMS Unit cost incorporates the following components.

- Base Unit Costs
- Professional Installation Cost
- Vessel Computer cost if at sea catch reporting or other electronic data transfer is required.

Base Unit Costs for West Coast type approved units are as follows.

MTU Vendor	**Model Number**	**MTU Cost**
Satamatics	SAT101	$1,000
Skymate/Stellar	ST2500G	$1,200
Thrane and Thrane	3026	$1,700
Thrane and Thrane	3022	$2,500

Professional Installation Cost: $200 per unit.
Vessel Computer: $1,300 per vessel.
The range of VMS unit costs are categorized in three configurations from $1,200 to $3,800.

The following table summarizes the range of VMS costs.

Category of Vessel	**$1,200 per unit cost**	**$2,500 per unit cost**	**$3,800 per unit cost**
Longline - groundfish directed a/	157,200	327,500	497,800
Longline - Pacific Halibut directed b/	37,200	77,500	117,800
Longline - CA Halibut c/	1,200	2,500	3,800
Pot - groundfish directed	44,400	92,500	140,600
Pot - Dungeness crab d/	54,000	112,500	171,000
Pot - prawn/shrimp e/	9,600	20,000	30,400
Pot - sheephead g/	7,200	15,000	22,800
Trawl - spot prawn f/	7,200	15,000	22,800
Trawl - CA Halibut g/	20,400	42,500	64,600
Trawl - Sea Cucumber h/	7,200	15,000	22,800
Trawl - Ridgeback Prawn i/	21,600	45,000	68,400
Line gear - groundfish directed j/	885,600	1,845,000	2,804,400
Line gear - CA halibut directed k/	126,000	262,500	399,000
Line gear - HMS l/	14,400	30,000	45,600
Line gear - Salmon troll (coastwide) m/	212,400	442,500	672,600
Net gear - CPS	3,600	7,500	11,400
Other gears	4,800	10,000	15,200
	$1,614,000	**$3,362,500**	**$5,111,000**

VMS Communication Costs: The analysis of VMS communication costs is based on the following factors.

- Low cost communication package $15.99/month (position reports only for 15 days of fishing per month) = $192/year.
- 24 hour position reporting at $2/day (8 cents per report) = $730/year.

The following table summarizes the annual VMS communication costs based on the foregoing two scenarios.

Category of Vessel	**Annual Communication Costs $ 192 per year**	**Annual Communication Costs $730 per year**
Longline - groundfish directed a/	25,152	95,630
Longline - Pacific Halibut directed b/	5,952	22630
Longline - CA Halibut c/	192	730
Pot - groundfish directed	7,104	27010
Pot - Dungeness crab d/	8,640	32850
Pot - prawn/shrimp e/	1,536	5840
Pot - sheephead g/	1,152	4380
Trawl - spot prawn f/	1,152	4380
Trawl - CA Halibut g/	3,264	12410
Trawl - Sea Cucumber h/	1,152	4380
Trawl - Ridgeback Prawn i/	3,456	13140
Line gear - groundfish directed j/	141,696	538740
Line gear - CA halibut directed k/	20,160	76650
Line gear - HMS l/	2,304	8760
Line gear - Salmon troll (coastwide) m/	33,984	129210
Net gear - CPS	576	2190
Other gears	768	2920
	258,240	**981,850**

Total Open Access VMS Costs based on a 1,400 vessels fleet, (Alternative 6b).

$1,200 Low	**$1,200 High**	**$2,500 Low**	**$2,500 High**	**$3,800 Low**	**$3,800 High**
$1,614,000	$1,614,000	$3,362,500	$3,362,500	$5,111,000	$5,111,000
268,800	1,022,000	268,800	1,022,000	268,800	1,022,000
$1,882,800	**$2,636,000**	**$3,631,300**	**$4,384,400**	**$5,379,800**	**$6,133,000**

Conclusion

Given the number of open access vessels delivering less than $1000 in ex-vessel value of groundfish (864, Table 4.3.3.6), and the initial cost of the VMS unit set at $1,200, we anticipate a significant reduction of those participating in the Open Access Fishery under a VMS requirement, and project the high participate category reflected under Alternative 6b to be more in the range of 800 vessels, rather than 1,400.

Agenda Item B.5.c
Supplemental EC Report
April 2005

ENFORCEMENT COUNSULTS REPORT ON IMPLEMENTATION OF AN EXPANDED VESSEL MONITORING SYSTEM

The Enforcement Consultants have reviewed the information relating to the expansion of the Vessel Monitoring System (VMS) and have the following comments:

In reference to Agenda Item B.5.b, NMFS Report April 2005, the Enforcement Consultants have met with the Groundfish Advisory Subpanel (GAP) and representatives of the Salmon Advisory Subpanel (SAS) and discussed the report. It is our understanding the majority of the GAP supports Alternative 6.B. The Enforcement Consultants have compared this alternative to our initial option of Alternative 5.B. After evaluation, the Enforcement Consultants will support Alternative 6.B with a slight modification. Current language states, "If a Rockfish Conservation Area (RCA) requirement is discontinued during the year, mandatory Vessel Monitoring System (VMS) coverage would be discontinued for the affected vessels." The Enforcement Consultants would ask the following language be inserted in the current languages place: "If an RCA requirement is discontinued during the year, VMS coverage would be reevaluated for the affected vessels."

Rationale: Currently, VMS is utilized in support of RCA enforcement; however, in the future, VMS may be used to support other area-based management. Examples: Marine Protected Areas and Sanctuaries.

PFMC
04/06/05

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON IMPLEMENTATION OF AN EXPANDED VESSEL MONITORING SYSTEM

The Groundfish Advisory Subpanel (GAP) spent several hours reviewing the documents provided, listening to public comment, receiving information from the National Marine Fisheries Service, and discussing the issues and options surrounding this controversial issue.

GAP discussion centered on two options shown on Table 2.0.1 of the draft Environmental Assessment for this proposal (pages 10 - 12 of Agenda Item B.5.b, NMFS Report): a modified version of Alternative 1 (status quo), and Alternative 6B (Ad Hoc Vessel Monitoring System [VMS] Committee, which is a modified version of a GAP proposal). Arguments were made regarding costs and benefits; the validity of data used in the decision-making process; the need to protect the integrity of the Rockfish Conservation Area (RCA); and the necessity to extend an electronic surveillance system to a large number of small, mostly unidentified vessels including many that harvest only a minimal amount of groundfish. The GAP also discussed the recommendations from the VMS Committee, as shown on page 5 of Agenda Item B.5.c (Ad Hoc VMS Committee Minutes), especially the recommendation regarding the issue of drifting within the RCA.

The GAP makes the following recommendations:

1. A majority of the GAP supports Alternative 6B, which would require a VMS unit to be carried on vessels which fish in federal waters AND take and retain or possess groundfish in federal waters, other than salmon trollers retaining allowed amounts of yellowtail rockfish north of 40E10'. The majority believes this alternative best expresses the GAP's intent that vessels whose operations are restricted as a result of an RCA limitation should carry VMS units.

2. A minority of the GAP supports Alternative 1, until such time as the Council completes action on identifying and limiting the open access fleet, at which time Alternative 6B would be appropriate. The minority believes waiting until this action is completed will enable NMFS to more precisely enforce VMS coverage.

3. The entire GAP supports VMS Committee recommendation number 2, requesting federal funding of all GAP requirements.

4. The entire GAP supports VMS Committee recommendation number 4, endorsing a removal of the drifting prohibition on existing VMS-covered vessels and not imposing a drifting prohibition on vessels that will be covered under this Council action. Several GAP members pointed out that in addition to the safety concerns the GAP has consistently raised, the high cost of fuel virtually requires vessels drift during some part of a fishing trip.

PFMC
04/05/05

GROUNDFISH MANAGEMENT TEAM STATEMENT ON IMPLEMENTATION OF AN EXPANDED VESSEL MONITORING SYSTEM

The Groundfish Management Team (GMT) reviewed the draft Environmental Assessment, *Expanded Coverage of the Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery*, and offers the following comments.

Time-area closures are a keystone piece of groundfish management and are necessary in order to minimize the mortality of rebuilding species while providing access to healthier stocks of target species. Vessel Monitoring Systems (VMS) can help maintain the integrity of Groundfish Conservation Areas (GCAs) – which currently include the Yelloweye Rockfish Conservation Area (RCA), Cowcod Conservation Area, the Farallons depth closure, Cordell bank, and the RCAs – to help ensure the Council's strategies for rebuilding and bycatch reduction are met. While the GMT believes an expanded VMS system could assist management by providing additional data on spatial behavior, the GMT believes it is more meaningful to require VMS of vessels that are restricted by GCAs than to require VMS of commercial vessels if they are not restricted by GCAs.

The GMT notes that under federal regulations, vessels potentially subject to GCAs are vessels that take, possess, and retain groundfish - meaning that vessels may exclude themselves from open access regulations if they do not take, possess, and retain groundfish. For example, Dungeness crab vessels that retain groundfish would be subject to GCA restrictions, while Dungeness crab vessels that do not retain groundfish would not be subject to GCA restrictions. However, there are exceptions; currently salmon troll vessels only retaining limited amounts of yellowtail, and pink shrimp trawl vessels retaining limited amounts of groundfish may fish within the RCA; while ridgeback prawn trawl, California halibut trawl, and sea cucumber trawl have RCA restrictions, regardless of whether or not they retain groundfish. For reference, a copy of open access regulations listing gear types that do not target groundfish and their corresponding regulations are attached. All other open access gear types are subject to the general open access regulations, which include GCA restrictions.

The GMT notes that Alternatives 6a and 6b include all vessels subject to GCA restrictions. The GMT also notes that Alternative 7 is nearly the same as Alternative 6a, but may exclude those vessels from VMS provisions that are not capable of carrying a VMS system.

The GMT also identified an issue with respect to the VMS requirements being proposed for open access gears employing fishing strategies for non-groundfish species that result in some small incidental take of groundfish species (e.g., highly migratory species fisheries). With the exception of the gears in the attached table, the regulations being proposed would require open access vessels taking groundfish in non-groundfish strategies to either carry a VMS unit or discard any incidental groundfish. This would be the case even if all fishing activity occurred outside of the RCA, and the vessel simply transited the RCA to return to port. The Council may wish to consider examining historical incidental catch rates in these non-groundfish fisheries and

provide for some small amount of groundfish catch relative to target species catch. This could avoid creating undocumented discard resulting from vessels choosing to discard unavoidable groundfish bycatch rather than incur the cost of VMS.

Finally, the GMT would like to reiterate its support for spatially-based data systems – especially systems such as logbooks where catch and effort can be linked. Additional spatial data would help the GMT in developing measures for the various fisheries sectors that minimize impacts on overfished species while providing access to healthier species.

2005-2006 Trip Limits for Open Access Gears North of 40°10' N. Lat.

	JAN-FEB	MAR-APR	MAY-JUN	JUL-AUG	SEP-OCT	NOV-DEC
PINK SHRIMP NON-GROUNDFISH TRAWL *(not subject to RCAs)*						
North	**Effective April 1 - October 31:** groundfish 500 lb/day, multiplied by the number of days of the trip, not to exceed 1,500 lb/trip. The following sublimits also apply and are counted toward the overall 500 lb/day and 1,500 lb/trip groundfish limits: lingcod 300 lb/month (minimum 24 inch size limit); sablefish 2,000 lb/month; canary, thornyheads and yelloweye rockfish are PROHIBITED. All other groundfish species taken are managed under the overall 500 lb/day and 1,500 lb/trip groundfish limits. Landings of these species count toward the per day and per trip groundfish limits and do not have species-specific limits. The amount of groundfish landed may not exceed the amount of pink shrimp landed.					
SALMON TROLL						
North	Salmon trollers may retain and land up to 1 lb of yellowtail rockfish for every 2 lbs of salmon landed, with a cumulative limit of 200 lb/month, both within and outside of the RCA. This limit is within the 200 lb per month combined limit for minor shelf rockfish, widow rockfish and yellowtail rockfish, and not in addition to that limit. All groundfish species are subject to the open access limits, seasons and RCA restrictions listed in the table above.					

2005-2006 Trip Limits for Open Access Gears South of 40°10' N. Lat.

	JAN-FEB	MAR-APR	MAY-JUN	JUL-AUG	SEP-OCT	NOV-DEC
PINK SHRIMP NON-GROUNDFISH TRAWL GEAR *(not subject to RCAs)*						
South	**Effective April 1 - October 31:** Groundfish 500 lb/day, multiplied by the number of days of the trip, not to exceed 1,500 lb/trip. The following sublimits also apply and are counted toward the overall 500 lb/day and 1,500 lb/trip groundfish limits: lingcod 300 lb/ month (minimum 24 inch size limit); sablefish 2,000 lb/ month; canary, thornyheads and yelloweye rockfish are PROHIBITED. All other groundfish species taken are managed under the overall 500 lb/day and 1,500 lb/trip groundfish limits. Landings of these species count toward the per day and per trip groundfish limits and do not have species-specific limits. The amount of groundfish landed may not exceed the amount of pink shrimp landed.					
RIDGEBACK PRAWN AND, SOUTH OF 38°57.50' N. LAT., CA HALIBUT AND SEA CUCUMBER NON-GROUNDFISH TRAWL						
NON-GROUNDFISH TRAWL Rockfish Conservation Area (RCA) for CA Halibut and Sea Cucumber:						
40°10' - 38° N. lat.	75 fm - modified 200 fm [7/]	100 fm - 200 fm				75 fm - modified 200 fm [7/]
38° - 34°27' N. lat.	75 fm - 150 fm	100 fm - 150 fm				75 fm - 150 fm
South of 34°27' N. l	75 fm - 150 fm along the mainland coast; shoreline - 150 fm around islands	100 fm - 150 fm along the mainland coast; shoreline - 150 fm around islands				75 fm - 150 fm along the mainland coast; shoreline - 150 fm around islands
NON-GROUNDFISH TRAWL Rockfish Conservation Area (RCA) for Ridgeback Prawn:						
40°10' - 38° N. lat.	75 fm - modified 200 fm [7/]	100 fm - 200 fm				75 fm - modified 200 fm [7/]
38° - 34°27' N. lat.	75 fm - 150 fm	100 fm - 150 fm				75 fm - 150 fm
South of 34°27' N. l	100 fm - 150 fm along the mainland coast; shoreline - 150 fm around islands					
	Groundfish 300 lb/trip. Trip limits in this table also apply and are counted toward the 300 lb groundfish per trip limit. The amount of groundfish landed may not exceed the amount of the target species landed, except that the amount of spiny dogfish landed may exceed the amount of target species landed. Spiny dogfish are limited by the 300 lb/trip overall groundfish limit. The daily trip limits for sablefish coastwide and thornyheads south of Pt. Conception and the overall groundfish "per trip" limit may not be multiplied by the number of days of the trip. Vessels participating in the California halibut fishery south of 38°57'30'' N. lat. are allowed to (1) land up to 100 lb/day of groundfish without the ratio requirement, provided that at least one California halibut is landed and (2) land up to 3,000 lb/month of flatfish, no more than 300 lb of which may be species other than Pacific sanddabs, sand sole, starry flounder, rock sole, curlfin sole, or California scorpionfish (California scorpionfish is also subject to the trip limits and closures in line 31).					

SALMON ADVISORY SUBPANEL REPORT ON IMPLEMENTATION OF AN EXPANDED VESSEL MONITORING SYSTEM

The Salmon Advisory Subpanel requests the Vessel Monitoring System remain status quo.

PFMC
04/06/05

VMS

Subject: VMS
From: "chuck smith" <csmith1@surfbest.net>
Date: Thu, 17 Mar 2005 16:24:00 -0800
To: <Mike.Burner@noaa.gov>

Dear Mr. Burner:

I have been commercial fishing (open excess) for the last 25 yrs.
I started fishing out of Neah Bay Wa. I fished there until the north coast was shut down. Then I went to La Push Wa. and fished along the coast for ling and rock fish. I fished there until we were not allowed to fish inside 3 miles of the coast. (lots of opportunity outside 3 miles!). I fished the rock pile off La Push, 9 miles from land. Now I can only fish outside the hundred fathom curve (20 to 30 miles off shore), because the inside waters are all closed.

I have been fishing from a boat that is 20' long and has limited space. I am now required to have survival suits,EPIRBs and all the other mandated safety equipment aboard my boat, it will not be long before there will be no room for fish.

Their is not room on my boat for the VMS system. I do not have the cabin room, or the over head space for the antenna where it will be 6' (which I believe is the recommended distance) from the VHF/CB antenna or GPS.

Every year we are allowed less fish with more restrictions, fuel and bait cost more each year. Now the added cost of the VMS.

your consideration on this matter will be appreciated

thanks

Charles Smith

PS: Increases the black cod quotas for the summer months to help off set the cost would be nice (small boats can only safely fish from May to Oct. weather)

VMS (B-5)

Dear Council Members

This letter is regarding expansion of mandatory VMS. I fish a 22' dory out of Pacific City. There are a number of concerns for dory fishermen concerning VMS.

COST - Over recent years we have seen our black rock fishery go from wide-open fishery to severely restricted by quotas and closures. Our fishery is further limited by access to the ocean due to weather and surf conditions as our boats launch directly into the surf. By fishing hard last year, during available breaks in the weather and staying within our quotas, I was able to gross just over $5,000 on black rock. With the recent introduction of black rock as a limited entry fishery, another fee was added. Our available monthly quotas were also cut in half this year starting at only 1,000# in a two-month period. **Any additional cost to the fishery will make it a non-profitable.**

BENEFIT – The purpose stated for VMS is to prevent boats from fishing rockfish in the RCA. None of our rock fishing takes place in the RCA since our entire reef lies inside of 27 fathoms. **There is no benefit in placing a VMS in a boat that does not fish black rock in the RCA.**

MAINTAINING – An open style boat that crashes through the surf tends to get things wet. My radios need to be replaced on a regular basis because of the moisture. In times of bad weather or no fishing my boat is taken down for repairs and sometimes stored for months with the batteries pulled. Keeping a VMS running 24-7-365 would mean taking it into the house and hooking it up to a converter. **Maintaining a VMS on a dory in Oregon's weather and fishing conditions is near impossible.**

DECLARING FISHERY – having to declare what fishery you will participate in on a given day will remove the flexibility that allows a small boat to be profitable. Allowing for seasons and quotas, I can launch in the morning with the ability to participate in up to 5 different fisheries. It depends on the weather, what's biting, what's needed in the markets and can even change several times during the day. **It is impossible for a dory to declare and stay profitable.**

Black rock fishing is marginally profitable as it stands and any other fee or reduction in quota will, for all practical matters, end a 100-year tradition.

Thank-you for your time and attention to this matter,

Craig Wenrick
Pacific City, Oregon

P.O. Box 983
Lincoln City, OR 97367

Ph/Fax: (541) 994-2647

OREGON SALMON COMMISSION

B-5

Public Comment
received 4-4-05

Pacific Fishery Management Council
7700 NE Ambassador Place, suite 200
Portland, OR 97220-1384

RE: Vessel Monitoring System (VMS) for Salmon Trollers

The Oregon Salmon Commission wants to express its strong opposition to the proposed requirement that salmon trollers have VMS on their vessels.

The Oregon Salmon Troll Fleet has taken the lead in gear restrictions to avoid impacts on other species. Since 1991, salmon trollers have fished with only 4 spreads per line resulting in reduced impacts on Oregon Coast Natural Coho (OCNs). Initial analysis shows that the 4-spread rule produces a reduction in encounters with specific rockfish in the RCA as well. This allows a salmon fishery with the retention of some rockfish for the Salmon Fleet inside the RCA.

VMS expansion to the Salmon Troll Fleet would be a significant financial burden to a fleet that will already have tremendous cutbacks in salmon fishing opportunity this year.

The Oregon Salmon Commission and the entire Salmon Troll Fleet that it represents asks the Council Members to please vote "No" on the expansion of VMS to our salmon vessels.

Thank you for your consideration.

Nancy Fitzpatrick

Nancy Fitzpatrick, Administrator
Oregon Salmon Commission

GROUNDFISH MANAGEMENT TEAM REPORT ON STATUS OF 2005 GROUNDFISH FISHERIES AND INITIAL CONSIDERATION OF INSEASON ADJUSTMENTS

The Groundfish Management Team (GMT) reviewed updated landings information, updated West Coast Groundfish Observer Program discard information, and new California Recreational Fisheries Survey (CRFS) based projections for 2005 and considered options for inseason adjustments. In addition, the GMT also discussed clarifying limited entry trawl gear requirements.

LIMITED ENTRY TRAWL

During the first period of 2005, landings of petrale sole, trawl sablefish, longspine, arrowtooth, and Dover sole were higher than what was projected for that period in the trawl model, while landings of slope rockfish were substantially below initial model projections. The higher landings of petrale and Dover sole are a concern, as access to flatfish stocks are substantially more liberal than in recent years, and these species were initially modeled to achieve their respective optimum yields (OYs).

Period 1 QSM v Model Projection

	Period 1 QSM*	Period 1 TWL Model Proj
Longspine THDS	106	79
Shortspine THDS (N. CP)	65	67
TWL Sable (N.of CP)	231	197
Dover sole	1,281	1,038
Petrale	1,120	830
English Sole	212	241
Arrowtooth Flounder	367	128
Slope Rockfish	45	96

*except for TWL Sablefish, this column includes both trawl and non-trawl.

Projected Impact if No Action is Taken

		North	South	Total	HG
Rebuilding Species	Lingcod	121.1	32.6	153.7	
	Canary	5.1	0.6	5.7	
	POP	77.5	0.0	77.5	
	Darkblotch	134.9	35.5	170.4	
	Widow	1.3	0.1	1.4	
	Bocaccio	0.0	19.2	19.2	
	Yelloweye	0.2	0.2	0.3	
	Cowcod	0.0	1.1	1.1	
Target Species	Sablefish	1,759.0	521.6	2,280.6	3,505
	Longspine	644.4	561.1	1,205.5	2,450
	Shortspine	476.5	208.1	684.6	995
	Dover	6,072.3	2,494.1	8,566.4	7,445
	Arrowtooth	3,182.3	43.2	3,225.5	5,800
	Petrale	2,122.7	533.9	2,656.6	2,762
	Other Flat	1,649.2	770.7	2,419.9	4,909
	Slope Rock	133.4	135.2	268.6	1,799

In response, the GMT considered four options for inseason adjustments. In order to accommodate the Groundfish Advisory Subpanel's (GAP's) wishes, the GMT is recommending option 2B for the Council's consideration. This option uses a precautionary approach to flatfish management, due to the more liberal cumulative limits and Rockfish Conservation Area (RCA) boundaries in place for 2005, but it is expected that limits and RCA configurations will be revisited at the June Council meeting.

Status Quo Regulations

SUBAREA	Period	INLINE	OUTLINE	Sablefish	Longspine	Shortspine	Dover	Other Flat	Petrale	Arrowtooth	Slope Rock
N 40 10	1	75	150	9,500	15,000	3,500	69,000	110,000	No Limit	No Limit	4,000
	2	100	200	9,500	15,000	3,500	69,000	110,000	42,000	150,000	4,000
	3	100	200	17,000	23,000	4,900	30,000	110,000	42,000	150,000	4,000
	4	100	200	17,000	23,000	4,900	30,000	110,000	42,000	150,000	4,000
	5	100	200	17,000	23,000	4,900	30,000	110,000	42,000	150,000	4,000
	6	75	150	8,000	15,000	3,500	69,000	110,000	No Limit	No Limit	4,000
North SFFT Limit	1	75	150	1,500	1,000	1,000	20,000	100,000	25,000	70,000	4,000
	2	100	200	10,000	1,000	1,000	35,000	100,000	35,000	70,000	4,000
	3	100	200	10,000	1,000	3,000	50,000	100,000	35,000	70,000	4,000
	4	100	200	10,000	1,000	3,000	50,000	100,000	35,000	70,000	4,000
	5	100	200	10,000	1,000	3,000	50,000	100,000	35,000	70,000	4,000
	6	75	150	1,500	1,000	1,000	20,000	100,000	25,000	70,000	4,000
40 10 - 38	1	75	150	14,000	19,000	4,200	50,000	110,000	No Limit	No Limit	4,000
	2	100	200	14,000	19,000	4,200	50,000	110,000	42,000	10,000	4,000
	3	100	200	14,000	19,000	4,200	50,000	110,000	42,000	10,000	4,000
	4	100	200	14,000	19,000	4,200	50,000	110,000	42,000	10,000	4,000
	5	100	200	14,000	19,000	4,200	50,000	110,000	42,000	10,000	4,000
	6	75	150	14,000	19,000	4,200	50,000	110,000	No Limit	No Limit	4,000
S 38	1	75	150	14,000	19,000	4,200	50,000	110,000	No Limit	No Limit	40,000
	2	100	150	14,000	19,000	4,200	50,000	110,000	42,000	10,000	40,000
	3	100	150	14,000	19,000	4,200	50,000	110,000	42,000	10,000	40,000
	4	100	150	14,000	19,000	4,200	50,000	110,000	42,000	10,000	40,000
	5	100	150	14,000	19,000	4,200	50,000	110,000	42,000	10,000	40,000
	6	75	150	14,000	19,000	4,200	50,000	110,000	No Limit	No Limit	40,000

Compared to status quo, option 2b make the following adjustments:

N. of 40º10' N. lat:

- Reduce Dover sole and other flatfish limits shoreward in periods 3 – 6; Reduce petrale limits in periods 3-6, and reduce the arrowtooth limit seaward in period 6.

South of 40º10' N. lat:

- Reduce Dover sole limits in periods 3 – 6, and reduce arrowtooth limits in period 6.

Between 40º10' N. lat and 38º N. lat:

- Increase slope rockfish limits and liberalize the seaward RCA line from 200 fm to 150 fm.

The specific limits and resulting impacts are shown in the table below.

Option 2B - RCA Boundaries and Cumulative Limits – with Slope Rockfish Liberalization

SUBAREA	Period	INLINE	OUTLINE	Sablefish	Longspine	Shortspine	Dover	Other Flat	Petrale	Arrowtooth	Slope Rock
N 40 10	1	75	150	9,500	15,000	3,500	69,000	110,000	No Limit	No Limit	4,000
	2	100	200	9,500	15,000	3,500	69,000	110,000	42,000	150,000	4,000
	3	100	200	17,000	23,000	4,900	30,000	110,000	40,000	150,000	4,000
	4	100	200	17,000	23,000	4,900	30,000	110,000	40,000	150,000	4,000
	5	100	200	17,000	23,000	4,900	30,000	110,000	40,000	150,000	4,000
	6	75	150	8,000	15,000	3,500	22,000	80,000	60,000	80,000	4,000
North SFFT	1	75	150	1,500	1,000	1,000	20,000	100,000	25,000	70,000	4,000
Limit	2	100	200	10,000	1,000	1,000	35,000	100,000	35,000	70,000	4,000
	3	100	200	10,000	1,000	3,000	35,000	90,000	35,000	70,000	4,000
	4	100	200	10,000	1,000	3,000	35,000	90,000	35,000	70,000	4,000
	5	100	200	10,000	1,000	3,000	35,000	90,000	35,000	70,000	4,000
	6	75	150	1,500	1,000	1,000	8,000	75,000	15,000	70,000	4,000
38 - 40 10	1	75	150	14,000	19,000	4,200	50,000	110,000	No Limit	No Limit	8,000
	2	100	150	14,000	19,000	4,200	50,000	110,000	42,000	10,000	8,000
	3	100	150	14,000	19,000	4,200	40,000	110,000	42,000	10,000	8,000
	4	100	150	14,000	19,000	4,200	40,000	110,000	42,000	10,000	8,000
	5	100	150	14,000	19,000	4,200	40,000	110,000	42,000	10,000	8,000
	6	75	150	14,000	19,000	4,200	35,000	110,000	100,000	20,000	8,000
S 38	1	75	150	14,000	19,000	4,200	50,000	110,000	No Limit	No Limit	40,000
	2	100	150	14,000	19,000	4,200	50,000	110,000	42,000	10,000	40,000
	3	100	150	14,000	19,000	4,200	40,000	110,000	42,000	10,000	40,000
	4	100	150	14,000	19,000	4,200	40,000	110,000	42,000	10,000	40,000
	5	100	150	14,000	19,000	4,200	40,000	110,000	42,000	10,000	40,000
	6	75	150	14,000	19,000	4,200	35,000	110,000	100,000	20,000	40,000

Option 2B - Projected 2005 Mortality of Rebuilding and Target Species – with Slope Rockfish Liberalization

		North	South	Total
Rebuilding Species	Lingcod	95.2	33.6	128.8
	Canary	4.0	0.6	4.6
	POP	74.7	0.0	74.7
	Darkblotch	143.7	37.0	180.7
	Widow	1.3	0.1	1.4
	Bocaccio	0.0	19.0	19.0
	Yelloweye	0.2	0.1	0.3
	Cowcod	0.0	1.1	1.1
Target Species	Sablefish	1,802.2	527.0	2,329.2
	Longspine	753.5	561.4	1,314.9
	Shortspine	511.0	208.3	719.3
	Dover	5,357.2	2,144.2	7,501.4
	Arrowtooth	2,941.3	49.0	2,990.2
	Petrale	2,047.0	551.1	2,598.1
	Other Flat	1,619.1	782.6	2,401.7
	Slope Rock	133.4	163.9	297.3

Minor Slope Rockfish Trip Limits

In May 2004, the Council implemented trawl management measures that affected the catch rate of darkblotched rockfish. Specifically, the trawl slope rockfish cumulative limit was increased (from 4,000 pounds to 8,000 pounds per 2 months north of 40E10' N latitude), and the trawl RCA boundary was moved shoreward from 200 fathoms to 150 fathoms (north of 40E10' N latitude). Subsequently, the GMT received comments from industry that targeting on slope rockfish had increased since the May inseason action, and there was a size-related market discard factor for small darkblotched rockfish that was independent of trip limit size. The combination of these factors contributed to an increased darkblotched encounter rate and potentially the discard rate.

In September, the GMT did not have any quantitative information to evaluate the net effects of these factors. The only quantitative information available to the team at that time, relative to darkblotched rockfish, was the PacFIN quota species monitoring (QSM) data on landed catch and, for non-whiting trawl, a preliminary estimated discard proportion measured by information collected by the West Coast Observer Program from the 2003 fishery when the slope rockfish limit was 1,800 pounds per two months. Based on these data, the Council adjusted trip limits for slope rockfish in September 2004 as follows for the remainder of the year:

N of 40E10'

X Period 6 - Change from 8,000 lbs/2 mo. to 1,800 lbs/2 mo. (with no retention of darkblotched)

Between 40E10' and 38E

X Period 6 - Reduce from 50,000 lbs/2 mo. to 10,000 lbs/2 mo. (with no retention of darkblotched)

South of 38E

X Period 6 - Keep limit at 50,000 lbs/2 mo. (with no retention of darkblotched)

Also in response to the higher darkblotched rockfish mortalities, the GMT recommended changes to the limited entry trawl management measures for the beginning of 2005 as a precautionary measure until new Observer Program data were available. Specifically, in the area north of 40E10' N latitude, the RCA boundary scheduled for Period 1 was moved from 150 fm to 200 fm, as modified to allow fishing in petrale areas, and the slope rockfish trip limit was reduced to 4,000 lbs/2 mo (i.e., the same trip limit that was in place in period 1 of 2004). These depths and trip limits were also adopted for the area between 40E10' N latitude and 38E N latitude. due to uncertainty in darkblotched encounter rates for that area. At that time, the GMT anticipated these RCA boundaries and/or trip limits would then be adjusted inseason (in April) as more discard information became available from the 2004 Observer Program.

In summary, the GMT is recommending a liberalization of the trawl RCA and an increase in slope rockfish limits between 40E10' N latitude and 38E N latitude. Due to higher than anticipated catches of darkblotched rockfish in general, the GMT is proposing a modest increase for slope rockfish limits in the area between 40E10' N latitude and 38E N latitude at this time, but anticipates this issue will be revisited at the June meeting.

Gear Regulations

The GMT recommends two clarifications to limited entry trawl gear requirements found in the Code of Federal Regulations (CFR) Section 660.381.

The first clarification is to the chafing gear requirements found in paragraph (b)(3). The purpose of this clarification is to include the chafing gear requirements for small footrope gear (currently found in 660.831 (b)(5) and referenced in current chafing gear requirements section) with all other chafing gear requirements.

Current chafing gear requirements are as follows: Chafing gear may encircle no more than 50% of the net's circumference, except as provided in paragraph (b)(5) of this section. No section of chafing gear may be longer than 50 meshes of the net to which it is attached. Except at the corners, the terminal end of section of chafing 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. There is no limit on the number of sections of chafing gear on a net.

Proposed chafing gear requirements are as follows: Chafing gear may encircle no more than 50% of the net's circumference. No section of chafing gear may be longer than 50 meshes of the net to which it is attached. Chafing gear may be used only on the last 50 meshes of a small footrope trawl, measured from the terminal (closed) end of the codend. Except at the corners, the terminal end of each section of chafing 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. There is no limit on the number of sections of chafing gear on a net.

The GMT also recommends removing the sentence describing the small footrope chafing gear requirements (the sentence that was added to the chafing gear section) from the section describing small footrope requirements.

The second clarification is to the selective flatfish gear requirements found in paragraph (b)(5)(i). It was brought to the GMT's attention that buoy placement on selective flatfish gear can alter the size and shape of the trawl mouth. Changing the shape of the selective trawl mouth can result in an increased take of rockfish. This increased take of rockfish is not accounted for by the trawl bycatch model and may result in achieving rockfish OYs more quickly than anticipated. The purpose of this clarification to selective flatfish trawl gear requirements is to specify buoy placement and the number of riblines to preserve the original intent of the gear requirement.

Current selective flatfish trawl gear requirements are as follows: The selective flatfish trawl net must be a two-seamed net, and its breastline may not be longer than 3 ft (0.92 m) in length. There may be no floats along the center third of the selective flatfish trawl net's headrope and the headrope must be at least 30% longer in length than the footrope. Selective flatfish trawl gear may not have a footrope that is longer than 105 ft (32.26 m) in length. An explanatory diagram of a selective flatfish trawl net is provided as Figure 1 of Part 660, Subpart G.

Proposed selective flatfish trawl gear requirements are as follows: The selective flatfish trawl net must be a two-seamed net with no more than two riblines, excluding the codend. The

breastline may not be longer than 3 ft (0.92 m) in length. There may be no floats along the center third of the headrope or attached to the top panel except on the riblines. The headrope must be at least 30% longer in length than the footrope and the footrope must be shorter than 105 ft (32.26 m) in length. An explanatory diagram of a selective flatfish trawl net is provided as Figure 1 of Part 660, Subpart G.

CALIFORNIA RECREATIONAL

At the March 2005 Council meeting, the California Department of Fish and Game (CDFG) provided an Informational Report which summarized the CRFS program implementation and validation process, and provided recreational groundfish catch and effort estimates by mode for 2004 (Informational Report 2: CDFG 2004 Recreational Fisheries Data, March 2005). California recreational harvest guidelines or allocations for overfished species were not exceeded in 2004. Based on these results, in conjunction with the improved ability for real-time inseason catch monitoring, the Council conveyed its willingness to consider CRFS estimates to support inseason fishery actions in 2005.

Using the 2004 recreational groundfish fishing regulations as a starting point, the CDFG analyzed options for modifying the fishing season in 2005. Primary considerations in adjusting the season were constraining the canary and minor nearshore rockfish catch, and distributing the fishing effort over a greater depth range to avoid concentrating the fishing effort on the nearshore groundfish species. The preferred option, provided to the GMT by the CDFG, adjusts the 2005 recreational groundfish fishery regulations in each management area, using a combination of open months and allowable depths of fishing. This option is outlined in Attachment 1 (same as Attachment 1 provided in the Supplemental CDFG Report 2, Agenda Item B.6.c).

For the Northern Management Area (California/Oregon border to 40°10' N. lat), the proposal provides for similar angling opportunities as in 2004 with fishing from May 1 through December within 30 fathoms for rockfish and associated nearshore species. For the North-Central Management Area (40°10' N. lat to 37° 11' N. lat) and the Monterey South-Central Management Area (37° 11' N. lat to 36° N. lat), the proposal expands the current 2005 season to allow retention of groundfish and associated nearshore species in December within the same depth range as July-November (20 fathoms). In the Morro Bay South-Central Management Area (36° N. lat to 34°27' N. lat), it maintains the current 2005 season structure, but expands the allowable depth of fishing to include access to shallow water. In the Southern Management Area (34°27' N. lat to US/Mexico border), the proposal mirrors the 2004 recreational groundfish fishing regulations with the exception of California scorpionfish, which retains the same season structure as previously set in 2005 regulations, but follows the depth ranges as proposed for the nearshore rockfish. In all areas, divers and shore anglers may take groundfish during the proposed season closures. In addition, lingod can be taken during the same months and depths as nearshore rockfish except that it can not be taken by any anglers during December. All other regulations remain status quo. The impacts of this option on overfished species and on other groundfish species with harvest targets are provided in Table 1 and Table 2.

Table 1. Total Bycatch Estimate (mt) for Overfished Species relative to target (OY/HG)

	Bocaccio	**Canary**	**Cowcod**	**Dkbl**	**Lingcod**	**POP**	**Widow**	**Yeye**
Total 2005 Catch Estimate	60	9.1	0.4	0	<422	0	9.4	<3.7
HG[1] or updated impact estimate[2]	77[2]	9.3[1]	1.8[1]	0[2]	422[1]	0[2]	9.4[2,3]	3.7[1]

1 – Harvest Guideline (HG) established in Federal Regulations
2 – Best estimate of recreational impact in 2005
3 – Widow estimate was updated relative to bycatch scorecard value (as updated in March 2005) by adjusting projections for temporary targeting that occurred in 2004.

Table 2. Total Catch Estimate (mt) for Other Species [e.g., Target Species/Species Group, Species with Harvest Guideline (HG), Constraining Species]:

	Black Rockfish (RF)	**Minor Nearshore RF North** (40°10'-CA/OR border)	**Minor Nearshore RF South (**40°10'-US/Mexico border)
Total 2005 Catch Estimate	137	11	383
HG[1], updated impact estimate[2], or HT[3]	175[3]	11[2]	383[2]

1 – Harvest Guideline (HG) established in Federal Regulations
2 – Best estimate of recreational impact in 2005
3 – Harvest Target (HT): For black rockfish, this is the state-derived recreational harvest target within the Federal HG for CA recreational and commercial catch, combined. The black rockfish recreational target is derived from CA Fish and Game Commission allocation guidance between recreational and commercial sectors.

In their report to the GMT, CDFG reviewed the uncertainties and risks associated with using the CRFS data including: (1) identification of technical errors in CRFS during its first year of operation; (2) the tracking of uncalibrated 2004 CRFS data against harvest targets set for unassessed and assessed stocks; and (3) impacts on fishing opportunities of other fisheries and sectors. The GMT discussed these uncertainties and associated risks with much of the discussion centering on potential technical errors in the CRFS data. As with any new program involving sampling and expansions, risks exist that technical errors may be identified during implementation. The RecFIN Statistical Sub-committee (RecFIN SSC) met recently and evaluated the data inputs from the first year of the CRFS sampling program including errors that could potentially impact the catch estimates generated for 2004. A summary of their results was provided to the GMT by Ms. Jennifer Cahalan (Washington Department of Fish and Wildlife) with additional information on the 2005 CRFS program changes provided by Mr. Russell Porter (Pacific States Marine Fisheries Commission). The RecFIN SSC's findings primarily focused on sampling errors in the Angler License Database (ALD) survey. Specifically, the RecFIN SSC noted that licensed anglers were kept in the sample population for only one sample period (month) following entry into the angler license database instead of being retained for the remainder of the calendar year. Sampling errors, such as this one, can cause statistical problems and biases in the estimate. However, further discussion highlighted the fact that ALD effort estimates are only used to estimate catch for beach/bank anglers, private access boats, and nighttime fishing components of the private/rental, man-made, and beach/bank modes. Considering that only about 10% of the overall catch and effort for all sportfishing in California comes from these anglers, of which the majority are beach and bank anglers, and anglers fishing

from beach and banks do not catch significant numbers of groundfish, the GMT concluded that the impact of this error on the estimates for groundfish species of concern should be minimal.

CDFG also summarized their plans for tracking inseason take, instituting closures, and providing regulation and educational information to the public. CDFG staff will review recreational catch estimates on a monthly basis for inseason tracking and provide these estimates to the GMT. In addition, as 2005 monthly catch estimates become available, CDFG will replace the projected catches with the estimates for that month and will use these along with the remaining projected impacts to evaluate whether harvest targets will be met as scheduled. If catches are projected to exceed specific harvest targets specified in federal regulations, then the director of CDFG can take action to restrict the fishery to slow the harvest or close the fishery when warranted. This action becomes effective 10 days following public notice. To keep anglers informed and assist with rapid distribution of concerns or requests to slow fishing, CDFG has established a communication network with commercial passenger fishing vessel operators and approximately 20 recreational angling associations and clubs (this successfully stopped the targeting of widow rockfish in Southern California waters during 2004).

The GMT recommends approving the adjustments proposed by the CDFG. It recognizes that a more conservative approach might be warranted, given that this is a new program with only a single year of data, and there are uncertainties and risks associated with the CRFS estimates. However, the GMT is confident in the ability of the CDFG to effectively track their inseason recreational catches and to quickly take action to close fisheries when necessary. Because the CDFG will be providing monthly updates to the GMT on the status of its 2005 fishery, the GMT should have the information necessary for taking additional inseason action at the June or September Council meetings, if warranted. The GMT also recommends the Council provide NMFS with the authorization to take action similar to that taken by CDFG between Council meetings.

FINAL CONSIDERATION OF INSEASON ADJUSTMENTS

On Friday, the GMT will provide the Council with an updated bycatch score card and updated trip limit tables. The GMT would like to bring it to the Council's attention that the canary rockfish buffer in the updated bycatch scorecard is projected to be larger than the 2.5 mt buffer recorded in the bycatch scorecard distributed at the March Council meeting.

GMT RECOMMENDATIONS

1. Adopt proposed limited entry trawl trip limit inseason adjustments.
2. Adopt proposed limited entry trawl clarifications to gear requirements.
3. Adopt proposed California recreational inseason adjustments.

PFMC
04/06/05

GROUNDFISH MANGEMENT TEAM STATEMENT ATTACHMENT 1.
CALIFORNIA DEPARTMENT OF FISH AND GAME INSEASON PROPOSAL FOR 2005 BY REGION

Key:

	Allowed in all waters
20	Depth closed > 20fm
30	Depth closed > 30fm
40	Depth closed > 40fm
60	Depth closed > 60fm
20-40	Depth open between 20-40fm
30-60	Depth open between 30-60fm
	Closed

NORTH COAST
(CA/OR Border to 40E 10' N Lat)

North Coast 2005

Species	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Nearshore rockfish							40	40	40	40		
Black rockfish[2]							40	40	40	40		
California sheephead							40	40	40	40		
Cabezon							40	40	40	40		
Greenlings (rock, kelp)							40	40	40	40		
Ocean Whitefish							40	40	40	40		
Shelf rockfish							40	40	40	40		
Lingcod							40	40	40	40		

North Coast 2005 (In-Season Proposal)

Species	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Nearshore rockfish					30	30	30	30	30	30	30	30
Black rockfish[2]					30	30	30	30	30	30	30	30
California sheephead					30	30	30	30	30	30	30	30
Cabezon					30	30	30	30	30	30	30	30
Greenlings (rock, kelp)					30	30	30	30	30	30	30	30
Ocean Whitefish					30	30	30	30	30	30	30	30
Shelf rockfish					30	30	30	30	30	30	30	30
Lingcod					30	30	30	30	30	30	30	

NORTH-CENTRAL COAST
40E 10' N lat to Lopez Point (36E 00' N lat)

North-Central Coast 2005

Species	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Nearshore rockfish							20	20	20	20	20	
California scorpionfish							20	20	20	20	20	
California sheephead							20	20	20	20	20	
Cabezon							20	20	20	20	20	
Greenlings (rock, kelp)							20	20	20	20	20	
Ocean whitefish							20	20	20	20	20	
Shelf rockfish							20	20	20	20	20	
Lingcod							20	20	20	20	20	
Sanddabs												

North-Central Coast 2005 (In-Season Proposal)

Species	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Nearshore rockfish							20	20	20	20	20	20
California scorpionfish							20	20	20	20	20	20
California sheephead							20	20	20	20	20	20
Cabezon							20	20	20	20	20	20
Greenlings (rock, kelp)							20	20	20	20	20	20
Ocean whitefish							20	20	20	20	20	20
Shelf rockfish							20	20	20	20	20	20
Lingcod							20	20	20	20	20	
Sanddabs												

SOUTH-CENTRAL COAST

Lopez Point (36E 00' N lat) to Pt. Conception (34E 27' N lat)

South-Central Coast 2005

Species	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Nearshore rockfish					20-40	20-40	20-40	20-40	20-40			
California scorpionfish					20-40	20-40	20-40	20-40	20-40			
California sheephead					20-40	20-40	20-40	20-40	20-40			
Cabezon					20-40	20-40	20-40	20-40	20-40			
Greenlings					20-40	20-40	20-40	20-40	20-40			
Ocean Whitefish					20-40	20-40	20-40	20-40	20-40			
Shelf rockfish					20-40	20-40	20-40	20-40	20-40			
Lingcod					20-40	20-40	20-40	20-40	20-40			
Sanddabs												

South-Central Coast 2005 (In-Season Proposal)

Species	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Nearshore rockfish					40	40	40	40	40			
California scorpionfish					40	40	40	40	40			
California sheephead					40	40	40	40	40			
Cabezon					40	40	40	40	40			
Greenlings					40	40	40	40	40			
Ocean Whitefish					40	40	40	40	40			
Shelf rockfish					40	40	40	40	40			
Lingcod					40	40	40	40	40			
Sanddabs												

SOUTH COAST

Pt. Conception (34E 27' N lat) to US/Mexico Border

South Coast 2005

Species	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Nearshore rockfish			30-60	30-60	30-60	30-60	40	40	40			
California scorpionfish										40	40	20
California sheephead			30-60	30-60	30-60	30-60	40	40	40			
Cabezon			30-60	30-60	30-60	30-60	40	40	40			
Greenlings			30-60	30-60	30-60	30-60	40	40	40			
Ocean Whitefish			30-60	30-60	30-60	30-60	40	40	40			
Shelf rockfish			30-60	30-60	30-60	30-60	40	40	40			
Lingcod				30-60	30-60	30-60	40	40	40			
Sanddabs												

South Coast 2005 (In-Season Proposal)

Species	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Nearshore rockfish			30-60	60	60	60	60	60	30	30	60	60
California scorpionfish										30	60	60
California sheephead			30-60	60	60	60	60	60	30	30	60	60
Cabezon			30-60	60	60	60	60	60	30	30	60	60
Greenlings			30-60	60	60	60	60	60	30	30	60	60
Ocean Whitefish			30-60	60	60	60	60	60	30	30	60	60
Shelf rockfish			30-60	60	60	60	60	60	30	30	60	60
Lingcod				60	60	60	60	60	30	30	60	
Sanddabs												

GROUNDFISH MANAGEMENT TEAM STATEMENT ON 2005 UPDATES TO THE MODEL USED TO PROJECT TRAWL CATCH AND BYCATCH

The model used by the Groundfish Management Team (GMT) to project trawl catch of target species and bycatch of rebuilding species was updated by Dr. Jim Hastie of the Northwest Fisheries Science Center (NWFSC) for review of 2005 management at the April Council meeting. The primary focus of the update was to incorporate new fishery and observer data into the model. However, other minor changes, such as separating English sole from 'other flatfish' in the model were also implemented. Three sources of data used in the model were updated: NWFSC observer data, fishticket landings data, and trawl logbook data.

Observer Data

Observer data are used to quantify the rates of coincident catch (referred to herein as "bycatch") for rebuilding species, relative to target species catch and the proportions of species catch that are retained and discarded. New observer data cover the period from September 2003 to August 2004. New data were processed for model inclusion in the same manner as used for the 2004 model update. However, some of the data were filtered differently to allow calculation of model parameters that are consistent with the new 2005 requirement that selective flatfish gear be used shoreward of the Rockfish Conservation Area (RCA), north of $40^{o}10'$ N latitude. Modeling of the 2005 fishery that was conducted in 2004 used summarized bycatch rates from the Oregon exempted fishing permit (EFP) provided by Oregon Department of Fish and Wildlife. In producing depth-based rates for use in the model, all catch by a vessel on a particular trip was attributed to the deepest tow start depth recorded for that trip. In updating model parameters for 2005, NWFSC observer records were used to assign EFP catch to depth categories on a tow-by-tow basis. In addition to EFP trips, all other observed use of selective flatfish gear was included in calculating model bycatch parameters.

In accordance with the 2004 recommendation of the Scientific and Statistical Committee, rates of bycatch and discard for each area and depth stratum were calculated separately for each 12-month period of observer program data collection. Model parameters were calculated as weighted averages of the 12-month rates, with higher weights assigned to the most recent data. All rates, except those for the northern nearshore fishery, were combined using the following weighting by observation year: Year-3: 50.0%; Year-2: 33.3% ; Year-1: 16.7%. Use of selective flatfish gear in the north was only observed during the 2nd and 3rd years of observer data collection. As a result, an alternative weighting was used to combine those rates: Year-3: 66.7%; Year-2: 33.3%. Because the preponderance of selective gear observations occurred between the months of May and October, these data were only used to calculate rates for use during bi-monthly periods 3, 4, and 5 in the model. As in the 2004 modeling of the 2005 fishery, the rates included for other periods were derived by applying the ratio of winter-to-summer rates from data for small footrope gear to the summer selective-gear rates. Discard rates applied to the selective-gear fishery are also derived from small-footrope data.

A comparison of bycatch and discard rates used in the 2004 and 2005 models is provided in Tables 1-4. Tables 1 and 2 summarize model rates for the bycatch of rebuilding species, for the nearshore and offshore depth strata, respectively. The values in these tables indicate the projected catch of each species as a percentage of the combined retained catch of all target species. Tables 3 and 4 summarize, for major target species, the percentages of total catch which are projected to be discarded, for the nearshore and offshore depth strata, respectively.

Fishticket Data

Fishticket data are used to document the amount of target species landings for each permitted trawl vessel in the fishery. Each vessel's recent history of landings forms the basis for the projections of target species catch under specified management regimes. The 2004 model utilized fishticket data from the years 2000-2003. For the current update of the model, data from 2000 were replaced by data from 2004. Weighted averages of bi-monthly species landings were calculated using the following annual weighting: 2004: 50.0%; 2003: 27.2%; 2002: 14.8%; 2001: 8.0%.

Logbook Data

Trawl logbook data are used in developing a baseline apportionment of each vessel's target species catch among depth zones. As with fishtickets, data are drawn from the most recent 4-year period. Early in the calendar year, however, logbook data are often incomplete for the preceding year. For periods where data are not complete for the most recent year, the prior 3 years are used. In updating these data for the 2005 model, it was discovered that a substantial portion of Oregon logbook data for 2004 were missing the recorded depth information. As a result, 2004 data were not used for Oregon. For data completeness reasons, California logbook data were only used for the first six months of 2004. Where all four years of data were available, the same weighting for combining data as described above for fishtickets was used to calculate weighted averages. Where only three years were available, the following weighting was used: 2003: 55%; 2002: 30%; 2001: 15%.

Modeling Issues

Following inclusion of the new data, the model's projections of target species were tuned through comparison with landings from 2004 and the first two months of 2005. Fleet-wide scaling adjustments were made to baseline vessel species landings, in order to improve the ability of the model to track reported landings, given the management measures in place during those 7 periods. Due to the inability to include the 2004 Oregon logbook data, and concerns over the effect of higher fuel prices on fleet depth distribution and possible impacts on canary bycatch, April 2005 management options were modeled assuming a somewhat higher propensity for vessels to fish nearshore than in the 2004 modeling. It is anticipated that the Oregon logbook data issue will be addressed in time for those data to be included in the model before the June Council meeting.

PFMC
04/06/05

Table 1. Comparison of inshore bycatch rates used in the 2004 and 2005 bycatch models.

Area	2-month periods	Model inputs	Lingcod <=50 fm	Lingcod <=60 fm	Lingcod <=75 fm	Lingcod <=100 fm
Lingcod						
North of 40°10'	1,2,6	Old	0.135%	0.255%	1.483%	2.459%
		New	0.325%	1.415%	2.176%	2.754%
		change	+0.189%	+1.160%	+0.694%	+0.295%
	3,4,5	Old	0.506%	0.737%	1.996%	1.918%
		New	1.305%	2.920%	3.400%	3.164%
		change	+0.799%	+2.182%	+1.404%	+1.247%
South of 40°10'	1,2,6	Old	2.849%	2.300%	2.354%	2.942%
		New	4.588%	3.805%	3.331%	4.165%
		change	+1.739%	+1.505%	+0.977%	+1.224%
	3,4,5	Old	0.487%	3.126%	3.289%	3.790%
		New	0.740%	3.736%	4.081%	4.559%
		change	+0.253%	+0.610%	+0.792%	+0.769%
Canary						
North of 40°10'	1,2,6	Old	0.000%	0.003%	0.068%	0.187%
		New	0.000%	0.013%	0.047%	0.109%
		change	+0.000%	+0.010%	-0.020%	-0.078%
	3,4,5	Old	0.000%	0.003%	0.059%	0.084%
		New	0.001%	0.023%	0.053%	0.088%
		change	+0.001%	+0.021%	-0.006%	+0.004%
South of 40°10'	1,2,6	Old	0.027%	0.034%	0.014%	0.026%
		New	0.071%	0.076%	0.047%	0.054%
		change	+0.044%	+0.042%	+0.032%	+0.028%
	3,4,5	Old	0.000%	0.024%	0.104%	0.087%
		New	0.001%	0.030%	0.105%	0.106%
		change	+0.001%	+0.006%	+0.002%	+0.019%
Widow						
North of 40°10'	1,2,6	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.003%
		change	+0.000%	+0.000%	+0.000%	+0.003%
	3,4,5	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	+0.000%
South of 40°10'	1,2,6	Old	0.000%	0.001%	0.000%	0.002%
		New	0.000%	0.023%	0.016%	0.017%
		change	+0.000%	+0.022%	+0.016%	+0.015%
	3,4,5	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	-0.000%

Note: these percentages are calculated as: 100 * (rebuilding species catch mt) / (combined target species retained mt)

Table 1 (cont.). Comparison of inshore bycatch rates used in the 2004 and 2005 bycatch models.

Area	2-month periods	Model inputs	Lingcod <=50 fm	Lingcod <=60 fm	Lingcod <=75 fm	Lingcod <=100 fm
Bocaccio						
North of 40°10'	1,2,6	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	+0.000%
	3,4,5	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	+0.000%
South of 40°10'	1,2,6	Old	0.308%	0.715%	0.541%	1.137%
		New	0.169%	4.737%	3.489%	3.847%
		change	-0.139%	+4.021%	+2.947%	+2.710%
	3,4,5	Old	0.000%	0.060%	0.304%	1.299%
		New	0.000%	0.058%	0.339%	1.143%
		change	+0.000%	-0.002%	+0.035%	-0.156%
Cowcod						
North of 40°10'	1,2,6	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	+0.000%
	3,4,5	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	+0.000%
South of 40°10'	1,2,6	Old	0.000%	0.034%	0.034%	0.044%
		New	0.000%	0.250%	0.187%	0.378%
		change	+0.000%	+0.216%	+0.152%	+0.334%
	3,4,5	Old	0.000%	0.002%	0.002%	0.038%
		New	0.000%	0.001%	0.022%	0.049%
		change	+0.000%	-0.000%	+0.020%	+0.012%
Yelloweye						
North of 40°10'	1,2,6	Old	0.000%	0.000%	0.007%	0.017%
		New	0.000%	0.000%	0.001%	0.001%
		change	+0.000%	+0.000%	-0.006%	-0.016%
	3,4,5	Old	0.000%	0.001%	0.008%	0.006%
		New	0.005%	0.006%	0.005%	0.004%
		change	+0.005%	+0.004%	-0.003%	-0.002%
South of 40°10'	1,2,6	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.049%	0.034%	0.034%
		change	+0.000%	+0.049%	+0.034%	+0.034%
	3,4,5	Old	0.034%	0.019%	0.019%	0.019%
		New	0.021%	0.012%	0.012%	0.012%
		change	-0.013%	-0.007%	-0.007%	-0.007%

Note: these percentages are calculated as: 100 * (rebuilding species catch mt) / (combined target species retained mt)

Table 1 (cont.). Comparison of inshore bycatch rates used in the 2004 and 2005 bycatch models.

Area	2-month periods	Model inputs	Lingcod <=50 fm	<=60 fm	<=75 fm	<=100 fm
Darkblotched						
North	1,2,6	Old	0.000%	0.001%	0.035%	0.163%
		New	0.001%	0.002%	0.034%	0.114%
		change	+0.001%	+0.001%	-0.000%	-0.049%
	3,4,5	Old	0.004%	0.001%	0.063%	0.155%
		New	0.048%	0.055%	0.148%	0.205%
		change	+0.044%	+0.054%	+0.084%	+0.051%
South	1,2,6	Old	0.000%	0.002%	0.002%	0.005%
		New	0.000%	0.002%	0.002%	0.003%
		change	+0.000%	-0.001%	-0.001%	-0.002%
	3,4,5	Old	0.000%	0.000%	0.000%	0.026%
		New	0.000%	0.000%	0.000%	0.014%
		change	+0.000%	+0.000%	+0.000%	-0.012%
Pacific ocean Perch						
North	1,2,6	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.004%
		change	+0.000%	+0.000%	+0.000%	+0.004%
	3,4,5	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.017%
		change	+0.000%	+0.000%	+0.000%	+0.017%
South	1,2,6	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	+0.000%
	3,4,5	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	+0.000%

Note: these percentages are calculated as: 100 * (rebuilding species catch mt) / (combined target species retained mt)

Table 2. Comparison of offshore bycatch rates used in the 2004 and 2005 bycatch models.

Area	2-month periods	Model inputs	Lingcod >150 fm	Lingcod >180 fm	Lingcod >200 fm	Lingcod >250 fm
North of 40°10'	1,6	Old	0.162%	0.159%	0.128%	0.000%
		New	0.244%	0.182%	0.123%	0.000%
		change	+0.081%	+0.023%	-0.005%	+0.000%
	2,5	Old	0.028%	0.017%	0.018%	0.000%
		New	0.052%	0.033%	0.017%	0.000%
		change	+0.023%	+0.016%	-0.001%	+0.000%
	3,4	Old	1.718%	0.055%	0.035%	0.000%
		New	0.101%	0.053%	0.027%	0.000%
		change	-1.616%	-0.001%	-0.008%	+0.000%
South of 40°10'	1,6	Old	1.243%	0.926%	0.112%	0.017%
		New	0.989%	0.760%	0.095%	0.012%
		change	-0.254%	-0.166%	-0.017%	-0.006%
	2,5	Old	0.171%	0.116%	0.079%	0.001%
		New	0.258%	0.212%	0.188%	0.016%
		change	+0.087%	+0.095%	+0.109%	+0.015%
	3,4	Old	0.024%	0.023%	0.022%	0.016%
		New	0.454%	0.021%	0.013%	0.009%
		change	+0.429%	-0.003%	-0.009%	-0.007%

Area	2-month periods	Model inputs	Canary >150 fm	Canary >180 fm	Canary >200 fm	Canary >250 fm
North of 40°10'	1,6	Old	0.007%	0.007%	0.000%	0.000%
		New	0.004%	0.003%	0.000%	0.000%
		change	-0.003%	-0.004%	+0.000%	+0.000%
	2,5	Old	0.006%	0.003%	0.000%	0.000%
		New	0.007%	0.003%	0.000%	0.000%
		change	+0.001%	+0.000%	+0.000%	+0.000%
	3,4	Old	0.012%	0.012%	0.000%	0.000%
		New	0.012%	0.009%	0.000%	0.000%
		change	+0.000%	-0.003%	+0.000%	+0.000%
South of 40°10'	1,6	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	+0.000%
	2,5	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	+0.000%
	3,4	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	-0.000%	+0.000%	+0.000%	+0.000%

Note: these percentages are calculated as: 100 * (rebuilding species catch mt) / (combined target species retained mt)

Table 2 (cont.). Comparison of offshore bycatch rates used in the 2004 and 2005 bycatch models.

Area	2-month periods	Model inputs	Widow >150 fm	Widow >180 fm	Widow >200 fm	Widow >250 fm
North of 40°10'	1,6	Old	0.020%	0.014%	0.005%	0.000%
		New	0.014%	0.010%	0.004%	0.000%
		change	-0.006%	-0.004%	-0.002%	+0.000%
	2,5	Old	0.026%	0.024%	0.024%	0.000%
		New	0.023%	0.022%	0.021%	0.000%
		change	-0.004%	-0.003%	-0.003%	+0.000%
	3,4	Old	0.004%	0.003%	0.004%	0.000%
		New	0.006%	0.004%	0.005%	0.000%
		change	+0.003%	+0.001%	+0.001%	+0.000%
South of 40°10'	1,6	Old	0.002%	0.001%	0.000%	0.000%
		New	0.001%	0.001%	0.000%	0.000%
		change	-0.000%	-0.000%	+0.000%	+0.000%
	2,5	Old	0.005%	0.001%	0.000%	0.000%
		New	0.004%	0.001%	0.001%	0.000%
		change	-0.001%	+0.000%	+0.000%	+0.000%
	3,4	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	+0.000%

Area	2-month periods	Model inputs	Bocaccio >150 fm	Bocaccio >180 fm	Bocaccio >200 fm	Bocaccio >250 fm
North of 40°10'	1,6	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	+0.000%
	2,5	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	+0.000%
	3,4	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	+0.000%
South of 40°10'	1,6	Old	0.398%	0.201%	0.000%	0.000%
		New	0.289%	0.160%	0.000%	0.000%
		change	-0.109%	-0.041%	+0.000%	+0.000%
	2,5	Old	0.042%	0.035%	0.000%	0.000%
		New	0.033%	0.024%	0.000%	0.000%
		change	-0.008%	-0.011%	+0.000%	+0.000%
	3,4	Old	0.000%	0.000%	0.000%	0.000%
		New	0.005%	0.001%	0.000%	0.000%
		change	+0.005%	+0.001%	+0.000%	+0.000%

Note: these percentages are calculated as: 100 * (rebuilding species catch mt) / (combined target species retained mt)

Table 2 (cont.). Comparison of offshore bycatch rates used in the 2004 and 2005 bycatch models.

Area	2-month periods	Model inputs	Cowcod >150 fm	Cowcod >180 fm	Cowcod >200 fm	Cowcod >250 fm
North of 40°10'	1,6	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	+0.000%
	2,5	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	+0.000%
	3,4	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	+0.000%
South of 40°10'	1,6	Old	0.008%	0.002%	0.000%	0.000%
		New	0.006%	0.002%	0.000%	0.000%
		change	-0.001%	-0.000%	-0.000%	+0.000%
	2,5	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	+0.000%
	3,4	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	-0.000%	+0.000%	+0.000%	+0.000%

Area	2-month periods	Model inputs	Yelloweye >150 fm	Yelloweye >180 fm	Yelloweye >200 fm	Yelloweye >250 fm
North of 40°10'	1,6	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	-0.000%	-0.000%	+0.000%	+0.000%
	2,5	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	-0.000%	-0.000%	+0.000%
	3,4	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	+0.000%
South of 40°10'	1,6	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	+0.000%
	2,5	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	+0.000%
	3,4	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	+0.000%

Note: these percentages are calculated as: 100 * (rebuilding species catch mt) / (combined target species retained mt)

Table 2 (cont.). Comparison of offshore bycatch rates used in the 2004 and 2005 bycatch models.

Area	2-month periods	Model inputs	Darkblotched >150 fm	Darkblotched >180 fm	Darkblotched >200 fm	Darkblotched >250 fm
North of 38°	1,6	Old	0.808%	1.021%	0.920%	0.000%
		New	1.762%	1.770%	1.475%	0.000%
		change	+0.954%	+0.750%	+0.556%	+0.000%
	2,5	Old	0.291%	0.175%	0.149%	0.000%
		New	0.599%	0.492%	0.417%	0.000%
		change	+0.308%	+0.317%	+0.268%	+0.000%
	3,4	Old	0.623%	0.606%	0.604%	0.000%
		New	2.577%	2.171%	2.229%	0.000%
		change	+1.955%	+1.565%	+1.625%	+0.000%
South of 38°	1,6	Old	0.029%	0.026%	0.002%	0.000%
		New	0.126%	0.051%	0.035%	0.000%
		change	+0.097%	+0.024%	+0.032%	+0.000%
	2,5	Old	0.006%	0.006%	0.005%	0.000%
		New	0.062%	0.058%	0.057%	0.000%
		change	+0.056%	+0.053%	+0.052%	+0.000%
	3,4	Old	0.016%	0.016%	0.017%	0.000%
		New	0.491%	0.103%	0.105%	0.000%
		change	+0.475%	+0.087%	+0.087%	+0.000%

Area	2-month periods	Model inputs	Pacific ocean Perch >150 fm	Pacific ocean Perch >180 fm	Pacific ocean Perch >200 fm	Pacific ocean Perch >250 fm
North of 40°10'	1,6	Old	1.341%	1.182%	1.078%	0.000%
		New	1.365%	1.152%	0.987%	0.000%
		change	+0.024%	-0.030%	-0.090%	+0.000%
	2,5	Old	0.275%	0.182%	0.163%	0.000%
		New	0.513%	0.405%	0.267%	0.000%
		change	+0.238%	+0.223%	+0.104%	+0.000%
	3,4	Old	1.084%	0.906%	0.768%	0.000%
		New	1.209%	0.830%	0.647%	0.000%
		change	+0.124%	-0.075%	-0.121%	+0.000%
South of 40°10'	1,6	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	+0.000%
	2,5	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	+0.000%	+0.000%	+0.000%	+0.000%
	3,4	Old	0.000%	0.000%	0.000%	0.000%
		New	0.000%	0.000%	0.000%	0.000%
		change	-0.000%	-0.000%	-0.000%	+0.000%

Note: these percentages are calculated as: 100 * (rebuilding species catch mt) / (combined target species retained mt)

Table 3. Comparison of inshore discard rates used in the 2004 and 2005 bycatch models.

	Area	2-month periods	Model inputs	<=50 fm	<=60 fm	<=75 fm	<=100 fm
Sablefish							
	North	1,2,6	Old	25%	54%	71%	52%
			New	60%	49%	53%	44%
			change	+34.9%	-4.7%	-18.7%	-8.5%
		3,4,5	Old	30%	50%	58%	51%
			New	22%	38%	37%	33%
			change	-8.2%	-11.8%	-21.7%	-17.9%
	South	1,2,6	Old	14%	85%	81%	90%
			New	55%	95%	83%	86%
			change	+41.8%	+9.2%	+1.7%	-3.6%
		3,4,5	Old	91%	91%	64%	80%
			New	97%	97%	50%	47%
			change	+5.9%	+6.0%	-14.1%	-33.1%
Longspine							
	North	1,2,6	Old	0%	0%	0%	67%
			New	0%	0%	0%	67%
			change	+0.0%	+0.0%	+0.0%	-0.3%
		3,4,5	Old	0%	0%	0%	0%
			New	0%	0%	1%	0%
			change	+0.0%	+0.0%	+0.3%	+0.0%
	South	1,2,6	Old	0%	0%	0%	0%
			New	0%	0%	0%	0%
			change	+0.0%	+0.0%	+0.0%	+0.0%
		3,4,5	Old	0%	0%	0%	0%
			New	0%	0%	0%	0%
			change	+0.0%	+0.0%	+0.0%	+0.0%
Shortspine							
	North	1,2,6	Old	0%	0%	0%	1%
			New	0%	0%	0%	3%
			change	+0.0%	+0.0%	+0.0%	+2.3%
		3,4,5	Old	0%	2%	8%	12%
			New	0%	1%	3%	8%
			change	+0.0%	-0.4%	-5.0%	-3.9%
	South	1,2,6	Old	0%	0%	0%	0%
			New	0%	0%	0%	0%
			change	+0.0%	+0.0%	+0.0%	+0.0%
		3,4,5	Old	0%	0%	0%	5%
			New	0%	0%	0%	4%
			change	+0.0%	+0.0%	+0.0%	-0.5%

Note: these percentages are calculated as: 100 * (retained mt) / (catch mt)

Table 3 (cont.). Comparison of inshore discard rates used in the 2004 and 2005 bycatch models.

Area	2-month periods	Model inputs	<=50 fm	<=60 fm	<=75 fm	<=100 fm
Dover sole						
North	1,2,6	Old	87%	33%	40%	34%
		New	53%	27%	29%	25%
		change	-33.9%	-6.8%	-10.9%	-8.9%
	3,4,5	Old	22%	12%	12%	14%
		New	21%	10%	8%	10%
		change	-0.9%	-2.2%	-4.0%	-4.6%
South	1,2,6	Old	85%	99%	99%	85%
		New	92%	100%	100%	93%
		change	+7.4%	+0.4%	+0.3%	+7.2%
	3,4,5	Old	30%	91%	91%	68%
		New	76%	95%	95%	93%
		change	+46.7%	+4.0%	+4.1%	+25.4%
Petrale sole						
North	1,2,6	Old	11%	5%	15%	12%
		New	20%	10%	13%	12%
		change	+8.9%	+4.3%	-1.1%	-0.5%
	3,4,5	Old	10%	15%	15%	16%
		New	8%	10%	10%	11%
		change	-1.3%	-4.9%	-4.6%	-4.8%
South	1,2,6	Old	26%	2%	5%	3%
		New	40%	6%	11%	10%
		change	+14.1%	+3.7%	+6.1%	+6.9%
	3,4,5	Old	6%	4%	4%	5%
		New	3%	4%	4%	5%
		change	-2.7%	+0.0%	-0.0%	-0.6%
Arrowtooth						
North	1,2,6	Old	36%	64%	59%	59%
		New	100%	68%	63%	63%
		change	+63.7%	+4.1%	+3.9%	+3.7%
	3,4,5	Old	87%	75%	70%	67%
		New	72%	78%	74%	71%
		change	-14.4%	+2.7%	+4.6%	+4.1%
South	1,2,6	Old	0%	0%	0%	33%
		New	100%	100%	100%	100%
		change	+100.0%	+100.0%	+100.0%	+67.0%
	3,4,5	Old	0%	3%	36%	36%
		New	0%	5%	36%	36%
		change	+0.0%	+1.6%	+0.3%	+0.3%

Note: these percentages are calculated as: 100 * (retained mt) / (catch mt)

Table 3 (cont.). Comparison of inshore discard rates used in the 2004 and 2005 bycatch models.

Area	2-month periods	Model inputs	<=50 fm	<=60 fm	<=75 fm	<=100 fm
Other flatfish						
North	1,2,6	Old	21%	21%	24%	28%
		New	9%	16%	19%	22%
		change	-11.6%	-4.7%	-5.0%	-6.0%
	3,4,5	Old	20%	21%	22%	24%
		New	17%	17%	18%	20%
		change	-2.9%	-4.2%	-4.2%	-4.0%
South	1,2,6	Old	35%	24%	23%	24%
		New	27%	15%	17%	17%
		change	-7.9%	-9.3%	-6.7%	-7.6%
	3,4,5	Old	12%	23%	21%	23%
		New	3%	7%	7%	9%
		change	-9.1%	-15.9%	-13.6%	-14.6%

Note: these percentages are calculated as: 100 * (retained mt) / (catch mt)

Table 4. Comparison of offshore discard rates used in the 2004 and 2005 bycatch models.

Area	2-month periods	Model inputs	>150 fm	>180 fm	>200 fm	>250 fm
Sablefish						
North	1,6	Old	44%	42%	38%	32%
		New	44%	42%	40%	34%
		change	+0.5%	+0.6%	+1.7%	+1.5%
	2,5	Old	23%	22%	22%	19%
		New	31%	30%	29%	27%
		change	+7.7%	+7.4%	+7.3%	+8.0%
	3,4	Old	18%	18%	17%	15%
		New	23%	22%	21%	18%
		change	+4.6%	+4.0%	+4.0%	+3.2%
South	1,6	Old	36%	34%	32%	31%
		New	36%	33%	32%	33%
		change	+0.2%	-0.8%	-0.0%	+1.7%
	2,5	Old	29%	28%	28%	27%
		New	29%	27%	27%	27%
		change	-0.2%	-0.3%	-0.5%	+0.2%
	3,4	Old	16%	16%	16%	13%
		New	15%	15%	15%	13%
		change	-1.0%	-1.0%	-1.0%	-0.2%
Longspine						
North	1,6	Old	20%	20%	20%	19%
		New	21%	21%	20%	20%
		change	+0.6%	+0.7%	+0.8%	+0.8%
	2,5	Old	18%	18%	18%	18%
		New	18%	18%	18%	17%
		change	-0.6%	-0.6%	-0.7%	-1.0%
	3,4	Old	18%	18%	17%	16%
		New	15%	15%	15%	14%
		change	-2.3%	-2.1%	-2.2%	-2.3%
South	1,6	Old	19%	19%	19%	19%
		New	19%	19%	19%	19%
		change	-0.7%	-0.7%	-0.6%	-0.6%
	2,5	Old	13%	13%	13%	13%
		New	11%	11%	11%	11%
		change	-2.4%	-2.4%	-2.3%	-2.3%
	3,4	Old	9%	9%	9%	9%
		New	9%	9%	9%	9%
		change	+0.2%	+0.2%	+0.2%	-0.2%

Note: these percentages are calculated as: 100 * (retained mt) / (catch mt)

Table 4 (cont.). Comparison of offshore discard rates used in the 2004 and 2005 bycatch models.

Area	2-month periods	Model inputs	>150 fm	>180 fm	>200 fm	>250 fm
Shortspine						
North	1,6	Old	38%	37%	36%	35%
		New	41%	41%	40%	37%
		change	+3.2%	+3.2%	+3.5%	+2.1%
	2,5	Old	35%	35%	35%	34%
		New	32%	32%	32%	32%
		change	-2.6%	-2.5%	-2.6%	-2.4%
	3,4	Old	48%	48%	46%	43%
		New	38%	35%	33%	30%
		change	-10.0%	-12.8%	-13.0%	-12.9%
South	1,6	Old	36%	36%	35%	35%
		New	35%	35%	35%	34%
		change	-0.4%	-0.3%	-0.1%	-0.4%
	2,5	Old	31%	31%	31%	31%
		New	29%	28%	28%	28%
		change	-2.5%	-2.5%	-2.5%	-2.4%
	3,4	Old	24%	24%	24%	23%
		New	20%	20%	20%	19%
		change	-3.9%	-3.8%	-3.8%	-4.2%
Dover sole						
North	1,6	Old	9%	8%	7%	7%
		New	6%	6%	5%	4%
		change	-2.4%	-2.1%	-2.2%	-2.8%
	2,5	Old	11%	11%	10%	12%
		New	7%	7%	7%	8%
		change	-4.1%	-4.0%	-3.7%	-4.0%
	3,4	Old	12%	11%	12%	15%
		New	9%	8%	9%	11%
		change	-3.1%	-3.1%	-3.1%	-3.8%
South	1,6	Old	22%	22%	22%	22%
		New	15%	15%	14%	15%
		change	-7.6%	-7.8%	-7.5%	-7.4%
	2,5	Old	12%	11%	11%	13%
		New	11%	10%	10%	12%
		change	-0.5%	-0.6%	-0.9%	-0.5%
	3,4	Old	11%	11%	11%	13%
		New	8%	8%	8%	8%
		change	-3.8%	-3.7%	-3.7%	-4.5%

Note: these percentages are calculated as: 100 * (retained mt) / (catch mt)

Table 4 (cont.). Comparison of offshore discard rates used in the 2004 and 2005 bycatch models.

Area	2-month periods	Model inputs	>150 fm	>180 fm	>200 fm	>250 fm
Petrale sole						
North	1,6	Old	0%	0%	1%	3%
		New	0%	1%	1%	2%
		change	+0.1%	+0.1%	-0.2%	-0.9%
	2,5	Old	1%	1%	1%	7%
		New	1%	1%	1%	4%
		change	+0.2%	+0.2%	-0.4%	-3.2%
	3,4	Old	5%	4%	7%	2%
		New	2%	2%	4%	1%
		change	-2.3%	-2.0%	-3.4%	-0.8%
South	1,6	Old	0%	0%	0%	1%
		New	1%	0%	0%	50%
		change	+0.1%	-0.2%	-0.2%	+49.7%
	2,5	Old	10%	10%	1%	0%
		New	6%	5%	0%	0%
		change	-4.7%	-4.9%	-0.3%	+0.4%
	3,4	Old	3%	3%	3%	3%
		New	1%	1%	2%	2%
		change	-1.3%	-1.5%	-1.6%	-1.5%
Arrowtooth						
North	1,6	Old	49%	48%	43%	29%
		New	36%	35%	32%	18%
		change	-13.5%	-13.4%	-11.1%	-10.6%
	2,5	Old	20%	19%	18%	16%
		New	13%	12%	12%	10%
		change	-6.6%	-6.3%	-5.6%	-5.8%
	3,4	Old	42%	42%	44%	55%
		New	22%	23%	22%	28%
		change	-19.4%	-19.2%	-21.4%	-26.7%
South	1,6	Old	96%	92%	59%	59%
		New	98%	95%	94%	93%
		change	+1.4%	+3.6%	+35.8%	+34.0%
	2,5	Old	100%	100%	100%	100%
		New	91%	91%	92%	95%
		change	-8.6%	-8.8%	-8.0%	-5.2%
	3,4	Old	78%	77%	77%	87%
		New	82%	81%	81%	90%
		change	+4.4%	+3.9%	+3.8%	+2.2%

Note: these percentages are calculated as: 100 * (retained mt) / (catch mt)

Table 4 (cont.). Comparison of offshore discard rates used in the 2004 and 2005 bycatch models.

Area	2-month periods	Model inputs	>150 fm	>180 fm	>200 fm	>250 fm
Other flatfish						
North	1,6	Old	27%	26%	30%	30%
		New	24%	23%	23%	19%
		change	-2.3%	-3.3%	-6.4%	-11.1%
	2,5	Old	41%	43%	44%	50%
		New	28%	29%	30%	34%
		change	-12.6%	-13.4%	-13.8%	-16.4%
	3,4	Old	28%	29%	30%	43%
		New	19%	20%	20%	29%
		change	-9.6%	-9.2%	-10.0%	-13.2%
South	1,6	Old	28%	28%	27%	29%
		New	28%	25%	24%	27%
		change	-0.2%	-2.9%	-2.8%	-2.5%
	2,5	Old	36%	42%	44%	55%
		New	34%	34%	33%	41%
		change	-1.6%	-8.4%	-11.1%	-14.2%
	3,4	Old	33%	34%	34%	46%
		New	25%	26%	26%	30%
		change	-7.9%	-8.0%	-8.2%	-15.6%

Note: these percentages are calculated as: 100 * (retained mt) / (catch mt)

From: DFG News
To: Forrest Gardens
Date: 4/5/2005 1:58:33 PM
Subject: DFG Announces Additional Recreational Groundfish Opportunities

NEWS RELEASE FOR IMMEDIATE RELEASE Apr 05, 2005 05:025

Contact: Carrie Wilson, Office of Communications (831) 649-7191

DFG Announces Additional Recreational Groundfish Opportunities

The California Department of Fish and Game (DFG) today announced changes to the 2005 recreational groundfish season, which provides expanded opportunities to anglers in state waters. At the request of the Fish and Game Commission, DFG Director Ryan Broddrick approved modifying the recreational groundfish fishing season for 2005.

The in-season adjustments follow the receipt of new data from the California Recreational Fisheries Survey (CRFS), which was implemented in 2004 to provide more timely and accurate estimates of recreational catch and effort in ocean waters. CRFS data are available on a monthly basis to help manage California's recreational fisheries.

"The California Recreational Fisheries Survey is the best scientific method available for evaluating all forms of recreational ocean fishing," said Broddrick. "To the extent that these data support additional fishing opportunities, the Department will make those opportunities available."

Broddrick cautioned, however, that fishing opportunities could be restricted in the future if new CRFS data show that species are being caught at levels greater than allowed. The changes to the recreational groundfish seasons and depths by area are as follows:

- Northern Management Area (California/Oregon border to near Cape Mendocino): Open May 1 through December from 0-30 fms (0-180 feet).
- North-Central Management Area (Near Cape Mendocino to Pigeon Point): Open July 1 through December from 0-20 fms (0-120 feet).
- Monterey South-Central Management Area (Pigeon Point to near Lopez Point): Open July 1 through December from 0-20 fms (0-120 feet).
- Morro Bay South-Central Management Area (near Lopez Point to Point Conception): Open May 1 through September from 0-40 fms (0-240 feet).
- Southern Management Area (Point Conception to U.S.-Mexico border): Open April 16 through December from 0-60 fms (0-360 ft.), except during September and October when fishing is restricted to 0-30 fms (0-180 feet).

These adjustments apply only to state waters (0-3 nautical miles from shore) pending action by the Pacific Fisheries Management Council, which is scheduled to decide on April 8, whether they will be extended into federal waters (3-200 nautical miles from shore).

For more detailed information about the modified recreational groundfish fishing season, visit the DFG's Web site, at www.dfg.ca.gov/mrd/bfregs2005.html.

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Correct report for Administrative record

Agenda Item B.6.c
Supplemental CDFG Report 2
April 2005

DRAFT 2: REPORT TO GMT REGARDING INSEASON MANAGEMENT PROPOSALS FOR THE 2005 CALIFORNIA RECREATIONAL FISHING SEASON USING PROJECTIONS FROM 2004 CRFS ESTIMATES

Susan Ashcraft, Debbie Aseltine-Neilson, CDFG

BACKGROUND AND PROPOSED ACTION:

At the March 2005 Pacific Fisheries Management Council (Council) meeting, the California Department of Fish and Game (CDFG) provided an Informational Report which summarized the California Recreational Fishery Survey (CRFS) program implementation and validation process, and provided recreational groundfish catch and effort estimates by mode for 2004 (Informational Report 2: CDFG 2004 Recreational Fisheries Data, March 2005). California recreational harvest guidelines or allocations for overfished species were not exceeded in 2004. Based on these results, in conjunction with the improved ability for real-time inseason catch monitoring, the Council conveyed its willingness to consider CRFS estimates to support inseason fishery actions in 2005. Following the March Council meeting, the CDFG used 2004 CRFS data to project fishing impacts for 2005, and derived options for a modified 2005 season structure which allows greater fishing opportunities while achieving the goal of keeping projected impacts within recreational harvest guidelines or allocations for overfished and constraining species. Upon receiving guidance provided by the California Fish and Game Commission (FGC) in light of constituent input and public testimony, the Director of the CDFG is considering immediate action, through the authority of existing state regulations (Section 27.82(e), Title 14, California Code of Regulations), to implement a modified recreational groundfish fishing season in state waters.

We request that the GMT and Council consider adopting these inseason management measures in federal waters for 2005. The proposed season structure is provided in Attachment 1.

REASONS FOR CONSIDERATION OF INSEASON ADJUSTMENTS:

Several considerations lead the CDFG to conclude that modification of the 2005 season structure is warranted:

- The current 2005 season structure was based on catch projections pre-dating the CRFS program (i.e., MRFSS catch estimates prior to 2004 were applied in a decay model).
- The CRFS program has been designed to provide more accurate and precise annual catch estimates than the previous program, and is the most readily available data source for inseason management.
- As discussed at the March Council meeting, the 2004 catch estimates from CRFS were within annual targets and limits established by PFMC for constraining species and overfished species.
- The current 2005 season structure was designed as more restrictive than the 2004 season structure due to catch projections from the MRFSS-derived model. In light of 2004 season catch estimates from the CRFS program, revised projections suggest that the current season may be more restrictive than what is needed to keep take of species of concern within acceptable limits. Such restrictions have the potential of creating economic hardship for the industry and fishing communities.
- Monthly catch estimates provided by CRFS for six regions in California provides for careful and detailed inseason monitoring by the state as a safe-guard, if rapid inseason response is needed due to higher-than-anticipated catch levels.

DATA EXAMINED AND METHODS USED FOR PROJECTING 2005 SEASON IMPACTS USING CRFS:

- Analysts: CDFG analysts for this task were Debbie Aseltine-Neilson and Tom Barnes
- Data Source: CRFS catch estimates contained in the RecFIN website were examined. Estimates of recreational catch for 2004 by district (region) and month for each species were extracted from the RecFIN/CRFS website (www.psmfc.org/recfin/forms/est2004.html) and used for projection of impacts under proposed options for 2005 inseason changes.
- Methodology:
  - Estimation of impact for months or depths in 2005 season: Catch estimates for months and depths open in 2004 were used to project impacts for the same months and depths in 2005. For months or depths that were closed in 2004, ratios from the catch projection model (originally used to generate 2005-06 management specifications) were applied.
    - Projected impact for closed months: Expansions for proposed months were derived from ratios in the 2005-06 Catch Percent by Wave tables.
    - Projected impact for closed depths: Expansions for proposed depth changes were derived from ratios in the 2005-06 Catch Percent by Depth tables from the same model.
  - Effort Shift Adjustment: Catch ratios in the 2005-06 catch projection model incorporated effort shifts for fishing less than 40 fm. Therefore, areas in 2004 requiring effort adjustments before expanding to all depths were modified using effort shift adjustment factors for 20 fm (1.393) and 30 fm (1.276).
  - Combining impacts across waves and depths: The resulting estimates from all districts were then combined or divided, where necessary, to provide estimates of impacts for the proposed management structure in the four regions with separate management specifications in 2005.

REVISED SEASON STRUCTURE OPTIONS RELATIVE TO 2004 SEASON:

The CDFG considered the 2004 season structure as a starting point for consideration of a revised 2005 season, given that catch estimates from the 2004 season were at acceptable levels. The proposed season structure for 2005 assumes implementation in April. While opening January through March is no longer an option, it does sufficient catch savings relative to 2004 to consider additional opportunities in the 2005 season proposed for April through December. The following provides a summary of changes in season structure in each region that could be accommodated while keeping projected harvest below targets for overfished species.

Regional Proposals:

- North Coast (40°10' N. lat to CA/OR border): Same as 2004 **plus** black rockfish retention allowed in all open months, **plus** 1 month lingcod added
- Central Coast (40°10' N. lat to 36° N. lat): Current 2005 season **plus** December at same depth
- South-Central Coast (36° N. lat to 34°27' N. lat): Current 2005 season **plus** shallow water access
- South Coast (34°27' N. lat to US/Mexico border): Same as 2004; CA scorpionfish same as 2005 with depth adjustments

Limitations and Considerations:

- Central Coast: Catch levels of minor NS RF in 2004 reached 96.5% of the recreational HG for this area. Canary RF is also an issue. Therefore, even with the CRFS adjustments, it did not allow for additional opportunity. Consequently, there is limited ability to add more than 1 mo or allow deeper fishing depths (despite constituent concerns over concentration of fishing in shallow depths).
- South Central Coast: Same minor NS RF consideration as for Central Coast. Closure of July could have allowed for fishing through December but constituents considered opening that month a priority.
- Lingcod season: retention allowance during proposed rockfish season for each area, except for spawning closure (December through March). Careful inseason monitoring will be necessary due to recruitment into the fishery; may need to consider further inseason non-retention in the fall.
- Salmon fishing opportunities: A poor salmon season predicted for 2005 may lead to increased targeting of groundfish in some areas of the coast, although this effect cannot be calculated at this time.
- According to CRFS catch estimates, both cabezon and greenling catches in 2004 were lower than their respective targets for 2005. This is the case despite a reduction in the cabezon OY in 2005 from new stock assessment results. Nonetheless, as the cabezon and greenling season coincides with rockfish seasons and depths, these catches will need to be monitored closely this year. Should early attainment be projected, non-retention is a reasonable action given the high survivability of these species.

ESTIMATED IMPACTS RESULTING FROM ACTION:

Total Bycatch Estimate (mt) for Overfished Species relative to target (OY/HG)

	Bocaccio	**Canary**	**Cowcod**	**Dkbl**	**Lingcod**	**POP**	**Widow**	**Yeye**
Total 2005 Catch Estimate	60	9.1	0.4	0	<422	0	9.4	<3.7
HG[1] or updated impact estimate[2]	77[2]	9.3[1]	1.8[1]	0[2]	422[1]	0[2]	9.4[2,3]	3.7[1]

1 – Harvest Guideline (HG) established in Federal Regulations
2 – Best estimate of recreational impact in 2005
3 – Widow estimate was updated relative to bycatch scorecard value (as updated in March 2005) by adjusting projections for temporary targeting that occurred in 2004.

Total Catch Estimate (mt) for Other Species [e.g., Target Species/Species Group, Species with Harvest Guideline (HG), Constraining Species]:

	Black Rockfish (RF)	**Minor Nearshore RF North** (40°10'-CA/OR border)	**Minor Nearshore RF South** (40°10'-US/Mexico border)
Total 2005 Catch Estimate	137	11	383
HG[1], updated impact estimate[2], or HT[3]	175[3]	11[2]	383[2]

1 – Harvest Guideline (HG) established in Federal Regulations
2 – Best estimate of recreational impact in 2005
3 – Harvest Target (HT): For black rockfish, this is the state-derived recreational harvest target within the Federal HG for CA recreational and commercial catch, combined. The black rockfish recreational target is derived from CA Fish and Game Commission allocation guidance between recreational and commercial sectors.

AREAS OF UNCERTAINTY IN THE USE OF CRFS DATA FOR INSEASON MANAGEMENT:

The CDFG evaluated risks associated with using uncalibrated 2004 CRFS data for inseason management in 2005 and in particular considered the following:

1) AREAS OF UNCERTAINTY: Risk to the Resource

The risk of using uncalibrated CRFS data for inseason management during 2005 may not be the same for all species. With respect to data quality, there are two general types of stocks under groundfish management:

- Data-poor unassessed stocks
- Data-moderate stocks that have been formally assessed

Unassessed Stocks

It is not possible to properly determine the risk of using CRFS data to manage unassessed stocks at this time.

- Catch history is critical for setting HG/OYs.
    - For all species, the historical catch from the recreational sector was obtained from the MRFSS program.
- Initial indications suggest that the CRFS catch estimates for most species may be systematically lower than corresponding MRFSS estimates.
    - Calibration is the answer to dealing with systematic differences between MRFSS and CRFS. However, sufficient data for statistically valid calibration of MRFSS to CRFS are currently unavailable.
- The risk to the resource associated with the use of 2005 CRFS catch estimates to fill MRFSS-based HG/OYs is dependent upon three factors: 1) whether or not any of the HG/OY is left uncaught using the CRFS catch estimates; 2) the relative size of the recreational fishery compared to the commercial fishery during the period that was used for calculating the HG/OY; and 3) the degree to which the MRFSS program may have overestimated catch compared to the CRFS program.

Assessed Stocks

Some assessed species may be able to better handle the risk than the unassessed species, because their HG/OYs are based on stock assessments that include many kinds of data, not just the catch history. In particular, assessment results for canary rockfish, bocaccio and black rockfish would be expected to exhibit only minor effects from any potential change in the recreational catch history from California.

- In the case of these three species, the risk of jeopardizing the health of the stock associated with using the CRFS data for inseason management is thought to be low.
    - For bocaccio and canary rockfish, the California recreational fishery was probably too small to significantly change the assessment results if the historical values were to be adjusted for bias.
    - For black rockfish, the California recreational fishery accounted for a somewhat larger share of combined Oregon/California landings since 1980; however the age composition from the Oregon fishery in the 1980's and 1990's had the greatest effect on the assessment results. Also, the black rockfish assessment found the stock to be healthy, and therefore is more resilient to changes in harvest rate.

2) AREAS OF UNCERTAINTY: Risk to fishing opportunities of other fisheries and sectors

During the past few years, the Council has chosen to close fishing opportunities inseason for both commercial and recreational fisheries in response to fishing overages in other sectors, particularly as some OYs have been set at very low levels under rebuilding plans. The variable nature of recreational fishing effort was considered, and the level of uncertainty relative to employing CRFS data when only a single year of data are available. These risks may be mitigated by the enhanced monitoring capabilities of the CRFS program, which provides regional catch and effort estimates on a monthly basis and will allow managers to monitor catches inseason and slow down or shut down fishing if needed, through state action.

3) AREAS OF UNCERTAINTY: Risk of technical errors in survey inputs from first year of program implementation

The CDFG "Informational Report 2" from the March 2005 Council meeting outlined the range of program elements that have been implemented in CRFS, including, for example, technical elements such as production of expansion programs to generate catch and effort estimates, and implementation of a limited Angler License Database (ALD) to provide effort estimates for angler activities that cannot be estimated by direct observation. As with any new program involving sampling and expansions, the risk exists that technical errors may be identified throughout the implementation. The CDFG continues to work with the RecFIN Technical Committee and RecFIN Statistical Sub-committee in fine-tuning the program, and in identifying and addressing data shortcomings. The RecFIN Statistical Sub-committee met recently, and evaluated the data inputs from the first year of the CRFS sampling program, including errors that could potentially impact the catch estimates generated for 2004. Their concerns were primarily focused on sampling errors in the ALD survey. Specifically, "sampling without replacement" was employed rather than "sampling with replacement", causing statistical problems and biases in the estimate.

- Contribution of ALD survey to groundfish catch estimates: Wade Van Buskirk at Pacific States Marine Fisheries Commission estimates that the ALD is used to generate about 10% of the overall catch and effort for all sportfishing in California. It is used to estimate catch for the following modes: private access boats, beach/bank, and nighttime fishing components of the private boat, man made and beach/bank modes. Beach and bank anglers represent the majority of the anglers in the 10% mentioned above and do not catch significant numbers of groundfish (For example, about 1% of the total gopher catch estimated in CRFS is derived from these modes).

- Adjustments in the CRFS program: Adjustments have been made to account for sampling biases identified from 2004, through a methodology derived by Wade Van Buskirk, which involved comparison of ALD effort estimates with the MRFSS telephone effort survey conducted concurrently in 2004. According to Wade, the CRFS ALD trips-per-angler matched up with three waves of the 2004 MRFSS telephone effort survey for trips-per-angler. For the other three waves, CRFS overestimated trips-per-angler by 25% in two of the waves and by 100% in one of the waves. The fact that trips per angler matched closely in five of the six waves (Wave 6 was the problem) suggests that adjustments made to the ALD have corrected most of the problem.

MEASURING PROGRESS: IMPROVED INSEASON MONITORING AND ACTION MECHANISMS

- Inseason catch and effort estimates: The CDFG is committed to producing timely, precise, and accurate catch and effort estimates for California's recreational fishery each month.
- Monthly review of catches and effort: Specific staff are assigned to review monthly catch estimates, provide RecQSM to the GMT, compare catch rates with projected catch for time period, inform CDFG Groundfish Team about species catches that appear high, and provide information through a communication network with industry (described below) for voluntary fishing behavior change if needed.
- Assuring data quality and usefulness: The CDFG will continue to validate the CRFS catch estimates and continue to develop a way to calibrate these data with the MRFSS time series.
- Response to 2005 CRFS data: The state will take appropriate action to slow down or close if CRFS data in 2005 indicate potential overages, and will keep agency representatives informed. (Mechanisms to slow-down or shut-down appropriate regions are described in the 2005-2006 Groundfish Annual Specifications and Management Measures.)

Inseason Communication Plans:

- Educational Outreach and Industry Contributions:
    - Flyers with information about the fishing season and about overfished and prohibited rockfish species will continue to be distributed and posted at harbors and shops for improved compliance with regulations.
    - A Communication Network has been established with approximately 20 recreational angling associations, clubs, and CPFV operators, to keep anglers informed and assist with rapid distribution of concerns or requests to slow fishing (This successfully stopped the targeting of widow rockfish in Southern California waters during 2004).
- RecFIN report access: CDFG is working with RecFIN staff to provide monthly regional catch estimates on the RecFIN website.
- Notification of inseason state actions: The CDFG will notify the Council of intended actions.

AREAS WHERE GMT INPUT IS REQUESTED:

1. Can we identify any biological, statistical, or management concerns not considered by CDFG associated with these proposals?
2. Does the GMT consider the inseason tracking mechanisms in place to be sufficient to respond to early attainment of recreational harvest targets inseason?
3. Are key inseason review times necessary to identify?

GMT REVIEW

Date of GMT Review: _____

GMT Discussion Points:

GMT Recommendation:

Rationale:

CALIFORNIA RECREATIONAL REGULATIONS BY REGION IN 2005 – ATTACHMENT 1
CDFG Draft IN-SEASON PROPOSALS

Key:

	Allowed in all waters
20	Depth closed > 20fm
30	Depth closed > 30fm
40	Depth closed > 40fm
60	Depth closed > 60fm
20-40	Depth open between 20-40fm
30-60	Depth open between 30-60fm
	Closed

NORTH COAST
(CA/OR Border to 40° 10' N Lat)

North Coast 2005

Species	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Nearshore rockfish							40	40	40	40		
Black rockfish[2]							40	40	40	40		
California sheephead							40	40	40	40		
Cabezon							40	40	40	40		
Greenlings (rock, kelp)							40	40	40	40		
Ocean Whitefish							40	40	40	40		
Shelf rockfish							40	40	40	40		
Lingcod							40	40	40	40		

North Coast 2005 (In-Season Proposal)

Species	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Nearshore rockfish					30	30	30	30	30	30	30	30
Black rockfish[2]					30	30	30	30	30	30	30	30
California sheephead					30	30	30	30	30	30	30	30
Cabezon					30	30	30	30	30	30	30	30
Greenlings (rock, kelp)					30	30	30	30	30	30	30	30
Ocean Whitefish					30	30	30	30	30	30	30	30
Shelf rockfish					30	30	30	30	30	30	30	30
Lingcod					30	30	30	30	30	30	30	

NORTH-CENTRAL COAST
40° 10' N lat to Lopez Point (36° 00' N lat)

North-Central Coast 2005

Species	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Nearshore rockfish							20	20	20	20	20	
California scorpionfish							20	20	20	20	20	
California sheephead							20	20	20	20	20	
Cabezon							20	20	20	20	20	
Greenlings (rock, kelp)							20	20	20	20	20	
Ocean whitefish							20	20	20	20	20	
Shelf rockfish							20	20	20	20	20	
Lingcod							20	20	20	20	20	
Sanddabs												

North-Central Coast 2005 (In-Season Proposal)

Species	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Nearshore rockfish							20	20	20	20	20	20
California scorpionfish							20	20	20	20	20	20
California sheephead							20	20	20	20	20	20
Cabezon							20	20	20	20	20	20
Greenlings (rock, kelp)							20	20	20	20	20	20
Ocean whitefish							20	20	20	20	20	20
Shelf rockfish							20	20	20	20	20	20
Lingcod							20	20	20	20	20	
Sanddabs												

SOUTH-CENTRAL COAST
Lopez Point (36° 00' N lat) to Pt. Conception (34° 27' N lat)

South-Central Coast 2005

Species	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Nearshore rockfish					20-40	20-40	20-40	20-40	20-40			
California scorpionfish					20-40	20-40	20-40	20-40	20-40			
California sheephead					20-40	20-40	20-40	20-40	20-40			
Cabezon					20-40	20-40	20-40	20-40	20-40			
Greenlings					20-40	20-40	20-40	20-40	20-40			
Ocean Whitefish					20-40	20-40	20-40	20-40	20-40			
Shelf rockfish					20-40	20-40	20-40	20-40	20-40			
Lingcod					20-40	20-40	20-40	20-40	20-40			
Sanddabs												

South-Central Coast 2005 (In-Season Proposal)

Species	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Nearshore rockfish					40	40	40	40	40			
California scorpionfish					40	40	40	40	40			
California sheephead					40	40	40	40	40			
Cabezon					40	40	40	40	40			
Greenlings					40	40	40	40	40			
Ocean Whitefish					40	40	40	40	40			
Shelf rockfish					40	40	40	40	40			
Lingcod					40	40	40	40	40			
Sanddabs												

SOUTH COAST
Pt. Conception (34° 27' N lat) to US/Mexico Border

South Coast 2005

Species	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Nearshore rockfish			30-60	30-60	30-60	30-60	40	40	40			
California scorpionfish										40	40	20
California sheephead			30-60	30-60	30-60	30-60	40	40	40			
Cabezon			30-60	30-60	30-60	30-60	40	40	40			
Greenlings			30-60	30-60	30-60	30-60	40	40	40			
Ocean Whitefish			30-60	30-60	30-60	30-60	40	40	40			
Shelf rockfish			30-60	30-60	30-60	30-60	40	40	40			
Lingcod				30-60	30-60	30-60	40	40	40			
Sanddabs												

South Coast 2005 (In-Season Proposal)

Species	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Nearshore rockfish			30-60	60	60	60	60	60	30	30	60	60
California scorpionfish										30	60	60
California sheephead			30-60	60	60	60	60	60	30	30	60	60
Cabezon			30-60	60	60	60	60	60	30	30	60	60
Greenlings			30-60	60	60	60	60	60	30	30	60	60
Ocean Whitefish			30-60	60	60	60	60	60	30	30	60	60
Shelf rockfish			30-60	60	60	60	60	60	30	30	60	60
Lingcod				60	60	60	60	60	30	30	60	
Sanddabs												

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON STATUS OF 2005 GROUNDFISH FISHERIES AND INITIAL CONSIDERATION OF INSEASON ADJUSTMENTS

The Groundfish Advisory Subpanel (GAP) met several times with the Groundfish Management Team (GMT) to develop recommendations for inseason adjustments to the groundfish fishery and associated regulations.

The GAP supports the changes in California recreational seasons, areas, and limits proposed by the GMT. The California members of the GMT provided a comprehensive report to the GAP at our March 2005, meeting on the results of the California Recreational Fisheries Survey. If the GMT is confident the survey results are ready to be used to make inseason adjustments, then the GAP supports making appropriate corrections using that data.

Similarly, the GAP supports the adjustments in the trawl groundfish fishery identified by the GMT as Table 7, Option 2B. These adjustments are two-fold: a downward adjustment in petrale sole, Dover sole, and other flatfish to account for the increased landings that occurred in the first part of this year and an upward adjustment in the slope rockfish limits between 38E and 40E10', which the GMT had previously indicated might need to be made after early 2005 data was reviewed. In regard to the petrale sole *et. al* adjustment, the GAP notes that this will provide summer opportunities for smaller vessels and reduce discards and help maintain a year-round fishery which provides economic benefits during the summer season. The GAP will continue to work with the GMT to make any further appropriate adjustments later in the year.

The GAP also supports the regulatory language changes recommended by the GMT regarding California commercial regulations, clarifying the use of chafing gear on trawls and clarifying the description of selective flatfish trawls.

Finally, the GAP requests the Council consider modifying the existing regulatory language describing the placement of chafing gear. The current language was developed before small footrope trawls and selective flatfish trawls were in wide use, and fishermen have found that it no longer fits with modern trawl construction. The GAP received reports of fishermen having considerable difficulty retrieving their gear, due to twisting caused by the required placement of chafing gear. The GAP believes it would be appropriate to consider modifications in a time frame parallel to developing the 2007 - 2009 annual management specifications. Making the change at this time would impose the least workload burden on NMFS and Council staff. If the Council accepts this approach, the GAP will work with industry, the GMT, NMFS, and the Enforcement Consultants to provide a workable and enforceable suggested regulatory amendment.

PFMC
04/06/05

Subject: [Fwd: 2005 Inseason Adjustmant for groundfish]
From: "PFMC Comments" <pfmc.comments@noaa.gov>
Date: Tue, 22 Mar 2005 07:52:08 -0800
To: John DeVore <John.DeVore@noaa.gov>

-------- Original Message --------
Subject:2005 Inseason Adjustmant for groundfish
Date: Mon, 21 Mar 2005 17:44:53 EST
From: Captjohn71@aol.com
To:pfmc.comments@noaa.gov

Hello,
My name is John Fuqua, My wife and own and operate the sportfishing vessel "SEA JAY" located in Port Hueneme harbor in Southern California.
We are writing to ask you to use the CRFS data that has become available in recent months. This data should allow us (sportfishing comunnity) more time on the water and relax some of the harsh restrictions.
I believe the that council should have no choice but to use this data, for years we have ben told that the MRFS data hased to be used because it was the best available science. Even though your own experts state that it is horribly flawed.
Now you have new data, even if it is not perfect, it is still science to add to the equation and must be used for inseason adjustments. I would find it to be a terriable miscarrige of justice if it is not used.

Thank you

John Fuqua
Sea Jay Sportfishing

Mirage Sportfishing

105 E Port Huneme rd dock 1
Port Hueneme CA 93031
805 377 9316

March 22, 2005

Don Hanson, Chairman
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, OR 97220-1384

Members of the council,

I am a charter boat owner/operator that operates out of Port Hueneme CA. I am writing to convey the urgency for more groundfish opportunity when you are considering inseason adjustments under agenda item B6.

I ask the members of the council to consider the fact that I have been driven to near bankruptcy by the extremely cautious approach you have taken in regards to this so called groundfish crisis.

Me and many others that rely on groundfish to survive have been mentally and financially torched by the MRFS data. Every step of the way this council has driven into us that fact that we all know the data is flawed but it was all we have to go on. And now that we have the CRFS data witch is still not indicative of the real recreational catch. Due to extrapolation our catch is blown way out of proportion. But it is a much better system and it would be very hypocritical for the council not use the data and give us the opportunity we deserve and desperately need.

Sincerely,

Joe Villareal

Subject: Fwd: Don Hanson
From: "PFMC Comments" <pfmc.comments@noaa.gov>
Date: Sun, 27 Mar 2005 18:56:54 -0800
To: John.DeVore@noaa.gov

Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, Oregon 97220-1384
Phone: 503-820-2280
Fax: 503-820-2299
On the web at: http://www.pcouncil.org

Subject: Don Hanson
From: "Bobby.V" <biscuitfish@adelphia.net>
Date: Fri, 25 Mar 2005 19:19:12 -0800
To: <pfmc.comments@noaa.gov>

Don Hanson, Chairmen
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, OR 97220-1384

Chairman Hanson,
I am writing to you in regards to MRFS verses CRFS data. My name is Robert Valney, I own and operate the Seabiscuit (CPFV) out of Channel Islands harbor in the Southern California Bight.

We have been regulated and pushed into shorter bag limits, depth restrictions, tackle cut backs, and an extremely short rockfish season in 2005. The toll of these regs have pushed many of us to borderline bankruptcy.

Many of us depend on groundfish to survive, We have been crippled by the extremely conservative approach created by the MRFS assessment. And everybody knows this data is flawed!!!

I am requesting for you and the council to take action upon the new CRFS data that the Dept. Of Fish & Game voted unanimously to review, The Dept Of Fish & Game worked hard to make the CRFS data available and to not act immediately would be proof that the coin under agenda item B6 is one sided!!!

Once again PLEASE consider this request as many of our livelihoods may lie in the balance of the councils decision…

Thank you for your time in this matter.

Sincerely,

Robert Valney

PFMC Comments <pfmc.comments@noaa.gov>
Pacific Fishery Management Council

Don Hanson.eml	**Content-Type:** message/rfc822 **Content-Encoding:** 7bit

SPORTFISHING ASSOCIATION OF CALIFORNIA

1084 BANGOR STREET
SAN DIEGO, CALIFORNIA 92106
(619) 226-6455 FAX (619) 226-0175

April 6, 2005

Don Hansen, Chairman
PFMC
7700 Ambassador Place, Suite 200
Portland, OR 97220
FAX: (503) 820-2299

Subject: CRFS Data and Possible In-Season Adjustments.

Dear Chairman Hansen & Council Members:

The Sportfishing Association of California (SAC) has represented the interests of the commercial passenger fishing vessel (CPFV) fleet in southern California since 1972. As its President, I have been involved with efforts to collect better recreational catch data for most of the last decade. As an advisor to the Pacific States Marine Fisheries Commission, I have been to Washington, DC annually over that decade, lobbying Congress to fund a better system of collecting that data so critical to intelligent management. For the last 5 or 6 years, I, along with Roger Thomas, Randy Fisher, Dave Hanson, you Mr. Chairman and others have been encouraging NOAA Fisheries and Dr. Bill Hogarth to scrap the infamous "MRFSS", and replace it with a data system better suited for in-season management. And now, finally, we have a data system that we are confident reflects accurately what we are, in fact, catching! We need the 'green light'!

For years, the government has been demanding we use the 'best available science', and the 'best available data' for making management decisions, especially if that data showed declines and resulted in more restrictions. Now we have data showing that recreational anglers caught **less** than quotas, and we are suddenly talking about being cautious with using 'new, untested data'? We have the best available, let's use it!

In southern California, the new rockfish conservation lines, allowing us to fish for rockfish in waters from 30-60 fathoms in March, April, May and June, have created some real problems. Under the enforcement policy, if you fish for RF early before the wind comes up, you can't fish for bass, barracuda, bonita, white seabass or yellowtail later in waters less than 30 fathoms with rockfish on board. SAC would recommend that the fathom lines be changed to 0-60 fathoms as soon as possible. If this is cannot be accomplished, we urge the Dept. to allow the boats to seal the bags of RF with a zip tie, and then let them fish shallow for the other species. Since we are already legally required to check licenses, and are legally responsible for the 'boat limit', we should be allowed to be legally responsible for limiting passengers to taking RF in 30-60 fathoms also.

If the fathom change is not allowed soon the issue becomes moot, and our second recommendation would be to open October thru December to fishing for RF, and allow us to target CA scorpionfish (sculpin) also in September. Clearly the CRFS numbers have shown that recreational anglers are having much less of an impact on stocks that previously thought, and with all the restrictions we have suffered through lately, it would only be fair and equitable to allow anglers in southern California some more of that all-important 'time on the water'!

One final point that SAC has raised earlier is that of the take of California white fish and sheephead in waters closed to RF take. California white fish and sheephead are found in abundance in waters of 10-30 fathoms, and can be targeted without any appreciable incidental take of rockfish. Often the sportfishing boats can anchor up in these shallow waters and catch a combination of bass, barracuda, bonita, white fish and sheephead. White fish and sheephead stocks are healthy and abundant in many shallow rocky areas. It would be of tremendous value if these anglers were able to retain white fish and sheephead in waters less than 30 fathoms, and the added impact on rockfish would be negligible, with the few RF taken incidentally having an excellent chance of survival after release.

In closing I would only ask that the Council and the Department seriously consider allowing recreational anglers the opportunity to take the fish that are available, based on the **best available data on recreational catch-CRFS!**

Sincerely,

Bob Fletcher

Bob Fletcher, President

Mirage Sportfishing

105 E Port Huneme rd dock 1
Port Hueneme CA 93031
805 377 9316

March 22, 2005

Don Hanson, Chairman
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, OR 97220-1384

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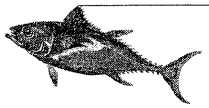
Sincerely,

Joe Villareal



MARINA del REY SPORTFISHING, INC.

24 March 2005

RECEIVED
MAR 28 2005
PFMC

Don Hanson, Chairman
Pacific Fisheries Management Council
700 NE Ambassador Pl., # 200
Portland, OR. 97220

Dear Mr. Chairman,

I would ask The Council to consider and use the CRFS data when adjusting the regulations for 2005.

Sincerely,

Rick Oefinger, President

13759 Fiji Way
Marina del Rey, CA
90292
Tel: 310.822.3625
Fax: 310.376.4022

Don Hanson, Chairmen
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, OR 97220-1384

RECEIVED
MAR 2 8 2005
PFMC

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Once again PLEASE consider this request as many of our livelihoods may lie in the balance of the councils decision…

Thank you for your time in this matter.

Sincerely,

Robert F. Valney

Robert Valney

Estimated Total Mortality Impacts As a Result of Proposed Inseason Adjustments - April 2005 Council Meeting

4/7/2005 17:02

Fishery	Bocaccio a/	Canary	Cowcod	Dkbl	Lingcod	POP	Widow	Yelloweye
Limited Entry Trawl- Non-whiting b/	58.2	8.0	1.1	157.5	152.0	67.3	1.3	0.3
Limited Entry Trawl- Whiting								
At-sea whiting motherships		4.7		1.4	0.3	1.7	200.0	0.0
At-sea whiting cat-proc				7.6	0.4	10.1		0.4
Shoreside whiting				0.5	0.7	0.4		0.0
Tribal whiting		3.0		0.0	0.5	1.5	10.0	0.0
Tribal								
Midwater Trawl		1.3		0.0	0.1	0.0	40.0	0.0
Bottom Trawl		0.5		0.0	9.0	0.0	0.0	0.0
Troll		0.5		0.0	1.0	0.0		0.0
Fixed gear		0.3		0.0	15.0	0.0	0.0	2.3
Limited Entry Fixed Gear	13.4	1.1	0.1	1.3	20.0	0.4	0.5	2.6
Open Access: Directed Groundfish	10.6	1.0	0.1	0.2	70.0	0.1		0.6
Open Access: Incidental Groundfish								
CA Halibut	0.1	0.1		0.0	2.0	0.0		
CA Gillnet c/	0.5			0.0		0.0	0.0	
CA Sheephead c/				0.0		0.0	0.0	0.0
CPS- wetfish c/	0.3							
CPS- squid d/								
Dungeness crab c/	0.0		0.0	0.0		0.0		
HMS c/		0.0	0.0	0.0				
Pacific Halibut c/	0.0		0.0	0.0		0.0	0.0	0.5
Pink shrimp	0.1	0.1	0.0	0.0	0.5	0.0	0.1	0.1
Ridgeback prawn	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Salmon troll	0.2	1.6	0.0	0.0	0.3	0.0	0.0	0.2
Sea Cucumber	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spot Prawn (trap)								
Recreational Groundfish e/								
WA		8.5			206.0		1.4	6.7
OR								
CA	60.0	9.1	0.4		422.0		9.4	3.7
Research: Includes NMFS trawl shelf-slope surveys, the IPHC halibut survey, and expected impacts from SRPs and LOAs.								
	0.4	3.0		3.8	4.5	3.6	0.9	1.0
Non-EFP Total	143.9	42.8	1.7	172.3	904.3	85.1	263.6	18.5
EFPs f/								
CA: NS FF trawl	10.0	0.1	0.5		20.0			0.5
EFP Subtotal	10.0	0.1	0.5	0.0	20.0	0.0	0.0	0.5
TOTAL	153.9	42.9	2.2	172.3	924.3	85.1	263.6	19.0
2005 OY	307	46.8	4.2	269	2,414	447	285	26
Difference	153.1	3.9	2.0	96.7	1,489.7	361.9	21.4	7.0
comm canary residual g/		2.0						
rec canary residual g/		2.0						
Percent of OY	50.1%	91.7%	52.4%	64.1%	38.3%	19.0%	92.5%	72.9%
Key		= either not applicable; trace amount (<0.01 mt); or not reported in available data						

a/ South of 40°10' N. lat.

b/ The 8.0 mt harvest guideline of canary rockfish includes a buffer against the uncertainty of predicting impacts using the new selective flatfish trawl gear. The point estimate of canary rockfish impacts is 5.6 mt.

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

d/ 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.

e/ Values for lingcod and yelloweye in California represent specified harvest guidelines.

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

g/ In June 2004, the Council apportioned the canary residual on a 50/50 basis between the recreational and commercial sectors. When the final regulations were enacted this residual was 1.25 for each sector.

THE GROUNDFISH MANAGEMENT TEAM REPORT ON STATUS OF 2005 GROUNDFISH FISHERIES AND FINAL CONSIDERATION OF INSEASON ADJUSTMENTS

Based on information provided to the Council under the initial consideration of inseason adjustments (Agenda Item B.6.b, Supplemental GMT Report 1, April 2005), the Groundfish Management Team (GMT) is recommending that the Council adopt proposed limited entry trawl trip limit inseason adjustments, adopt proposed limited entry trawl clarifications to gear requirements, and adopt proposed California recreational inseason adjustments.

Minor Slope Rockfish and Splitnose - 40°10' N. lat. to 38° N. lat.

The GMT would like to clarify that, for the area between 40°10' N. lat and 38° N. lat., the GMT is recommending liberalizing the seaward trawl RCA boundary from 200 fms to 150 fms, and increasing the minor slope rockfish and splitnose limits from 4,000 lbs/2 mo. to 8,000 lbs/2 mo. for the following reasons:

1. The darkblotched encounter rate for the area south of 40°10'N. lat. is much lower than the encounter rate for the area north of 40°10' N. lat. and this action is expected to result in a minimal increased amount of darkblotched catch;

2. The area between 40°10' N. lat. and 38° N. lat. was overly constrained through action taken in September 2004, as a temporary precautionary measure, until NMFS Observer Program data were available.

In general, using the discard rates based on information from the NMFS Observer Program, as used in the bycatch model, produce an anticipated total catch estimate of darkblotched rockfish for all fisheries combined of 172.3 mt (as compared to a 2005 OY of 269 mt). Therefore, while the GMT is recommending moving the RCA boundary and increasing the slope rockfish trip limits between 40°10' N. lat. and 38° N. lat., the GMT is also recommending a precautionary approach to the magnitude of adjustment (i.e., only increasing limits to 8,000 lbs/2 mo., rather than increasing them to a higher limit) at this time. The GMT anticipates that, as more catch data become available, further inseason action could be considered at the Council's June and September meetings.

Petrale sole and Dover Trip Limits

No changes to proposed trip limits contained in the initial inseason statement. The projected impacts resulting from the limited entry inseason adjustments are shown below.

		North	South	Total
Rebuilding Species	Lingcod	118.4	33.6	152.0
	Canary	5.0	0.6	5.6
	POP	67.3	0.0	67.3
	Darkblotch	121.8	35.8	157.5
	Widow	1.2	0.1	1.3
	Bocaccio	0.0	58.2	58.2
	Yelloweye	0.2	0.1	0.3
	Cowcod	0.0	1.1	1.1
Target Species	Sablefish	1,759.0	522.7	2,281.7
	Longspine	644.4	561.4	1,205.7
	Shortspine	476.5	208.1	684.6
	Dover	5,206.9	2,138.1	7,345.0
	Arrowtooth	3,182.3	44.6	3,226.9
	Petrale	2,112.2	537.2	2,649.5
	Other Flat	1,609.1	773.5	2,382.6
	Slope Rock	133.4	148.0	281.4

California Recreational

Proposed recreational inseason adjustments are provided in Agenda Item B.6.b, Supplemental GMT Report 1, April 2005. To clarify, the lingcod spawning closure in December applies to all anglers. In addition, all other regulations and diver and shore-based exemptions remain status quo.

An updated bycatch scorecard and updated limited entry trawl trip limit tables are also attached to this document.

Table 3 (North) to Part 660, Subpart G -- 2005-2006 Trip Limits for Limited Entry Trawl Gear North of 40°10' N. Lat.

Other Limits and Requirements Apply -- Read § 660.301 - § 660.390 before using this table 052005

		JAN-FEB	MAR-APR	MAY-JUN	JUL-AUG	SEP-OCT	NOV-DEC
	Rockfish Conservation Area (RCA)[6/]: North of 40°10' N. lat.	75 fm - modified 200 fm [7/]	100 fm - 200 fm				75 fm - modified 200 fm [7/]
	Selective flatfish trawl gear is required shoreward of the RCA; all trawl gear (large footrope, selective flatfish trawl, and small footrope trawl gear) is permitted seaward of the RCA. Midwater trawl gear is permitted only for vessels participating in the primary whiting season.						
	See § 660.370 and § 660.381 for Additional Gear, Trip Limit, and Conservation Area Requirements and Restrictions. See §§ 660.390-660.394 for Conservation Area Descriptions and Coordinates (including RCAs, YRCA, CCAs, Farallon Islands, and Cordell Banks).						
	State trip limits may be more restrictive than federal trip limits, particularly in waters off Oregon and California.						
1	**Minor slope rockfish[2/] & Darkblotched rockfish**	4,000 lb/ 2 months					
2	**Pacific ocean perch**	3,000 lb/ 2 months					
3	**DTS complex**						
4	Sablefish						
5	large & small footrope gear	9,500 lb/ 2 months		17,000 lb/ 2 months			8,000 lb/ 2 months
6	selective flatfish trawl gear	1,500 lb/ 2 months	10,000 lb/ 2 months				1,500 lb/ 2 months
7	multiple bottom trawl gear [8/]	1,500 lb/ 2 months	9,500 lb/ 2 months	10,000 lb/ 2 months			1,500 lb/ 2 months
8	Longspine thornyhead						
9	large & small footrope gear	15,000 lb/ 2 months		23,000 lb/ 2 months			15,000 lb/ 2 months
10	selective flatfish trawl gear	1,000 lb/ 2 months					
11	multiple bottom trawl gear [8/]	1,000 lb/ 2 months					
12	Shortspine thornyhead						
13	large & small footrope gear	3,500 lb/ 2 months		4,900 lb/ 2 months			3,500 lb/ 2 months
14	selective flatfish trawl gear	1,000 lb/ 2 months		3,000 lb/ 2 months			1,000 lb/ 2 months
15	multiple bottom trawl gear [8/]	1,000 lb/ 2 months		3,000 lb/ 2 months			1,000 lb/ 2 months
16	Dover sole						
17	large & small footrope gear	69,000 lb/ 2 months		30,000 lb/ 2 months			22,000 lb/ 2 months
18	selective flatfish trawl gear	20,000 lb/ 2 months	35,000 lb/ 2 months	35,000 lb/ 2 months			8,000 lb/ 2 months
19	multiple bottom trawl gear [8/]	20,000 lb/ 2 months	35,000 lb/ 2 months	30,000 lb/ 2 months			8,000 lb/ 2 months

TABLE 3 (North)

Table 3 (North). Continued

20	**Flatfish** (except Dover sole)					TABLE 3 (North) con't
21	Other flatfish [3/], English sole & Petrale sole					
22	large & small footrope gear for Other flatfish[3/] & English sole	110,000 lb/ 2 months	110,000 lb/ 2 months, no more than 42,000 lb/ 2 months of which may be petrale sole.	110,000 lb/ 2 months, no more than 40,000 lb/ 2 months of which may be petrale sole.	80,000 lb/ 2 months, no more than 60,000 lb/ 2 months of which may be petrale sole.	
23	large & small footrope gear for Petrale sole	Not limited				
24	selective flatfish trawl gear	100,000 lb/ 2 months, no more than 25,000 lb/ 2 months of which may be petrale sole.	100,000 lb/ 2 months, no more than 35,000 lb/ 2 months of which may be petrale sole.	90,000 lb/ 2 months, no more than 35,000 lb/ 2 months of which may be petrale sole.	75,000 lb/ 2 months, no more than 15,000 lb/ 2 months of which may be petrale sole.	
25	multiple bottom trawl gear [8/]	100,000 lb/ 2 months, no more than 25,000 lb/ 2 months of which may be petrale sole.	100,000 lb/ 2 months, no more than 35,000 lb/ 2 months of which may be petrale sole.	90,000 lb/ 2 months, no more than 35,000 lb/ 2 months of which may be petrale sole.	75,000 lb/ 2 months, no more than 15,000 lb/ 2 months of which may be petrale sole.	
26	Arrowtooth flounder					
27	large & small footrope gear	Not limited	150,000 lb/ 2 months		80,000 lb/ 2 months	
28	selective flatfish trawl gear	70,000 lb/ 2 months				
29	multiple bottom trawl gear [8/]	70,000 lb/ 2 months				
30	**Whiting**	Before the primary whiting season: 20,000 lb/trip -- During the primary season: mid-water trawl permitted in the RCA. See §660.373 for season and trip limit details. -- After the primary whiting season: 10,000 lb/trip				
31	**Minor shelf rockfish[1/], Shortbelly, Widow & Yelloweye rockfish**					
32	midwater trawl for Widow rockfish	Before the primary whiting season: CLOSED -- During primary whiting season: In trips of at least 10,000 lb of whiting, combined widow and yellowtail limit of 500 lb/ trip, cumulative widow limit of 1,500 lb/ month. Mid-water trawl permitted in the RCA. See §660.373 for primary whiting season and trip limit details. -- After the primary whiting season: CLOSED				
33	large & small footrope gear	300 lb/ 2 months				

Table 3 (North). Continued

36	**Canary rockfish**				TABLE 3 (North) con't
37	large & small footrope gear	CLOSED			
38	selective flatfish trawl gear	100 lb/ month	300 lb/ month	100 lb/ month	
39	multiple bottom trawl gear [8/]	CLOSED			
40	**Yellowtail**				
41	midwater trawl	Before the primary whiting season: CLOSED -- During primary whiting season: In trips of at least 10,000 lb of whiting: combined widow and yellowtail limit of 500 lb/ trip, cumulative yellowtail limit of 2,000 lb/ month. Mid-water trawl permitted in the RCA. See §660.373 for primary whiting season and trip limit details. -- After the primary whiting season: CLOSED			
42	large & small footrope gear	300 lb/ 2 months			
43	selective flatfish trawl gear	2,000 lb/ 2 months			
44	multiple bottom trawl gear [8/]	300 lb/ 2 months			
45	**Minor nearshore rockfish & Black rockfish**				
46	large & small footrope gear	CLOSED			
47	selective flatfish trawl gear	300 lb/ month			
48	multiple bottom trawl gear [8/]	CLOSED			
49	**Lingcod**[4/]				
50	large & small footrope gear	500 lb/ 2 months			
51	selective flatfish trawl gear	800 lb/ 2 months	1,000 lb/ 2 months	800 lb/ 2 months	
52	multiple bottom trawl gear [8/]	500 lb/ 2 months			
53	**Other Fish** [5/] **& Pacific cod**	Not limited			

1/ Bocaccio, chilipepper and cowcod are included in the trip limits for minor shelf rockfish.
2/ Splitnose rockfish is included in the trip limits for minor slope rockfish.
3/ "Other flatfish" are defined at § 660.302 and include butter sole, curlfin sole, flathead sole, Pacific sanddab, rex sole, rock sole, sand sole, and starry flounder.
4/ The minimum size limit for lingcod is 24 inches (61 cm) total length.
5/ "Other fish" are defined at § 660.302 and include sharks, skates, ratfish, morids, grenadiers, and kelp greenling. Cabezon is included in the trip limits for "other fish."
6/ The Rockfish Conservation Area is a gear and/or sector specific closed area generally described by depth contours but specifically defined by lat/long coordinates set out at § 660.390.
7/ The "modified 200 fm" line is modified to exclude certain petrale sole areas from the RCA.
8/ If a vessel has both selective flatfish gear and large or small footrope gear on board during a cumulative limit period (either simultaneously or successively), the most restrictive cumulative limit for any gear on board during the cumulative limit period applies for the entire cumulative limit period.

To convert pounds to kilograms, divide by 2.20462, the number of pounds in one kilogram.

Table 3 (South) to Part 660, Subpart G -- 2005-2006 Trip Limits for Limited Entry Trawl Gear South of 40°10' N. Lat.

Other Limits and Requirements Apply -- Read § 660.301 - § 660.390 before using this table 052005

		JAN-FEB	MAR-APR	MAY-JUN	JUL-AUG	SEP-OCT	NOV-DEC
	Rockfish Conservation Area (RCA)[6/]:						
	40°10' - 38° N. lat.	75 fm - modified 200 fm [7/]	100 fm - 200 fm	100 fm - 150 fm			75 fm - modified 150 fm [7/]
	38° - 34°27' N. lat.	75 fm - 150 fm	100 fm - 150 fm				75 fm - 150 fm
	South of 34°27' N. lat.	75 fm - 150 fm along the mainland coast; shoreline - 150 fm around islands	100 fm - 150 fm along the mainland coast; shoreline - 150 fm around islands				75 fm - 150 fm along the mainland coast; shoreline - 150 fm around islands
	Small footrope gear is required shoreward of the RCA; all trawl gear (large footrope, midwater trawl, and small footrope gear) is permitted seaward of the RCA.						
	See § 660.370 and § 660.381 for Additional Gear, Trip Limit, and Conservation Area Requirements and Restrictions. See §§ 660.390-660.394 for Conservation Area Descriptions and Coordinates (including RCAs, YRCA, CCAs, Farallon Islands, and Cordell Banks).						
	State trip limits may be more restrictive than federal trip limits, particularly in waters off Oregon and California.						
1	**Minor slope rockfish[2/] & Darkblotched rockfish**						
2	40°10' - 38° N. lat.	4,000 lb/ 2 months		8,000 lb/ 2 months			
3	South of 38° N. lat.	40,000 lb/ 2 months					
4	**Splitnose**						
5	40°10' - 38° N. lat.	4,000 lb/ 2 months		8,000 lb/ 2 months			
6	South of 38° N. lat.	40,000 lb/ 2 months					
7	**DTS complex**						
8	Sablefish	14,000 lb/ 2 months					
9	Longspine thornyhead	19,000 lb / 2 months					
10	Shortspine thornyhead	4,200 lb/ 2 months					
11	Dover sole	50,000 lb/ 2 months		40,000 lb/ 2 months			35,000 lb/ 2 months
12	**Flatfish** (except Dover sole)						
13	Other flatfish[3/] & English sole	110,000 lb/ 2 months	Other flatfish, English sole & Petrale sole: 110,000 lb/ 2 months, no more than 42,000 lb/ 2 months of which may be petrale sole				110,000 lb/ 2 months
14	Petrale sole	No limit					100,000 lb/ 2 months
15	Arrowtooth flounder	No limit	10,000 lb/ 2 months				20,000 lb/ 2 months
16	**Whiting**	Before the primary whiting season: 20,000 lb/trip -- During the primary whiting season: mid-water trawl permitted in the RCA. See §660.373 for season and trip limit details. -- After the primary whiting season: 10,000 lb/trip					

TABLE 3 (South)

Table 3 (South). Continued

17	**Minor shelf rockfish[1/], Chilipepper, Shortbelly, Widow, & Yelloweye rockfish**				TABLE 3 (South) con't
18	large footrope or midwater trawl for Minor shelf rockfish & Shortbelly	300 lb/ month			
19	large footrope or midwater trawl for Chilipepper	2,000 lb/ 2 months	12,000 lb/ 2 months	8,000 lb/ 2 months	
20	large footrope or midwater trawl for Widow & Yelloweye	CLOSED			
21	small footrope trawl	300 lb/ month			
22	**Bocaccio**				
23	large footrope or midwater trawl	300 lb/ 2 months			
24	small footrope trawl	CLOSED			
25	**Canary rockfish**				
26	large footrope or midwater trawl	CLOSED			
27	small footrope trawl	100 lb/ month	300 lb/ month	100 lb/ month	
28	**Cowcod**	CLOSED			
29	**Minor nearshore rockfish & Black rockfish**				
30	large footrope or midwater trawl	CLOSED			
31	small footrope trawl	300 lb/ month			
32	**Lingcod[4/]**				
33	large footrope or midwater trawl	500 lb/ 2 months			
34	small footrope trawl	800 lb/ 2 months	1,000 lb/ 2 months	800 lb/ 2 months	
35	**Other Fish[5/] & Cabezon**	Not limited			

1/ Yellowtail is included in the trip limits for minor shelf rockfish.
2/ POP is included in the trip limits for minor slope rockfish
3/ "Other flatfish" are defined at § 660.302 and include butter sole, curlfin sole, flathead sole, Pacific sanddab, rex sole, rock sole, sand sole, and starry flounder.
4/ The minimum size limit for lingcod is 24 inches (61 cm) total length.
5/ Other fish are defined at § 660.302 and include sharks, skates, ratfish, morids, grenadiers, and kelp greenling. Pacific cod is included in the trip limits for "other fish."
6/ The Rockfish Conservation Area is a gear and/or sector specific closed area generally described by depth contours but specifically defined by lat/long coordinates set out at § 660.390.
7/ The "modified 200 fm" line is modified to exclude certain petrale sole areas from the RCA.
To convert pounds to kilograms, divide by 2.20462, the number of pounds in one kilogram.

Agenda Item B.7.c
Supplemental EC Report
April 2005

ENFORCEMENT CONSULTANTS REPORT ON FINAL CONSIDERATION OF INSEASON ADJUSTMENTS

The Enforcement Consultants (EC) have reviewed the information relating to inseason management and have the following comments:

Issue 1.

Chaffing Gear: The EC sees this as an attempt to clarify existing language. This clarification does not change the intent of the regulation. Because of this, the EC supports the proposed language.

Issue 2.

Selective Flatfish Trawl: The EC sees this as an attempt to clarify existing language. This clarification does not change the intent of the regulation. Because of this, the EC supports the proposed language.

Issue 3.

The EC continues to support consistency with regards to groundfish open areas. We support increased fishing opportunity as better science evolves; however, the complexity of boundary changes for the general public has impacts on enforcement efforts. We strive to protect the resources the Council manages, but can only do so with the support of the regulations, the understanding by the constituents, and the courts. Complexities associated with inseason changes directly affect the enforcement impact.

In addition, depth based management lines should be described through latitudinal and longitudinal coordinates for all depths in excess of 30 fathoms. This assists with consistency and enforceability because it allows the use of enforcement tools, such as aircraft, GPS, and other techniques.

PFMC
04/07/05

Agenda Item B.8.c
Supplemental GAP Report
April 2005

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON CONTROL DATE FOR LONGLINE SPINY DOGFISH FISHERY

The Groundfish Advisory Subpanel (GAP) received a presentation from the Washington Department of Fish and Wildlife (WDFW) and testimony from a Washington longline dogfish fisherman on a proposal to establish a control date for the longline spiny dogfish fishery.

After a great deal of discussion, the majority of the GAP recommends a control date not be established at this time. According to data provided, the longline spiny dogfish fishery has existed at a fairly stable level for a number of years, even though the mix of participants has changed. Under normal circumstances, the GAP would not expect vessel participation to increase given the number of processors willing to buy spiny dogfish. However, as several GAP members noted, past attempts to establish control dates in other fisheries have led to actual increases in vessel participation, with new entrants hoping to establish themselves before new regulations are promulgated. Under the time line provided by WDFW, the earliest an optimum yield and necessary catch limits could go into effect would be 2009, assuming a stock assessment was approved and completed in 2007. While this four-year time difference may meet the legal requirements for having a control date established close to the time of final regulatory action, it also provides several years when new entry could occur. This would seem to contradict the intent to provide continued stable fishing and processing opportunities in Washington.

Some GAP members were also concerned about the coastwide effects of establishing a control date as the first step in a regulatory process that seems designed to lead to having a special permitted fishery established. Members noted that spiny dogfish are found along much of the West Coast and are taken incidentally in several fisheries. The majority of the GAP would prefer to see a stock assessment completed, an optimum yield established, and appropriate catch limits developed which take into account all fishery sectors before starting a process that is helpful to only a small segment of the fishery.

A minority of the GAP supported the request for a control date. They disagreed with the concerns about attracting effort, noted the importance of the fishery to both the participating processors and fishermen and to the State of Washington, and suggested that having a control date would help stabilize the fishery.

PFMC
04/07/05

GROUNDFISH MANAGEMENT TEAM REPORT ON CONTROL DATE FOR THE LONGLINE SPINY DOGFISH FISHERY

The Groundfish Management Team (GMT) recognizes the dogfish fishery has become an important fishery along the West Coast, particularly in waters off of Washington State, and the resource itself may be vulnerable to overfishing, due to their late maturity, low productivity, long life spans, and low reproductive rates. Historical patterns of dogfish exploitation on the West Coast, concerns over the vulnerability of elasmobranch resources expressed in Stock Assessment and Fishery Evaluation documents of the North Pacific Council, and the recent declaration that dogfish stocks have been overfished on the East Coast, further illustrate the potential vulnerability of the resource. As a result of such concerns, the GMT supports management actions that would improve monitoring of ongoing dogfish landings and discourage any potential increase in the targeting of this resource.

One action that may work towards this objective would be for the Council to adopt a separate acceptable biological catch and optimum yield for dogfish with associated trip limits and other harvest control regulations. Another action would be to set a control date for dogfish catch histories, in order to minimize the potential consequences of speculation-driven targeting of dogfish in anticipation of future management options. The GMT supports these options, but with the caveat that for the latter action, in particular, support is limited to GMT concerns over the potential risk to the resource if no action is taken. Consequently, this support should not be interpreted as GMT support or preference towards particular future management options for this fishery, including longline endorsements.

PFMC
04/07/05

MOTION FOR
CONTROL DATE FOR SPINY DOGFISH

Move that the Council recommend to NMFS that it publish an advance notice of proposed rule making to announce a control date for spiny dogfish of April 8, 2005, to inform groundfish fishery participants that, if a limited participation program is implemented in the future, then spiny dogfish landings made after this date may not be considered.

Agenda Item B.1
Situation Summary
April 2005

VERMILION ROCKFISH STOCK ASSESSMENT STATUS

Last year, the Council decided which groundfish species would be assessed this year in time to inform the 2007-2008 management decision-making process. Of the 23 stocks considered for assessment this year, vermilion rockfish was recommended to be a status report designed to explore the available data and their implications for management, but not a stock assessment. Since then, new data has surfaced that is now regarded by the assessment author, Dr. Alec MacCall, to be sufficient to complete a full assessment (Agenda Item B.1.a, Attachment 1). The Scientific and Statistical Committee (SSC) considered these new data at their March meeting and are prepared to advise the Council on the feasibility of conducting a full assessment of the vermilion rockfish stock. Additionally in March, Dr. Elizabeth Clarke of the NMFS Northwest Fishery Science Center, informed the Council that a Stock Assessment Review (STAR) Panel has already been scheduled to review the vermilion rockfish data report. She explained there would be no logistic complication if the STAR Panel were to review a full vermilion rockfish assessment rather than a data report.

The Council task at this meeting is to consider the advice of the SSC, the Council's other advisory bodies, and public comment before deciding whether to schedule a full assessment of vermilion rockfish this year.

Council Action:

Consider scheduling a full assessment of vermilion rockfish.

Reference Materials:

1. Agenda Item B.1.a, Attachment 1: Reconsideration of the Feasibility of a Vermilion Rockfish Stock Assessment.

Agenda Order:

a. Agenda Item Overview — John DeVore
b. Reports and Comments of Advisory Bodies
c. Public Comment
d. **Council Action**: Consider Scheduling of Stock Assessment

PFMC
03/18/05

Reconsideration of the feasibility of a vermilion rockfish assessment
Alec MacCall 3/4/05

At a previous meeting of the PFMC-SSC, I presented an argument that the proposed vermilion rockfish stock assessment was not warranted because of severe uncertainties in data interpretation. I was particularly concerned that the history of length frequencies from the recreational fishery since 1980 (shown in white in Figure 1) begin with large fish, and suddenly shift to small fish in the mid-1980s. Lacking any other evidence, this shift could have had at least three hypothetical explanations, each with very different management implications. These three hypotheses were 1) lack of recruitment in the early 1980s, 2) a sudden shift in selectivity in the mid-1980s, and most problematic of all, 3) depletion of a presumptive larger species in the early 1980s, with subsequent shift to a smaller species. The latter hypothesis is motivated by the genetic evidence for two presently indistinguishable species of "vermilion rockfish." Each of these hypotheses leads to different initial conditions for the model (cf. Figure 2), and would be associated with contrasting and confusing management implications.

Consequently the SSC guidance was to downgrade expectations for a vermilion rockfish assessment, and rather to produce a status report exploring the data and their implications.

The California Department of Fish and Game recently distributed a database containing length frequencies of fish taken aboard southern California CPFVs between 1975 and 1978 (Paulo Serpa, pers. comm.). These samples are shown in gray in Figure 1, and help resolve the issue of initial conditions (Figure 2). Because length frequencies in the late 1970s look very much like those in the late 1980's, and the large fish in the early 1980s are associated with a modal progression beginning with much smaller fish in the late 1970s, the first hypothesis of weak recruitment in the early 1980s is supported as the simplest explanation of the length frequency pattern. This is also supported by the similarity of changes in southern California and northern California length frequencies, where similar temporal patterns in recruitment strength are more plausible than coincidental shifts in selectivity and/or species composition.

I believe that a conventional length-based assessment of vermilion rockfish using SS2 is now feasible, and is reasonably likely to produce results that can be used as a basis for fishery management.

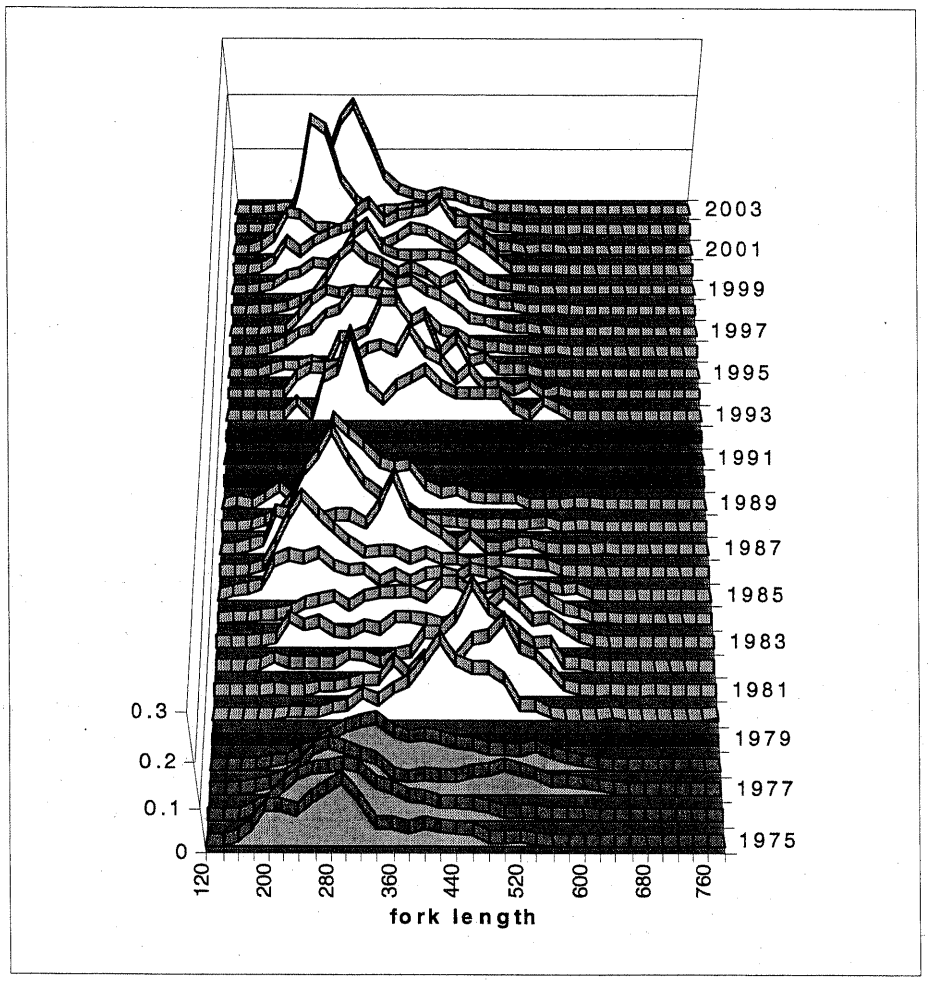

Figure 1. Length frequencies of vermilion rockfish from the southern California PCFV fishery.

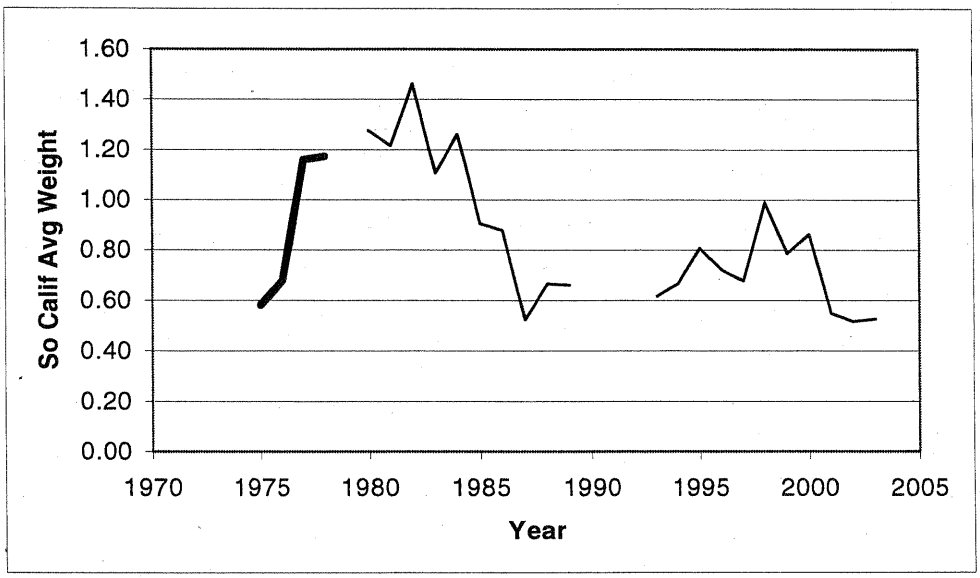

Figure 2. Mean weight of fish from length frequencies shown above.

INSEASON MANAGEMENT RESPONSE POLICY

In recent years, inseason groundfish management has become a dominant feature of many Council meetings. The complexities of the management regime, including new mandates and strictures imposed with rebuilding plans and new monitoring systems, has translated into somewhat unpredictable outcomes when management adjustments are made. The Groundfish Management Team (GMT), Groundfish Advisory Subpanel (GAP), and the Council have consequently devoted such a large amount of time to consideration of inseason management adjustments, that there has been concern about the impact to some of the other important tasks on their agendas. Additionally, some of these adjustments, especially early in the fishing season, have resulted in early attainment of a species' optimum yield (OY) or fishery harvest guideline, which has caused hardship as fisheries closed prior to the normal end of the season. Therefore, the Council has scheduled consideration of an inseason management response policy to more efficiently and effectively manage Council meetings and the groundfish fishery.

In March, the Council adopted a draft inseason management response policy for public review. The draft policy is to not liberalize management measures as part of any inseason action prior to the June Council meeting (unless data or model errors warrant such consideration). It was thought that early attainment problems may be lessened if inseason actions were more conservative during the first six months of the fishing season.

The Council task under this agenda item is to consider public and advisory body comment and adopt an inseason management response policy.

Council Action:

1. Adopt An Inseason Management Response Policy.

Reference Materials:

None.

Agenda Order:

a. Agenda Item Overview — John DeVore
b. Reports and Comments of Advisory Bodies
c. Public Comment
d. **Council Action:** Adopt Inseason Management Response Policy for Implementation

PFMC
03/22/05

Agenda Item B.3
Situation Summary
April 2005

NATIONAL MARINE FISHERIES SERVICE REPORT ON GROUNDFISH MANAGEMENT

National Marine Fisheries Service (NMFS) Northwest Region will briefly report on recent regulatory developments relevant to groundfish fisheries and issues of interest to the Council. NMFS Northwest Fisheries Science Center will also briefly report on groundfish-related science and research activities.

Council Task:

Discussion.

Reference Materials:

1. Agenda Item B.3.b, Attachment 1: A Summary Report from the Stock Assessment Modeling Workshop held October 25-29, 2004 at the Northwest Fisheries Science Center, Seattle, Washington.

Agenda Order:

a. Regulatory Activities — Steve Freese
b. Science Center Activities — Elizabeth Clarke
c. Reports and Comments of Advisory Bodies
d. Public Comment
e. Council Discussion

PFMC
03/18/05

A Summary Report from the Stock Assessment Modeling Workshop held October 25-29, 2004 at the Northwest Fisheries Science Center Seattle, Washington

Northwest Fisheries Science Center, FRAM Division
March 16, 2005

This report summarizes the discussion and outcomes from the West Coast Groundfish Modeling Workshop, held October 25-29, 2004 at the Northwest Fisheries Science Center in Seattle, Washington. This workshop was the third of three "Off-Year" Science Improvement Workshops convened during 2004 for the purpose of preparing for the West Coast groundfish stock assessments to be conducted in 2005. The overall goal of the West Coast Modeling Workshop was for authors to announce and discuss the models they will use in the 2005 West Coast groundfish stock assessments. Specifically, the workshop was convened to examine the performance of stock assessment models, such as Stock Synthesis 2 (SS2), and discuss analytical methods for preparing model inputs, calculating and reporting uncertainty in stock assessments, and species-specific modeling issues.

The meeting was held in the auditorium of the Northwest Fisheries Science Center, 2725 Montlake Blvd. E., Seattle, Washington. Authors of west coast groundfish stock assessments, members of the SSC groundfish subcommittee, members of the Council family, and the public attended the workshop. The workshop agenda and list of participants are included in Appendix I and Appendix II, respectively.

Session I. Introduction

Stacey Miller opened the workshop by providing a list of the stock assessment models that assessment authors are expecting to use in the 2005 assessments. While many of the assessments will be conducted using SS2, additional models include other age-structured models also written in ADMB, and potentially WinBugs for data-poor assessments.

Steve Ralston followed with a presentation on the groundfish stock assessment and review process for 2005-2006 (PFMC 2005) and the Stock Assessment Terms of Reference. The Terms of Reference serves as the primary document that outlines the stock assessment and review process as well as the responsibilities of the involved parties, and requirements for the stock assessment documents. Steve provided an overview of the required contents for each section within the stock assessment documents. He also outlined the guidelines for the executive summary, reporting uncertainty, and inclusion of decision tables. It was noted that stock assessment (STAT) teams must produce three versions of the assessment document: 1) draft to be reviewed by STAR Panel two weeks prior to STAR Panel meeting, 2) complete draft after STAR panel to be provided to Council family, and 3) a final report for publication in the Stock Assessment and Evaluation (SAFE) report. The Terms of Reference document can be obtained by contacting either Stacey Miller (Stacey.Miller@noaa.gov) or Steve Ralston (Steve.Ralston@noaa.gov).

An additional document defining the Terms of Reference for rebuilding analyses will also be provided by the Scientific and Statistical Committee (SSC) of the Pacific Fishery Management Council (PFMC). It was noted that, for species that are below the overfished threshold, assessment authors are expected to conduct separate rebuilding analyses following the conclusion of the STAR Panel meeting.

Recommendations and Action Items

- A cut-off date for inclusion of new data will be STAR Panel dependent.
- Workshop participants suggested that a document should be produced that records the management process and actions taken after the STAR Panel review. The document could be included in the SAFE document published by the Pacific Fishery Management Council. Workshop participants suggested the Groundfish Management Team of the PFMC could produce this document.
- Workshop participants discussed what criterion should be used for determining that a stock is overfished when conducting a Bayesian assessment. Some participants suggested a stock should be considered overfished when the probability of an overfished condition is greater than 50%. However, no agreement was reached.

Session II. Model Inputs

Survey Data

Tom Helser presented a proposal for developing a slope survey analysis for Dover sole, sablefish, shortspine thornyhead and longspine thornyhead, (DTS species) and slope rockfish species. The proposal focused on applying a generalized linear model (GLM), with the specific objectives of 1) examining the AFSC and NWFSC slope survey data to identify a meaningful post-stratification scheme for use with a GLM, and 2) conducting a GLM-based analysis of slope survey data (accounting for spatial/temporal covariates) and generating biomass indices and variances for SS2.

DTS species have formerly been evaluated using the basic survey stratification design of five INPFC areas and two depth zones, 183-566 m, 567-1280 m. However, slope rockfish, many of which occur only within the 183 – 567 m depth strata and are rare by DTS standards, may need to be evaluated for reasonable post-stratification. In particular, any post-stratification analysis should take into account biological features of the species such as gradients in average body weight with depth and latitude, and sufficient samples to obtain reasonable estimates of density and variances. The presented material illustrated gradients in average body weight as grounds for post-stratification for species such as the less frequently caught darkblotched rockfish.

Tom also presented catch data for sablefish and darkblotched rockfish which suggested that the numerous zero hauls and heavy-tailed positive catch distributions may best be modeled using a generalized linear model analysis using the delta distribution. It was proposed that because of the multi-vessel nature of the NWFSC slope survey, a generalized linear mixed model (GLMM) be applied as outlined by Helser et al. (2004)

and that the model's error distributions be evaluated based on the methods of Dick (2004).

Tom's presentation identified a number of challenges to developing slope survey abundance indices, including:

1) Incorporating the AFSC and NWFSC as separate surveys in SS2 models, or combining them (if possible) using a GLMM, treating vessel as random effect;
2) The need to assume that survey selectivity is the same for species of interest when combining surveys. (Alternatively, one could evaluate selectivity empirically, investigating equal q and selectivity within SS2);
3) The incomplete spatial coverage of AFSC slope survey prior to 1997, and the resulting need to combine survey data from multiple years ("super years").

Complete spatial coverage is available for the AFSC slope survey from 1997-2001, (excluding 1998) and for the NWFSC slope survey from 1998-2004. Between 1990 and 1996 (excluding 1994) FRV Miller Freeman covered partial coastal areas. For the DTS species, "super years" were created which combines 1990-1993 and 1995-1996 as the "1992" and "1996" super years, respectively.

Discussion on the GLM-based analysis centered on the need to include the "super years" since, for many species, contrast in the amount of species biomass would be lost if those years were simply omitted. However, an additional variance component would need to be included for the "super years" to account for the incomplete spatial coverage. Also, prior DTS species' assessments included the "super years" in the slope survey biomass series and, as such, any changes would require model sensitivity to a different set of biomass inputs.

Discussion regarding generation of slope survey length/age compositions focused on the appropriate weighting factor in terms of between tow catches and stratum level expansions. The initial proposal was to sum length frequency weighted by predicted tow catch within each stratum. As such, the weighting would be consistent with the model-based approach for generating biomass index. However, the group discussed the necessity of making the expansion consistent with previous methods by weighting each haul by the observed catch.

Recommendations and Action Items

GLM-based survey biomass indices:

- Biomass estimates will be generated separately for the AFSC slope and NWFSC slope surveys, and then for a combined AFSC-NWFSC slope survey. For those surveys that include "super years", such as the AFSC and the combined AFSC-NWFSC survey, density estimates by stratum will be generated for "super years." (note: if "super year" is used, analysts will need to account for an additional variance component).
- The generalized linear mixed model (GLMM) analysis (Helser et al. 2004) using the delta approach will be applied to any survey which uses multiple vessels (not

including the multi-vessel shelf survey), and various error distributions will be evaluated using the approach of Dick (2004).
- Using combined surveys, i.e., the AFSC-NWFSC slope survey, implicitly assumes that survey q from the separate AFSC and NWFSC surveys are equal. However, analysts may explore unequal survey q in the SS2 model if separate slope surveys are used.
- If a different slope survey configuration is used from previous assessments, then a sensitivity analysis should be performed to evaluate its affect on model outcomes.
- The GLM-based approach will be fully documented for distribution to STAR panels.

Generating size and age compositions:
- Length and age comps will be decoupled from the GLM analysis using the observed catch weight as a weighting factor for expansion to the stratum level. However, size/age compositions will be developed that are consistent with the stratification from results of post-stratification.
- Owen Hamel will generate the size/age compositions based on the post-stratification and GLM results from Tom Helser.

Observer Data

Discard estimates and data

Preliminary discussion of discard data and methodologies for estimating species discard occurred during the West Coast Groundfish Data workshop, held July 2004 in Seattle, WA. Participants from the Data workshop requested that Jim Hastie evaluate stratification alternatives to develop annual estimates of discard by INPFC area and evaluate the availability of average weights from the West Coast Groundfish Observer Program (WCGOP) prior to the modeling workshop in order to facilitate additional discussion on the topic. In addition, it was requested that the NWFSC explore the potential for making historical observer data, Pikitch et al. (1988) and Oregon Department of Fish and Wildlife's (ODFW) Enhanced Data Collection Program (EDCP) data, available to assessment authors for exploratory analysis. Stacey Miller was requested to assemble a compilation of historical discard assumptions used in the most recent assessments. Three presentations were made during this session to report progress and outcomes from the requested analyses and data availability.

Report on NWFSC WCGOP Discard estimates for 2000-03 - NWFSC

Owen Hamel provided sample results from Jim Hastie's estimation of discard for selected species using the "simple" methodology agreed on during the data workshop in July, 2004. Following the same stratification used for the observer data, estimated total discard poundage and average weights of measured discarded species for observed tows during 2002 and 2003 were presented. The estimated total discard tonnage for all observed and unobserved tows was also presented. It was noted that the zeros in the bycatch ratio tables were a result of closed areas, species distribution, and sampling vagaries. Average weights of discarded fish were not presented during the workshop but will be produced by Jim Hastie.

Recommendations and Action Items

- Assessment authors accepted the current level of stratification, by both depth and area, in the discard analysis. In addition, Jim Hastie will provide weighted coast-wide totals and the number of positive tows and the total number of observed tows going into analysis. Authors are requested to contact him if they desire different stratification than what was presented at the workshop.
- Jim Hastie will summarize the tow-by-tow average individual weight of discarded fish for each stratum. A complete listing of the average weights of discarded fish from every tow can be provided, upon request.

Report on availability of historical observer data

Points of contact for the historical observer data sets were contacted and asked if the discard data could be made available to all stock assessment authors. Dr. Ellen Pikitch, point of contact for the Pikitch et al. (1988) discard data is contacting colleagues of the project. Mark Salens (ODFW), point of contact for the EDCP data, will be making the EDCP data available to the public.

Report on Compilation of Historical Discard Analyses and Assumptions

Stacey Miller presented a compilation of historical use of discards in stock assessments. A PDF of the powerpoint presentation is available at the following ftp site: ftp://ftp.afsc.noaa.gov/nwfscguest/WCG_StockAssessment/ModelingWorkshop/

Session III. Stock Assessment Models

Stock Synthesis 2 (SS2) and performance testing using simulated data

The Stock Synthesis 2 (SS2) assessment model has been developed to meet the needs of west coast groundfish assessments. It is a length- and age-structured model that incorporates nearly all the features and flexible setup of Stock Synthesis 1 (SS1), which was developed for the west coast sablefish assessment in 1988 and subsequently used for many west coast and Alaska groundfish assessments. SS2 surpasses SS1 by including the apportionment of the population into growth morphs to provide the capability of length-survivorship, and it can partition the population into discrete, intermixing regions. It is coded in ADMB, which provides faster execution and the integration of powerful variance estimation procedures. The model can estimate growth parameters while taking into account the effects of size-selective sampling and ageing imprecision on the size and age data. SS2 estimates annual recruitment as deviations from a spawner-recruitment curve, thus integrates estimation of the spawner-recruitment function. The model provides a procedure for allowing any parameter to vary over time or be a function of a time series of environmental data. SS2 includes specification of the prior probability distribution for each parameter and is capable of a full Bayesian analysis using the Monte Carlo Markov Chain procedure. SS2 is also capable of modeling several fishing fleets and surveys in a length- and age-structured configuration.

The first stage of performance testing involved analysis of simulated data which had characteristics similar to those used in many west coast groundfish assessments. The data simulator feature of SS2 was used to generate 20 data sets using a parametric bootstrap

feature. When SS2 analyzed each of these 20 data sets, the mean estimate of the underlying population was essentially identical to the population from which the data were generated. In addition, the variability of the estimated population between these 20 model runs was essentially identical to the parametric estimate of variability generated by each model run. Thus, the model has demonstrated the basic capability to estimate the abundance and productivity of a harvested fish stock from data available for some west coast groundfish.

General Recommendations and Action Items:

- Authors who used (or inherited) an SS1 assessment will be expected to transition to SS2
- Groundfish assessments in 2005 should move towards a Bayesian approach to quantifying uncertainty by means of probability distribution for quantities of interest to fishery management.
- SS2 is capable of full Bayesian analysis. Although SS2 offers the tools necessary for a formal Bayesian approach, it may not be possible to conduct an analysis that estimates all possible parameters using specific, informative priors and that integrates over the feasible parameter space to provide a formal posterior distribution of the management quantities of interest. Nevertheless, such a comprehensive analysis is the goal of every assessment by SS2 or other methods.
- A user manual and documentation will be available for the 2005 assessments, but the GUI will not be available this cycle

Model Enhancements

The following enhancements were discussed at the workshop. It was agreed that all changes are not expected to be implemented in the January 2005 model version.

- Add prior type as element to each parameter set-up line
- Create Beta distribution as a prior type
- Phase-specific emphasis levels
- Extra variance term for indices
- Iterative re-weighting options for both indices and compositions
- Improvements to selectivity options
- Read and hardwire a specified set of selectivity values
- Change discard approach so that tuning is to the landed catch and discard is added to this amount
- Move maturity and weight-length from data file to control file
- Estimate Fmsy and do projections
- Output for rebuilding program
- Mean-median bias considerations for fitting of indices
- Decouple sigmaR from the penalty on recruitment deviations
- More options for initial age comp
- Blocks of years for S-R deviations
- Random perturbations to initial parameter values
- Specified seasonality for survey timing and for spawning
- Likelihood profiling

Transitioning from SS1 to SS2

The goal of this session was to compare SS1 and SS2 model results in an effort to: 1) verify that the basic model equations would give concordant results based on the same data sources, 2) identify important features of SS1 not yet included in SS2, and 3) identify new features or changes in SS2 that authors familiar with the older version should be aware of. Rick Methot and Han-Lin Lai presented preliminary comparisons of the results from parallel stock assessments (canary rockfish and petrale sole) conducted using SS1 and SS2; both assessments expect to use SS2 for the 2005 assessment.

Example 1. Canary rockfish

The canary rockfish example generally showed close correspondence in fits to observed data, management quantities and overall population trend.

A number of features that had been used in the SS1 model but are not available in SS2 were identified and added to the list of desired additions before the final version is complete. Sex-dependent double logistic selectivity was not yet implemented in SS2. There was debate regarding the estimation of selectivity parameters and this was identified as an area for further updates to SS2.

It was suggested that it might be important for some assessments to allow recruitment under initial conditions to deviate from R_0. This was not available in SS2, nor was the estimation of initial age-structure. Rick suggested starting the model farther back in time if equilibrium conditions were not expected in the first year of the model. Increasing flexibility for initial conditions was noted as an area for future development.

In the example using canary rockfish, an emphasis value for the recruitment lambda less than one was used. This was the topic of some debate, including concern regarding stochastic projection into the future and the link between the applied λ and assumed σ_R. Workshop participants agreed to leave this issue for the future development of SS2.

There was debate regarding bias correction to the SR relationship when little constraint was imposed on recruitments. Alternate approaches included allowing shrinkage to the mean of the SR curve to be independent of σ_R with a prior on year-class strength or changing the framework for estimation of recruitment deviations to a mixed- or random-effects implementation. Again, participants agreed that this issue required further research before better approaches would be available in SS2.

Changes to input data formats, control files quantities and model calculations resulted in small changes to a number of the results. Other differences were observed where dynamics had changed from purely age-based to length-based or a combination of age- and length-based in SS2. There were a number of small changes that authors should be aware of that were not identified as likely candidates for inclusion into SS2.

Likelihood components associated with length-frequency data differed; this may have been due to a simpler structure implemented for the emphasis coefficients (λ's) in SS2,

one lambda for each type of data and fleet. The problem of treating lengths and ages as independent likelihood components when they are often based on the same individual fish has not changed between models. One suggested approach was to make the sum of emphasis weights (λ) to age and length composition data equal to 1.

Small constants are added to composition data in SS2 that were not present in SS1 and may account for some small difference in results. Mean weight at age is calculated from weight at length in SS2 rather than input directly.

The adjustment in SS1 for growth of individuals in the accumulator age for the population is not implemented in SS2. No changes in selectivity, natural mortality, growth, etc. occur for the individuals once they reach this group.

Example 2. Petrale sole

The results were qualitatively similar in the Petrale sole example, but differences were noted in most of the model outputs. Changes in structure from SS1 to SS2 and inability to input exactly the same quantities in the same formats appeared to be the source of much of the change in results. This example illustrated that a combination of relatively small differences could have a large effect on overall results.

In an effort to simulate similar initial conditions, the SS2 model included an extended time series back to 1965, versus 1977 for SS1, but early numbers at age did not match. For testing purposes, it would be useful to be able to input and fix the actual selectivity values from SS1 rather than approximating or estimating the parameters.

An ageing-error matrix (e.g. surface vs. break-and-burn) cannot be directly input to SS2. Only the mean observed age and CV for each true age can be input to SS2. This new approach can still account for biased ageing methods and changes in variability with age.

Due to changes in specification of the SR relationship, the SR parameters are different between SS1 and SS2. Additionally, in SS2 the recruitment is always to age-0 rather than other ages used in SS1.

Recommendations and Action Items:

- The newly developed SS2 model was shown to be able to reproduce assessment results very similar to those obtained using SS1 when based on the same data. Based on this outcome, it was decided that the 2005 groundfish assessments would use SS2 as the preferred model, with exceptions for some "data poor" situations and some assessments based on age-structured models implemented using ADMB.
- Potential bugs, additional needs and changes should be reported when assessment authors are using SS2.
- Many areas were identified where increased flexibility could be added.
- There are changes to many technical details which users of SS2 should become familiar with when transitioning from SS1 to SS2.

Models other than SS2 that will be used in 2005 assessments

Alec MacCall introduced a preliminary approach that he is considering to use for the upcoming vermilion rockfish assessment using Bayesian stock-reduction-analysis (SRA) implemented in the WinBUGS software. Alec provided background on the vermilion rockfish assessment, noting the existence of new genetic evidence that there may be more than one species currently included in the vermilion data sources. There are landings data, as well as a recreational CPUE series available for this species, but it is 'data-poor' compared to other west coast species, and any work must assume that the vermilion 'complex' behaves as one stock.

He proposed to use a delay difference approach based on the SR relationship. By using a Bayesian approach, use of informative priors can help with estimation problems in SRA. These priors will come from Martin Dorn's meta-analysis of stock-recruit functions for rockfish, modified by He et al.'s (in review) derivation of an evolutionary-based prior reducing the probability of steepness values very near 0.2. He intends to use WinBUGS for this analysis.

There was lively discussion of the pros and cons of informative priors and the SRA approach in general. This led to a debate regarding the issues inherent in assessing some species and about developing a common approach to data-poor species; this topic was unresolved. It was noted that Alec will be presenting his approach to the SSC at an upcoming meeting.

Xi He presented the results of a simulation experiment designed to explore the performance of an ADMB-based stock assessment model used for widow rockfish under various assumptions about recruitment variability and prior probability distributions for the steepness parameter of the stock-recruitment function. Xi's presentation described a simulation study based on the Widow rockfish assessment model used in 2003. Widow recruitment inferred from the model, appears to be highly variable, with low steepness (~0.2) and low recruitments in 1990s. The general approach was to explore why estimates of recruitment from the assessment were low and identify potential bias caused by the modeling approach used. He described the process of data-generation and subsequent fitting under a range of assumptions about the S-R function. He presented a summary of the performance of various estimated quantities including current depletion and S-R parameters.

Xi also introduced recent work developing an informative prior on steepness based on the evolutionary persistence principle; this prior has very little density for $h < 0.25$. This research is currently in review at Fishery Bulletin. There was substantial discussion regarding the support for this prior and its use in upcoming assessments. There was also some uncertainty expressed about the conditions for data generation and performance of the simulation under 'very good' data scenarios.

Recommendations and Action Items:

- Stock assessment authors should be aware of the level of uncertainty in estimates of modeled recruitments and stock-recruitment parameters.

- WinBUGS stock reduction model seems a viable option for some data poor situations.

MCMC diagnostics

Ian Stewart presented an overview of model diagnostics and techniques applicable to use of SS2 as a Bayesian model. He also presented an applied example of these approaches using the Simple2 files distributed to authors with the most recent version of SS2.

Ian described the implementation of Markov-Chain Monte-Carlo (MCMC) and details specific to AD Model Builder (ADMB) that are unlike some other platforms for Bayesian analysis. He proposed that many potential convergence problems could be identified before beginning MCMC runs. Key points included examination of the correlation file for very high or low values which can reveal poor estimation of the Hessian matrix and selectivity parameters are often problem parameters.

The presentation was divided into two types of convergence diagnostics: qualitative and quantitative. It was noted that all diagnostics can point to problems with convergence, but not prove convergence. A main point was that the use of several different diagnostic tests is preferred over any single approach to assess MCMC convergence.

Ian described qualitative analysis of the trace plot (iteration vs. parameter value), examining for both autocorrelation and trend. Running means and cumulative percentiles can be useful as well as density plots to identify substantial departures from multivariate normal. Autocorrelation at lag- plots as well as cross-correlation plots were used to locate high correlations among parameters that could be causing convergence problems. The following quantitative diagnostic statistics were described: Geweke, Time-series methods including effective sample size and naïve vs. corrected chain standard deviations, Heidelberger and Welch, Raftery and Lewis and single-chain Gelman. Ian raised the question of how many runs are enough and there was some discussion of the pros and cons of multiple short chains vs. longer runs. When using multiple chains, the Gelman and Rubin statistic can be added to the list of criteria.

Presentation of MCMC convergence diagnostics was divided into 'key' model parameters and derived quantities of interest, usually a small number, and grouped parameters such as time-series deviations, biomass, and recruitments. Multi-panel displays of key parameters were used to carefully explore convergence, while histograms of convergence criteria were introduced to quickly summarize and present large numbers of values simultaneously. Key parameter plots included trace, density, running mean and percentiles, and autocorrelation plots as well as some suggested summary statistics including median, 5 and 95% quantiles, AC lag 1, Effective N, Geweke and Heidelberger, and Welch statistics. Plotting time series of full posterior densities is an effective method for visualizing the uncertainty around biomass or recruitments over time.

The second presentation used the SIMPLE2 data provided in the October release of the SS2 software. It was noted that the behavior of parameters will be different in each application, and the example was for general illustration not identification of specific difficulties with SS2. The approaches introduced in the first talk were applied to this example, with multiple MCMC chains performed iteratively until convergence appeared to have been reached. Results were summarized using the graphical tools introduced earlier.

Recommendations and Action Items:

- Bayesian analysis is not required by the SSC but STATs should conduct Bayesian analyses, including sensitivity to parameter priors, to the extent practicable
- Model runs with zero emphasis on parameter priors are encouraged, to distinguish information in the data from information provided by the priors. Model runs using only parameter priors and landings may also be informative in this regard.
- Detailed reports on convergence of key parameters are recommended; summary of convergence for other parameters and derived quantities is an efficient way to present results.
- Examination of correlations, residuals, and proximity to parameter boundaries needs to be investigated with or without MCMC analysis.
- STAR panels should recognize the time requirements of Bayesian analysis and realize that requests for additional MCMC runs during the STAR Panel meeting may not be feasible

Session IV. Modeling Issues and Considerations

This session of the workshop consisted of round table discussion of issues to consider during modeling exercises. A number of topics were discussed, some of which were touched upon in earlier workshop discussion. This is an attempt to summarize the discussion and outcomes of the various discussion topics.

Tuning effective sample sizes and survey error levels, methods for calculating and weighting CV and additional variance components for area-swept biomass indices

Alec MacCall addressed issues regarding the specification of effective sample sizes. Actual sample size or estimated error variability often misrepresents the precision of composition or index data. As a consequence, the use of actual sample sizes can lead to other sources of information being largely ignored by a model. However, truncation is an ad-hoc method of compensation, which risks over-emphasizing small samples and under-emphasizing large ones. Directly calculated error variances in abundance indices are often too small, and generally are replaced with mean-squared-errors of the index to the fitted values. A similar adjustment of age and length compositions uses effective sample size, which is the implied sample size if the error variability about the fitted values were due only to sampling variability. In early uses of the effective sample size approach, actual sample sizes were replaced with a constant representing the overall average effective sample size. However, there is often a relationship between actual and effective sample size that allows for replacing the actual value with a predicted effective sample size. This can be achieved via a linear or non-linear regression of effective on actual sample size. An iterative procedure is needed to estimate effective sample size and

mean-squared-error because of interactions; one recalculation is usually sufficient unless there is strong disagreement among data sources within the model.

Selection of prior distributions

The development of prior distributions for parameters is undoubtedly the most controversial aspect of any Baysian analysis. It was therefore recommended that considerable care should be taken to document, to the fullest extent practical, the basis for the various prior distributions. As a programming rule, every estimated variable in SS2 must have associated with it an initial estimate, a prior, a range of possible values, and an associated distribution type. The degree of informativeness associated with any prior (*X*) can range from maximally informative (i.e. fixed, where *X* = initial, a meaningless range and prior, and SD = 0) to maximally uninformative (*X* is within a large, yet definable range with a uniform distribution by a SD = + infinity). Varying degrees of informativeness are then defined by adjusting either the range and/or the standard deviation accordingly. In the present version of SS2, all prior distributions are modeled as normal, Gaussian distributions around the user defined mean and standard deviation. In this way, the user can assume a uniform distribution by choosing an adequately large standard deviation, even though technically the choice of distribution is normal. Discussions were generated around incorporating distribution options other than normal.

Recommendations and Action Items:

- "Expert opinion" is the most widely used and accepted means to arrive at a value for a prior.
- Informative priors should be used on variables whose values can be estimated outside the model with a reasonable degree of certainty (e.g. growth parameters)
- Some variables that were deemed appropriate candidates for an informative prior were stock-recruitment steepness, recruitment deviations, survey catchability (Q), and natural mortality (M).
- Values from reliable and pertinent meta-analyses are also good candidates for informative priors
- Informative priors should not be used on variables based solely on the purpose of eliminating erratic behavior of that variable

Selecting phases for estimation of key parameters

In general, five phases should be appropriate for modeling most stock assessment situations. Variables that are critical to setting the overall population size (e.g. Ro, Q, etc.) should be estimated in Phase 1 of the fitting procedure. Time varying variables, such as those used in selectivity should be estimated in the final phase.

Inclusion and estimation of spawner-recruitment curve in assessment model

Stock assessment authors will provide details of what they did in terms of estimating recruitment and SR relationship.

Recommendations and Action Items:

- Stock assessment authors should be aware of the level of uncertainty in estimates of S/R relationships.
- One alternative is to provide alternatives based on different values / priors for S/R
- There needs to be some constraint on recruitment deviations
- The specified sigma-R should be checked for consistency with estimated recruitment deviations
- Options in SS2 for decoupling sigma-R from the penalty on recruitment deviations could be explored

Consistent approach to invoking time-varying fishery selectivity

Inconsistent use of time blocks to describe time-varying fishery selectivity can lead to divergent assumptions among assessments. This can be especially troublesome for assessments being evaluated within the same STAR Panel. In an effort to avoid possible complications during the review process, it is in the best interest of assessment authors to maintain a consistent set of assumptions used to describe changes in fishery selectivity based on the behavior of the fleet. Authors should maintain a consistent approach to invoking time-varying selectivity, especially within STAR Panels and among species that have been fished historically similar.

Recreational CPUE linearity

Recreational CPUE data are often transformed before being included in stock assessments. The square root transformation is the default, though other transformations should be used if indicated. Non-target species will often have different exponents than target species. In all cases, sensitivity to non-linear transformation vs. no transformation should be tested. Knowledge and understanding of regulation changes, gear changes and natural fluctuations can all be critical in interpreting recreational CPUE data. Any of these may be cause for truncating or splitting a time series to deal with inconsistencies. There can also be significant differences among areas, so if location of fishing changes over time, then either some sort of standardization by area, or splitting of time series may be necessary. Species composition data can help reveal targeting, which may affect how data are treated.

Juvenile surveys and non-linear relationships

Steve Ralston presented results from the mid-water juvenile trawl survey where a power function was used to transform the juvenile survey data CV to match the CV at the time of recruitment to the fishery. There was some concern expressed about the paucity of data with which to estimate this relationship, the possibility of inherently more observation error in a juvenile survey, and fitting the exponent parameter outside the assessment model. The group concluded that it is reasonable to transform the juvenile survey index because of compensatory mortality between the time the survey is conducted and when fish recruit to the fishery. However, that transformation should be done within the assessment model, not externally, and it should not be based upon matching variance or CVs. Workshops participants recommended that assessment authors should be explicit about the transformation method used.

Handling discards in stock assessment models
Discard rates and compositions will be estimated using observer program data for recent years. However, previous discard rates and compositions may be more difficult to estimate. Most often, discard arises for reasons related to fish size or trip-limit attainment Changes in market forces, gear usage, fishery regulations, and the size composition of a stock can result in significant inter-annual variability in the total amount and size composition of discards. Workshop participants concluded that there should be consistent approaches within species groups and STAR panels. Methods for melding the different historical discard data should be considered within these groups. It was also suggested that future research should attempt to identify the effects that management changes have had on discard over time.

Use of minimum count or biomass from in situ observational data
No place currently exists to input minimum count or biomass data into SS2. It was generally agreed upon that authors should consider such data outside the model as a means of testing whether model outputs are reasonable. These data, where available, may be useful for expanding up to a particular zone (habitat/depth/area), but are less likely to be useful on a coastwide, or even area wide, basis.

Quantifying uncertainty
Assessment authors using SS2 for a species previously assessed using SS1 should report and compare results from SS2 runs using data used in the previous assessment. Any changes in the model from the previous assessment should be reported in the assessment document. Sensitivity analysis should include variation in M, sigma-r and steepness (h). Comparison of the .cor file from an ADMB run and posterior correlations may be useful in some cases.

Decision Tables
It was recommended that assessment authors arrive at the STAR panel with thoughts on factors to be included in the decision tables. Decision tables should look at reasonable variation in states of nature above and below the preferred model settings. Thus when constructing a decision table, the model results should be profiled over at least 2 parameters, including those considered "dominant". Decision tables should include projected yields (ABC and OY), spawning biomasses, and stock depletion levels for each year, as well as MSY, Fmsy and the exploitation rate at MSY. Only reasonably likely states of nature rather than catastrophic events should be considered.

Rebuilding projections and forecasting
Rebuilding analysis is required to be conducted on all species found to be in an overfished state. The current rebuilding program is advantageous as it provides the outputs required by the Council, but other methods are not ruled out.

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APPENDIX I. MODELING WORKSHOP AGENDA

West Coast Groundfish Stock Assessment
Modeling Workshop Agenda

Monday, October 25, 2004 *NWFSC Auditorium*

Session 1. Introduction

1:00 p.m. Welcome – Stacey Miller
- Review list of models authors plan to use

1:15 p.m. Stock Assessment Terms of Reference – Steve Ralston

Session 2. Model Inputs

Facilitator: Ian Stewart *Rapporteur: Melissa Haltuch*

2:30 p.m. Survey Data

Generating Biomass Indices
- Progress report on GLM Analysis using AFSC and NWFSC Slope Surveys for DTS and slope species – Tom Helser
- Report on exploring the error models for slope species –Tom Helser
- Report on exploratory work toward differentiating trawlable and untrawlable areas for survey biomass expansions –Tom Helser

Building Age and Length Comps
- Discuss use of and/or smoothing length-age transition matrices when lacking ages or have non-representative ages

3:15 p.m. Break

3:30 p.m. Survey Data Discussion (continued)

5:00 p.m. Wrap up for the day

Tuesday, October 26, 2004 *NWFSC Auditorium*

Session 2. Model Inputs Continued

Facilitator: Ian Stewart *Rapporteur: John Wallace*

8:30 a.m. Reports on Observer Data
- Report on compilation of historical discard analyses and assumptions used in most recent stock assessments – Stacey Miller
- Report on NWFSC WCGOP Discard estimates for 2000-03 and the availability of length frequency and average weights from WCGOP data - Owen Hamel
- Report on availability of historical discard data (Pikitch and EDCP data) to assessment authors – John Wallace and Michael Schirripa

9:45 a.m. Break

Session 3. Stock Assessment Models

Facilitator: Stacey Miller *Rapporteur: Tom Helser*

10:00 a.m. Presentation on Stock Synthesis 2 (SS2) and performance testing using simulated data - Rick Methot

12:00 p.m. Lunch (Pre-ordered box lunches available)

1:00 p.m. Discussion of SS2 and performance testing (continued)

3:15 p.m. Break

3:30 p.m. Discussion of SS2 (continued)

5:00 p.m. Wrap up for the day

Wednesday, October 27, 2004 **NWFSC Auditorium**

Session 3. Stock Assessment Models Continued

Facilitator: Stacey Miller *Rapporteur: Gavin Fay*

8:30 a.m. Transitioning from SS1 to SS2 - Examples and discussion
- Canary rockfish - Rick Methot
- Petrale sole – Han-Lin Lai

10:15 a.m. Break

10:30 a.m. Models other than SS2 that will be used in 2005 assessments
- WinBUG for vermilion rockfish – Alec MacCall
- Underestimate recruitment potential in fishing-down situations? A simulation study – Xi He

12:00 p.m. Lunch (Pre-ordered box lunches available)

Facilitator: Alec MacCall *Rapporteur: Jason Cope*

1:00 p.m. Model Diagnostics
- MCMC diagnostics - Ian Stewart and Andre Punt
- Example – Ian Stewart and Rick Methot

3:00 p.m. Break

Session 4. Modeling Issues and Considerations

Facilitator: Michael Schirripa *Rapporteur: Owen Hamel*

3:15 p.m. Discussion Topics
- Approaches to weighting model inputs
  - Tuning "effective sample sizes" and survey error levels – Alec MacCall
  - Methods for weighting CV and additional variance components for area-swept biomass indices

5:00 p.m. Wrap up for the day

Thursday, October 28, 2004 **370W **Note Room Change****

Session 4. Modeling Issues and Considerations Continued

Facilitator: Michael Schirripa *Rapporteur: Owen Hamel*

8:30 a.m. Discussion Topics
- Selection of prior distributions
- Selecting phases for estimation of key parameters
- Handling discard in stock assessment models

10:15 a.m. Break

10:30 a.m. Discussion Topics
- Recreational CPUE linearity
- Juvenile surveys and non-linear relationships
- Inclusion and estimation of spawner-recruitment curve in assmt. models
- Consistent approach to invoking time-varying fishery selectivity
- Can estimated minimum count or biomass derived from in situ observational data be included in model as input data?

12:00 p.m. Lunch (Pre-ordered box lunches available)

Thursday, October 28, 2004 **370W **Note Room Change****

Session 4. Modeling Issues and Considerations Continued

Facilitator: Andre Punt *Rapporteur: Han-Lin Lai*

1:00 p.m Discussion Topics

- Quantifying and reporting uncertainty
  -MCMC, sensitivity analysis, guidelines for decision tables
- Rebuilding projections and forecasting - Rick Methot and Andre Punt

4:00 p.m. Workshop Wrap-Up and Recommendations - Michael Schirripa

Friday, October 29, 2004 **Multiple Rooms**

Session 5. Break Out Working Groups

8:30 a.m. Break out groups for assessment authors - All assessment authors are strongly encouraged to attend the break-out working groups to discuss data and/or modeling issues that are specific to species groups.

- Petrale sole, English sole, Starry flounder - Room 366 W
- Sablefish, Dover sole, Shortspine thornyhead, Longspine thornyhead, POP, Darkblotched, Blackgill - Room 370 W
- Cowcod, Cabezon, California Scorpionfish, Gopher, Kelp Greenling – Auditorium 1
- Canary, Boccacio, Vermilion, Lingcod, Widow, Yelloweye, Yellowtail – Auditorium 2

12:00 p.m. Workshop Concludes

APPENDIX II. WORKSHOP PARTICIPANTS

John Brandon (UW)
Corrina Chase (UW)
Jason Cope (UW/NWFSC)
Ray Conser (SWFSC, SSC)
Patrick Cordue (CIE)
Shannon Davis (The Research Group)
E.J. Dick (SWFSC)
Martin Dorn (AFSC, SSC)
Gavin Fay (UW)
John Field (SWFSC)
Owen Hamel (NWFSC)
Melissa Haltuch (UW/NWFSC)
Xi He (SWFSC)
Tom Helser (NWFSC)
Annette Hoffmann (WDFW)
Arlene Hruby (NWFSC)
Tom Jagielo (WDFW, SSC)
Meisha Key (CDFG)
Doug Kinzey (UW)
Neil Klaer (CSIRO)
Han-Lin Lai (NWFSC)
Alec MacCall (SWFSC)
Mark Maunder (IATTC)
Rick Methot (NWFSC)
Scott Meyer (ADFG)
Stacey Miller (NWFSC)
Kevin Piner (SWFSC)
Andre Punt (UW, SSC)
Steve Ralston (SWFSC, SSC)
Jean Rogers (NWFSC)
David Sampson (OSU, SSC)
Michael Schirripa (NWFSC)
Tony Smith (CSIRO)
Ian Stewart (NWFSC)
Ian Taylor (UW)
Theresa Tsou (WDFW)
Farron Wallace (WDFW)
John Wallace (WDFW)

TERMS OF REFERENCE FOR GROUNDFISH REBUILDING PLAN ANALYTICAL REVIEW

The Scientific and Statistical Committee's (SSC's) Terms of Reference for Groundfish Rebuilding Analyses was developed by the SSC in 2001 and adopted by the Council in April 2001. This Terms of Reference has guided authors of groundfish rebuilding analyses, which are critical for developing rebuilding plans for overfished groundfish stocks. New rebuilding analyses for depleted groundfish species are anticipated later this year. The Council has decided these rebuilding analyses need to provide results that can be used to evaluate the adequacy of progress of adopted rebuilding plans, which is a Magnuson-Stevens Act mandate.

The SSC deliberated an evaluation methodology in March. However, in their March report to the Council, they indicated a recommendation for Council consideration may not be available by the April Council meeting Briefing Book deadline. The Council discussed the need for a modified Rebuilding Analysis Terms of Reference before the June Council meeting, since development of rebuilding analyses will begin prior to then, and the Terms of Reference is needed to update instructions to authors of these analyses. The Council subsequently instructed the SSC to develop a new Terms of Reference before the June Council meeting and include both updated modeling specifications and the elements requested by the Groundfish Management Team (GMT) (Agenda Item B.4.a, Attachment 1).

The Council task for this agenda item is to adopt a final Terms of Reference for Groundfish Rebuilding Analyses that includes the methodology for evaluating rebuilding plan progress, as well as the estimates and projections requested by the GMT.

Council Action:

Adopt a final Terms of Reference for Groundfish Rebuilding Plan Analytical Review.

Reference Materials:

1. Agenda Item B.4.a, Attachment 1: March 2005 Groundfish Management Team Report on Terms of Reference for Groundfish Rebuilding Plan Review.

Agenda Order:

a.	Agenda Item Overview	John DeVore
b.	SSC Report	Kevin Hill
c.	Reports and Comments of Advisory Bodies	
d.	Public Comment	
e.	**Council Action**: Adopt Final Terms of Reference for Groundfish Rebuilding Plan Analytical Review	

PFMC
03/22/05

GROUNDFISH MANAGEMENT TEAM REPORT ON TERMS OF REFERENCE FOR GROUNDFISH REBUILDING PLAN REVIEW

The Groundfish Management Team (GMT) reviewed the draft Scientific and Statistical Committee (SSC) Terms of Reference for Groundfish Rebuilding Analyses, as well as the other attachments for this agenda item, and offers the following comments. The GMT reiterates its request to mandate the inclusion of the following estimates and projections in the Terms of Reference for future rebuilding analyses:

- Estimate of P_{MAX} (P{rebuilding by T_{MAX}}) at F = 0.
- Ten-year acceptable biological catch (ABC)/optimum yield (OY) projections and estimates of the F rate (both SPR and F) and T_{MAX} under rebuilding likelihoods ranging from P_{MAX} = 0.5 to the P_{MAX} under F = 0 (at 10 percentile increments).
- Decision table for all equally plausible assessment/rebuilding models.
- Date of data extraction.

The GMT would also desire to see a regional stratification of the ABC/OY projections if the assessment indicates regional differences in the population dynamics or stock structure of the species. This will enable specification of regional OYs or harvest guidelines and/or regionally variant management measures. The GMT considers this management approach critical to avoid potential problems of localized depletion, geographic concentration of fishing effort, and risks to a stock's age and genetic structure.

Finally, the GMT reviewed "Establishing Quantitative Criteria for Assessing Adequacy of Progress Towards Rebuilding Overfished West Coast Groundfish Stocks (Agenda Item F.3.b, Attachment 1) and "Evaluating Alternative Rebuilding Revision Rules for Assessing Progress Towards Rebuilding of Overfished West Coast Groundfish" (Agenda Item F.3.b, Attachment 2). The first issue paper describes the recommended analyses for evaluating adequacy of an existing rebuilding plan, which focuses on changes in P_{MAX} and the SPR harvest rate relative to the original rebuilding plan. Given the relative scale of the groundfish rebuilding framework and how many different assessment parameters can have a major effect on our understanding current stock status, the GMT believes this is a sensible approach for evaluating rebuilding progress. Therefore, the GMT recommends the evaluation "tool" described in the first paper be adopted and incorporated in the SSC Terms of Reference for Groundfish Rebuilding Analyses at the April Council meeting.

The second issue paper concerns policy choices (termed "revision rules") for modifying rebuilding plans once an evaluation of rebuilding progress is done in a rebuilding analysis. The complexity of potential effects of each of these policy choices is explored in this paper. The GMT would like more time to better understand these dynamics. The GMT recommends that the revision rules described in the second paper take a longer, more deliberative pathway to

adoption. It is recommended that the Council adopt revision rules at the September or November 2005 Council meetings prior to adopting the range of 2007-2008 harvest specifications. It would also benefit the process if a joint session on these alternative revision rules were scheduled for the April or June Council meeting to foster a clearer understanding of the implications of these policy choices.

Summary of GMT Recommendations

1. Include the estimates and projections listed above in the Terms of Reference for future rebuilding analysis
2. Consider regional stratification of ABC/OY projections in future rebuilding analysis where differences in population dynamics or stock structure are apparent.
3. Adopt the evaluation approach for assessing the adequacy of rebuilding plans described in Agenda Item F.3.b
4. Hold a joint session on alternative rebuilding plan revision rules at the April or June Council meetings.

IMPLEMENTATION OF AN EXPANDED VESSEL MONITORING SYSTEM

The Council is considering an expansion of the existing Vessel Monitoring System (VMS) program to open access groundfish fisheries to enhance state and federal enforcement's ability to monitor vessel compliance with depth-based conservation areas. Depth-based management areas were established so that healthy fisheries could continue in areas and with gears where little incidental catch of overfished species occurs. Therefore, maintaining the integrity of conservation areas is consistent with the conservation goals and objectives of the Pacific Coast Groundfish Fishery Management Plan (FMP).

At the Council's September 2004 meeting, NMFS presented a draft Environmental Assessment (EA) that contained a range of five VMS coverage alternatives for the open access fishery. These alternatives were based on the Ad Hoc VMS Committee's (VMSC) October 2003 recommendations to the Council. The coverage levels identified in the alternatives are based on different combinations of the open access gear groups as prioritized by the VMSC: longline, groundfish pot, trawl (excluding shrimp), and line (excluding salmon). The Council reviewed the five alternatives and considered input from its advisory bodies and the public before recommending a range of eight alternatives for further analysis and an October 1, 2005 implementation date for the expanded VMS program. Though some alternatives specifically excluded vessels that fish only in state waters, those vessels are already excluded under all of the alternatives because there is no link to federal authority at this time.

In October 2004, the VMSC met and reviewed the alternatives recommended by the Council for further analysis in the EA. At this same meeting, the VMSC unanimously agreed on a recommended alternative. This alternative was added to the range of alternatives analyzed in the EA as Alternative 6B. Alternative 6B is the same as alternative 6A, except that only salmon troll vessels north of Cape Mendocino that fish pursuant to the harvest guidelines, quotas, and other management measures governing the open access fishery for groundfish species other than yellowtail rockfish would be required to carry and use a VMS transceiver and provide declaration reports under Alternative 6B. Table 2.0.1 in Agenda Item B.5.b, contains a summary of the alternative management actions for expanding coverage of the monitoring system and is followed by a more detailed description of each alternative.

In January and February 2005, NMFS held seven public meetings covering all three West Coast states to provide interested public with information regarding the expansion of the VMS program. NMFS will brief the Council on the outcome of those meetings under the NMFS report, Agenda Item B.5.b.

The Council is to hear reports from NMFS, as well as receive advice from the Council advisory bodies and the public on the expansion alternatives for VMS in groundfish fisheries and adopt a Council preferred alternative.

Council Action:

Adopt a preferred expansion alternative.

Reference Materials:

1. Agenda Item B.5.b, NMFS Report: Draft Environmental Assessment, Regulatory Impact Review & Regulatory Flexibility Analysis, Expanded Coverage of the Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery.
2. Agenda Item B.5.c, Ad Hoc VMS Committee Minutes.
3. Agenda Item B.5.d, Public Comment.

Agenda Order:

a.	Agenda Item Overview	Mike Burner
b.	NMFS Report	Dayna Matthews
c.	Reports and Comments of Advisory Bodies	
d.	Public Comment	
e.	**Council Action:** Adopt a Preferred Expansion Alternative	

PFMC
03/22/05

Expanded Coverage of the Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery

(Tiered from "The Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery" - July 2003)

Draft Environmental Assessment, Regulatory Impact Review & Regulatory Flexibility Analysis

Lead Agency	National Oceanic and Atmospheric Administration National Marine Fisheries Service Northwest Regional Office Seattle, Washington
Responsible Official	D. Robert Lohn Regional Administrator Northwest Regional Office
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Abstract: This environmental assessment examines alternative Vessel Monitoring System (VMS) coverage levels for vessels that fish pursuant to the harvest guidelines, quotas, and other management measures governing the open access groundfish fishery in federal waters. To ensure the integrity of groundfish conservation areas, a pilot VMS program was implemented on January 1, 2004. The pilot program requires vessels registered to Pacific Coast groundfish fishery limited entry permits to carry and use NMFS type-approved VMS transceiver units while fishing off the coasts of Washington, Oregon and California.

Large-scale depth-based management areas, referred to as groundfish conservation areas, are used to prohibit or restrict commercial groundfish fishing. These areas were specifically designed to protect overfished species while allowing healthy fisheries to continue in areas and with gears where little incidental catch of overfished species occurs. Groundfish conservation areas are defined by points of latitude and longitude. The rockfish conservation areas, a sub-group of groundfish conservation areas, are defined by points that approximate fathom curves for depth ranges where overfished rockfish species are commonly found. It is difficult and costly to effectively enforce these large scale area closures using traditional methods, particularly when the boundaries are defined by numerous points of latitude and longitude and when management measures allow some gear types and target fishing in all or a portion of the conservation area. Scarce state and Federal resources also limit the use of traditional enforcement methods. Expanding coverage of the current VMS monitoring program to the open access fisheries is expected to enhance state and federal enforcement's ability to monitor vessel compliance with depth-based conservation areas.

March 2005

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1.0 INTRODUCTION

The groundfish fishery in the Exclusive Economic Zone (EEZ), 3 to 200 nautical miles (nm) off of the Washington-Oregon-California (WOC) coast is managed under the Pacific Coast Groundfish Fishery Management Plan (FMP). The Pacific Coast Groundfish FMP was prepared by the Pacific Fishery Management Council (Council) under the authority of the Magnuson Fishery Conservation and Management Act (subsequently amended and renamed the Magnuson-Stevens Fishery Conservation and Management Act). The Pacific Coast Groundfish FMP was approved by the Assistant Administrator for Fisheries, National Oceanic and Atmospheric Administration, on January 4, 1982 and became effective on September 30, 1982.

Actions taken to amend FMPs or to implement regulations to govern the groundfish fishery must meet the requirements of various federal laws, regulations, and executive orders. In addition to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), these federal laws, regulations, and executive orders include: National Environmental Policy Act (NEPA), Regulatory Flexibility Act (RFA), Endangered Species Act (ESA), Marine Mammal Protection Act (MMPA), Coastal Zone Management Act (CZMA), Paperwork Reduction Act (PRA), Executive Orders (E.O.) 12866,12898, 13132, and 13175, and the Migratory Bird Treaty Act (MBTA).

The regulations that implement NEPA requirements permit NEPA documents to be combined with other agency documents to reduce duplication (40 CFR§1506.4). NEPA, E.O. 12866 and the RFA require a description of the purpose and need for the proposed action as well as a description of alternative actions that may address the identified issue. The purpose and need for this action and general background materials are included in Section 1 of this document. Section 2 describes a reasonable range of alternative management actions that may be taken to address the identified issue. In accordance with NEPA requirements, Section 3 contains a description of the physical, biological and socio-economic characteristics of the affected environment. Section 4 examines the physical, biological and socio-economic impacts of the management options as required by NEPA, E.O. 12866 and the RFA. Section 5 addresses the consistency of the proposed actions with the FMP, Magnuson-Stevens Act, ESA, MMPA, CZMA, PRA, E.O. 12866, E.O. 13175 and the MBTA. Section 6 provides a Regulatory Impact Review, which is required by E.O. 12866 to address the economic significance of the action, and; a Regulatory Flexibility Analysis, which is required by the RFA to addresses the impacts of the proposed actions on small businesses. Section 7 presents a list of individuals who assisted in preparing the Environmental Assessment (EA) and Section 8 is the list of references. The NEPA conclusions are addressed in a memorandum that accompanies this document.

1.1 Proposed Action

The proposed action is to expand the existing Vessel Monitoring System (VMS) program into the open access sectors of the groundfish fishery. This EA examines alternative VMS coverage levels for vessels that are used to fish pursuant to the harvest guidelines, quotas, and other management measures governing the open access fishery in federal waters. With VMS coverage, vessels would be required to carry and use a mobile VMS transceiver unit, and to identify their intent to fish within a conservation area, in a manner that is consistent with federal conservation area requirements.

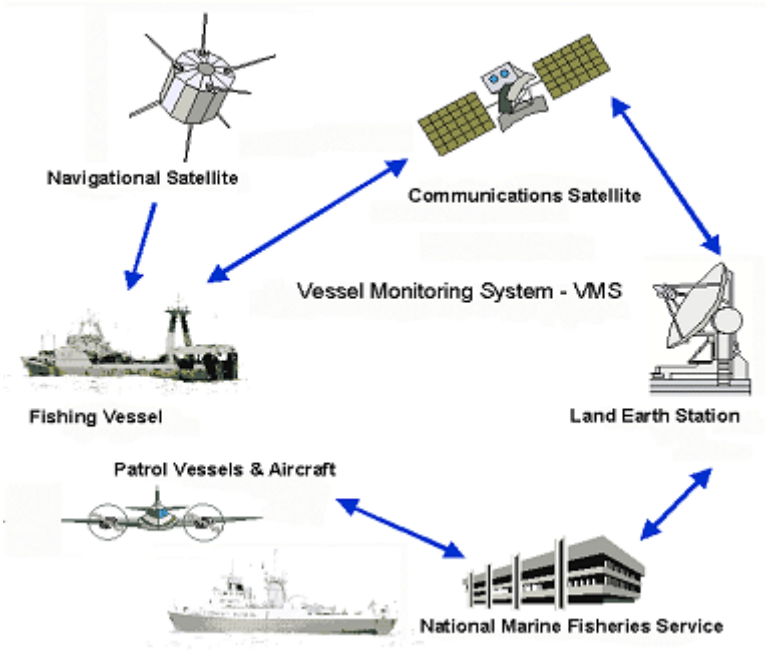

Figure 1.1. Example VMS Scenario

1.2 Background

VMS is a tool that is commonly used to monitor vessel activity in relationship to geographically defined areas. VMS transceivers are installed aboard vessels and use Global Positioning System (GPS) satellites to determine the vessel's position and to transmit that position to a communications satellite. From the communications satellite, the vessel's position is transmitted to a land-earth station operated by a communications service company. From the land-earth station, the position is transmitted to the NMFS Office for Law Enforcement (OLE) processing center. At the OLE processing center, the information is validated and analyzed before being disseminated for surveillance, enforcement purposes, and fisheries management. Figure 1.1 illustrates the flow of information through a VMS system.

VMS transceivers document a vessel's position at a specific period in time. The frequency at which position reports are sent depends on the defined need. Position transmissions can be made on a predetermined schedule, such as hourly, or upon request from the processing center. The vessel operator is unable to alter the VMS transmission signal or the time of transmission. In most cases, the vessel operator is unaware of exactly when the VMS unit is transmitting. VMS transceivers are designed to be tamper resistant.

To assure compatibility with the national monitoring center, NMFS requires that VMS systems meet defined standards (September 23, 1993, 58 FR 49285, March 31, 1994, 59 FR 151180), while recognizing the need to promulgate regulations and approve systems on a fishery-by-fishery basis. VMS transceiver units approved by NMFS are referred to as type-approved models. All type-approved models must have basic features identified and endorsed by NMFS; however, additional features may be added to better meet the needs of a particular fishery. On November 17, 2003 (68 FR 64860,) NMFS published an additional notice identifying VMS transceiver units and communication service providers that qualified as type-approved for the Pacific Coast groundfish fishery.

Amendment 13 to the Pacific Coast Groundfish FMP recognized the value of VMS as a tool for enforcing closed areas that are established to reduce bycatch of overfished species. Amendment 13 also identified VMS as a technological tool that could be used to improve bycatch management by providing fishing location data that can be used in conjunction with observer data collections.

At its November 2002 meeting, the Council recommended that NMFS, in consultation with the ad hoc VMS Committee, prepare a rule to implement a pilot VMS program for monitoring compliance with large-scale depth-based management areas. The Council's preferred alternative was for a pilot program that required all vessels registered to Pacific Coast groundfish fishery limited entry permits to carry and use a basic VMS system (a system capable of one-way communications) and to provide declaration reports prior to fishing in specific depth-based management areas with gears that would otherwise be prohibited for groundfish fishing. Based on the Council's recommendation, NMFS prepared a proposed rule for a VMS program that was published on May 22, 2003 (68 FR 27972). The proposed rule was followed by a final rule that was published on November 4, 2003 (68 FR 62374). In addition to the requirement that all

limited entry vessels carry and use VMS transceivers, any vessel registered to a limited entry permit and any other commercial or tribal vessel using trawl gear, (including exempted gear used to take pink shrimp, spot and ridgeback prawns, California halibut and sea cucumber) is required to declare their intent to fish within a conservation area specific to their gear type, in a manner consistent with conservation area requirements.

1.3 Purpose and need for action

Large-scale depth-based management areas, referred to as groundfish conservation areas (GCAs), are used to prohibit or restrict commercial and recreational groundfish fishing. The boundaries used to define the GCAs can be complex, involving hundreds of points of latitude and longitude. The Rockfish Conservation Areas (RCAs) are a sub-group of the GCAs that were specifically designed to protect overfished rockfish species in times and where they are most abundant. RCAs are defined by points of latitude and longitude that approximate fathom curves for depth ranges where overfished rockfish species are commonly found. Each RCA is gear specific, so that groundfish fishing (either directed or incidental) with gears that tend to catch particular overfished species is restricted or prohibited for being used in areas where those species are vulnerable. The RCAs are vast, cover much of the continental shelf, and extend along the entire West Coast from Canada to Mexico.

Deep-water fisheries on the slope and nearshore fisheries have been permitted in areas seaward or shoreward of the RCAs. Vessels intending to fish in the deep-water slope fisheries seaward of the westernmost boundary of an RCA are allowed to transit through the areas, providing their gear is properly stowed. Target fisheries with relatively low catch rates of overfished species, such as midwater trawling for pelagic species, and shrimp trawling with finfish excluders, have been allowed to occur in the RCAs. Various state-managed fisheries where groundfish are incidentally taken also occur in the RCA.

To ensure the integrity of the RCAs and other conservation areas, a pilot VMS program was implemented on January 1, 2004. The pilot program requires vessels registered to Pacific Coast groundfish fishery limited entry permits to carry and use VMS transceiver units while fishing off the coasts of Washington, Oregon and California. Using traditional enforcement methods (such as aerial surveillance, boarding at sea via patrol boats, landing inspections and documentary investigation) are especially difficult when the closed areas are large-scale and the lines defining the areas are irregular. Furthermore, when management measures allow some gear types and target fishing in all or a portion of the conservation area, while other fishing activities are prohibited, it is difficult and costly to effectively enforce closures using traditional methods. Scarce state and Federal resources also limit the use of traditional enforcement methods.

Expanding coverage of the current VMS monitoring program to the open access fisheries will enhance state and federal enforcement's ability to monitor vessel compliance with depth-based conservation areas. Depth-based management areas were established so that healthy fisheries could continue in areas and with gears where little incidental catch of overfished species occurs. Therefore, maintaining the integrity of conservation areas is consistent with the conservation goals and objectives of the Pacific Coast Groundfish FMP. The purpose of this Environmental Assessment (EA) is to analyze a reasonable range of VMS program coverage levels for vessels that fish pursuant to the harvest guidelines, quotas, and other management measures governing the open access fishery.

1.4 Scoping Process

The scoping process, where stakeholder input on the issue is provided, aids in determining the range of issues that the NEPA document (in this case the EA) needs to address. Scoping is intended to ensure that problems are identified early and properly reviewed, that issues of little significance do not consume time and effort, and that the draft NEPA document is thorough and balanced. The scoping process should: identify the public and agency concerns; clearly define the environmental issues and alternatives to be examined in the NEPA document, including the elimination of nonsignificant issues; identify related issues, and; identify state and local agency requirements that must be addressed. An effective scoping process can help reduce unnecessary paperwork and time delays in preparing and processing the NEPA document. This EA tiers off the original VMS EA, titled The Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery and therefore presents scoping activities that have occurred since September 2003.

In October 2003, the ad hoc VMS committee, which is comprised of state, federal and industry representatives, held a public meeting to consider expanding the VMS program beyond the limited entry fisheries. During this meeting, the committee discussed criteria that would be used to prioritize the expansion of the VMS program. These criteria included: the impacts on overfished species if illegal groundfish fishing occurred in an GCA; the ability of enforcement to identify fishery participants that are targeting groundfish; and the ability of enforcement to distinguish between LE vessels and other fishing vessels that look like LE vessels. Using this criteria, the committee determined that commercial vessels operating in the EEZ at any time during the year and that land groundfish should be considered for the next phase of the VMS program. The ad hoc VMS committee also recommended priorities for coverage of the different OA gear groups. Longline was given the highest priority, followed by groundfish pot, exempted trawl (excluding pink shrimp), and line (excluding salmon). The committee also considered expansion to the charter and private sectors of the recreational fishery, but determined that an area-by-area evaluation of the groundfish impacts by these participants was necessary before a final committee recommendation could be made.

At the Council's November 2003 meeting, the ad hoc VMS committee presented its report to the Council: (Exhibit D. 10b, Supplemental Attachment 2, November 2003). Following public testimony and consideration of the committee report, the Council indicated that further information on the success of the pilot phase of the program was needed before they would consider expansion into other fisheries. VMS reports were provided to the Council by OLE at its subsequent meetings.

At the Council's September 2004 meeting, NMFS presented a draft EA that contained a range of five VMS coverage alternatives for the open access fishery. These alternatives were based on the ad hoc VMS committee's October 2003 recommendation to the Council. The Council reviewed the alternatives, considered the input of its advisory bodies, and listened to public testimony, before adopting a revised range of eight alternatives for further analysis. The Council also recommended an October 1, 2005 implementation date for the expanded VMS program. To allow time for the affected public to review the alternatives, the Council delayed action on expanding the VMS program until its April 2005 Council meeting in Tacoma, Washington.

NMFS and the states held Eight public meetings, between January 10, 2005 and March 5, 2005, to provide the interested public with information regarding the current VMS systems, the expansion of the VMS program into the open access groundfish fisheries, and to provide information about how and when to provide comments to NMFS and the Council. These meetings occurred in communities with relatively high open access groundfish landings: Westport, WA; Astoria, OR; Newport, OR; Port Orford, OR; Fort Bragg, CA; Morrow Bay, CA; San Francisco, CA; and Los Alamitos, CA.

1.5 Other NEPA documents this EA relies on

This is a tiered EA that expands on information presented in the July 2003 EA, titled The Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery. This EA expands on the VMS program considered in the original VMS EA by considering alternative coverage levels for the open access fisheries.

This EA relies on three environmental impact statements (EIS) that have been prepared for the groundfish fishery since November 2003. Two of the EIS documents pertain to the harvest specifications and management measures and are titled: 1) Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for 2004, and 2) Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for 2005-2006. The third EIS, which was available as a draft EIS in February 2005, concerns Essential Fish Habitat (EFH) and is titled: The Pacific Coast Groundfish Fishery Management Plan, Essential Fish Habitat Designation and Minimization of Adverse Impacts. These three EISs have detailed descriptions of the affected environment, including: the geographical location in which the groundfish fisheries occur; various species that groundfish vessels harvest and interact with; the fish buyers and processors that are dependent on the fishery; the suppliers and services; and, ultimately the fishing-dependent communities where vessels dock and fishing families live who are dependent on these fisheries. Relevant information on the environment was summarized from these EISs for this document. In the sections where this information was summarized, readers who are interested in more detailed descriptions are encouraged to read these earlier NEPA documents.

2.0 ALTERNATIVE MANAGEMENT ACTIONS

2.1 Alternatives Previously Considered for Monitoring Time Area Closures

The July 2003 VMS EA (“A Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery”) was prepared prior to implementing the pilot VMS program in the limited entry fisheries. The original VMS EA examined three primary issues relevant to the development of a program for monitoring the time-area closures: 1) the monitoring system, 2) appropriate coverage levels, and 3) the payment structure. The Council considered the alternative management actions for each of these issues before making a recommendation to NMFS.

The monitoring system alternatives considered by the Council included: 1) declaration reports; 2) a basic VMS system with 1-way communications and declaration reports; 3) an upgraded VMS system with 2-way communications and declaration reports; and 4) fishery observers (1 per vessel) with declaration reports. Declaration reports allow vessels to declare their intent to fish within a GCA specific to their gear type, providing the activity is consistent with the GCA restrictions. The primary difference between the two VMS alternatives was that the upgraded two-way system could allow messages to be sent to and from the vessels, including fully compressed data messages. The basic 1-way VMS system primarily transmits positions to a shore station.

At its November 2002 meeting, the Council recommended that NMFS move forward with a rulemaking to require a basic VMS system and declaration reports. The Council indicated that it considered a basic VMS system to be adequate for maintaining the integrity of the closed areas. A basic VMS system is more costly than declaration reports, but less costly than either the upgraded VMS system or observers.

The coverage alternatives considered by the Council defined sectors of the commercial and recreational groundfish fleets that would be required to carry the recommended monitoring system (either VMS or an observer). The coverage alternatives included: 1) all vessels registered to limited entry permits; 2) all limited entry vessels that fish in the EEZ at any time during the year; 3) all active limited entry, open access, and recreational charter vessels that fish in conservation areas; and 4) all limited entry, open access, and recreational charter vessels regardless of where fishing occurs. The Council recommended that vessels registered to limited entry permits fishing in the EEZ off the Washington, Oregon, and

California coasts be required to have and use VMS transceiver units whenever they fish. In addition, the Council recommended declaration reporting requirements for any vessel registered to a limited entry permit, and any commercial or tribal vessel using trawl gear, including exempted gear used to take pink shrimp, spot and ridgeback prawns, California halibut, and sea cucumber. This level of VMS coverage would allow enforcement to effectively monitor limited entry trawl vessels for unlawful incursions into RCAs while allowing legal incursions, such as midwater trawling, for Pacific whiting, yellowtail and widow rockfish and non-groundfish target fisheries, to occur. A notable number of limited entry vessels also participate in non-groundfish fisheries, such as shrimp and prawn trawl fisheries, troll albacore and troll salmon fisheries, and the pot fisheries for crab. These fisheries would continue to be allowed to occur in the RCAs. However, vessels registered to limited entry permits would be required to have an operable VMS unit on board whenever the vessel was fishing in state or federal waters off the states of Washington, Oregon or California. This level of coverage was intended to be a pilot program that began with the sector of the fishery that is allocated the majority of the groundfish resources.

The payment structure alternatives considered by the Council defined the cost responsibilities for purchasing, installing, and maintaining the VMS transceiver units, as well as the responsibilities for transmitting reports and data. The payment structure alternatives included: 1) the vessel pays all costs associated with purchasing, installing and maintaining the VMS transceiver unit, as well as the costs associated with the transmission of reports and data; 2) the vessel pays only for the VMS transceiver and NMFS pays all other costs; 3) NMFS pays for the initial transceiver, but all other associated expenses including installation, maintenance and replacement would be paid for by the vessel; 4) and NMFS pays for everything related to VMS. Although the Council recommended that NMFS fully fund a VMS monitoring program, to date, it has not been possible because neither state nor federal funding is available for purchasing, installing, or maintaining VMS transceiver units, nor is funding available for data transmission. Because of the critical need to monitor the integrity of conservation areas that protect overfished stocks while allowing for the harvest of healthy stocks, NMFS moved forward with the rulemaking. Should funds become available in the future, NMFS is not precluded from reimbursing participants for all or a portion of the costs associated with the VMS monitoring program.

2.2 Alternatives being considered

As stated in the previous detection, this EA tiers off of the original VMS EA, titled The Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery. The intent of the EA is to analyze expanding the coverage of the initial VMS monitoring program to the open access fisheries to promote compliance with regulations that prohibit some fishing activities in the RCAs and other GCAs, while allowing legal fishing activity occurring within the GCAs to be effectively monitored. The purpose of this EA is to analyze a range of VMS program coverage levels for vessels fishing pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery.

The monitoring mechanism and payment structure that was implemented through the final rule published on November 4, 2003 (68 FR 62374) will not be affected by the proposed action. However, it must be noted that moving this rulemaking forward at this time will require open access fishery participants to bear the cost of purchasing, installing, and maintaining VMS transceiver units, VMS data transmissions, and reporting costs associated with declaration requirements. Neither state nor Federal funding are available at this time. If money becomes available in the future, fishery participants may be reimbursed for all or a portion of their VMS expenses.

Open access coverage alternatives

At the Council's September 2004 meeting, NMFS presented a draft EA that contained a range of five VMS coverage alternatives for the open access fishery. These alternatives were based on the ad hoc VMS committee's October 2003 recommendation to the Council. The coverage levels identified in Alternatives 2-5A are based on different combinations of the open access gear groups. In order of priority, the VMS ad hoc committee identified the need for VMS coverage for the following open access gear groups:: longline, groundfish pot, trawl (excluding shrimp), and line (excluding salmon). Alternative 2 requires all

vessels using longline gear to have and use a VMS transceiver. Each of the following Alternatives 3-5A build on the previous alternative by adding the next open access gear group in order of priority. Each of these alternatives is described in detail below.

The Council reviewed the five alternatives, considered input from its advisory bodies, and listened to public testimony, before recommending a range of eight alternatives for further analysis and an October 1, 2005 implementation date for the expanded VMS program. Alternative 5B is based on the Enforcement Consultants recommendations to the Council. This alternative is the same as 5A except that it excludes vessels in fisheries where incidental catch of overfished species is very low, however it includes salmon troll vessels. Alternative 6A, though modified by the Council, was based on the Groundfish Advisory Panel's (GAP) majority view. Under Alternative 6A, VMS would be required on any commercial fishing vessel for which an RCA restriction applied. This alternative was viewed by the GAP as a simple and straight forward way to maintain the integrity of the RCAs. Alternative 7, is the GAP minority alternative, and is basically the same as Alternative 6 except that vessels under 12 feet (ft) in length are excluded. Though this alternative specifically excluded vessels that fish only in state waters, those vessels are already excluded because there is no link to Federal authority at this time (Federal nexus).

In October 2004, the VMS ad hoc committee met and reviewed the alternatives recommended by the Council for further analysis in the EA. At this same meeting, a variation of Alternative 6A was recommended by the VMS ad hoc committee. Alternative 6B is the alternative that the VMS ad hoc Committee requested to be added to the EA for analysis. Alternative 6B is the same as alternative 6A, except that only salmon troll vessels north of 40 10 N. lat. that fish pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery for groundfish species other than yellowtail rockfish would be required to carry and use a VMS transceiver and provide declaration reports under Alternative 6B. Table 2.0.1 is a Summary of the Alternative Management Actions for Expanding Coverage of the Monitoring System for Time-area Closures in the Pacific Coast Groundfish Fishery for the Open Access Fisheries and is followed by a more detailed description of each alternative.

2.0 ALTERNATIVE MANAGEMENT ACTIONS

2.1 Alternatives Previously Considered for Monitoring Time Area Closures

The July 2003 VMS EA ("A Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery") was prepared prior to implementing the pilot VMS program in the limited entry fisheries. The original VMS EA examined three primary issues relevant to the development of a program for monitoring the time-area closures: 1) the monitoring system, 2) appropriate coverage levels, and 3) the payment structure. The Council considered the alternative management actions for each of these issues before making a recommendation to NMFS.

The monitoring system alternatives considered by the Council included: 1) declaration reports; 2) a basic VMS system with 1-way communications and declaration reports; 3) an upgraded VMS system with 2-way communications and declaration reports; and 4) fishery observers (1 per vessel) with declaration reports. Declaration reports allow vessels to declare their intent to fish within a GCA specific to their gear type, providing the activity is consistent with the GCA restrictions. The primary difference between the two VMS alternatives was that the upgraded two-way system could allow messages to be sent to and from the vessels, including fully compressed data messages. The basic 1-way VMS system primarily transmits positions to a shore station.

At its November 2002 meeting, the Council recommended that NMFS move forward with a rulemaking to require a basic VMS system and declaration reports. The Council indicated that it considered a basic VMS system to be adequate for maintaining the integrity of the closed areas. A basic VMS system is more costly than declaration reports, but less costly than either the upgraded VMS system or observers.

The coverage alternatives considered by the Council defined sectors of the commercial and recreational

groundfish fleets that would be required to carry the recommended monitoring system (either VMS or an observer). The coverage alternatives included: 1) all vessels registered to limited entry permits; 2) all limited entry vessels that fish in the EEZ at any time during the year; 3) all active limited entry, open access, and recreational charter vessels that fish in conservation areas; and 4) all limited entry, open access, and recreational charter vessels regardless of where fishing occurs. The Council recommended that vessels registered to limited entry permits fishing in the EEZ off the Washington, Oregon, and California coasts be required to have and use VMS transceiver units whenever they fish. In addition, the Council recommended declaration reporting requirements for any vessel registered to a limited entry permit, and any commercial or tribal vessel using trawl gear, including exempted gear used to take pink shrimp, spot and ridgeback prawns, California halibut, and sea cucumber. This level of VMS coverage would allow enforcement to effectively monitor limited entry trawl vessels for unlawful incursions into RCAs while allowing legal incursions, such as midwater trawling, for Pacific whiting, yellowtail and widow rockfish and non-groundfish target fisheries, to occur. A notable number of limited entry vessels also participate in non-groundfish fisheries, such as shrimp and prawn trawl fisheries, troll albacore and troll salmon fisheries, and the pot fisheries for crab. These fisheries would continue to be allowed to occur in the RCAs. However, vessels registered to limited entry permits would be required to have an operable VMS unit on board whenever the vessel was fishing in state or federal waters off the states of Washington, Oregon or California. This level of coverage was intended to be a pilot program that began with the sector of the fishery that is allocated the majority of the groundfish resources.

The payment structure alternatives considered by the Council defined the cost responsibilities for purchasing, installing, and maintaining the VMS transceiver units, as well as the responsibilities for transmitting reports and data. The payment structure alternatives included: 1) the vessel pays all costs associated with purchasing, installing and maintaining the VMS transceiver unit, as well as the costs associated with the transmission of reports and data; 2) the vessel pays only for the VMS transceiver and NMFS pays all other costs; 3) NMFS pays for the initial transceiver, but all other associated expenses including installation, maintenance and replacement would be paid for by the vessel; 4) and NMFS pays for everything related to VMS. Although the Council recommended that NMFS fully fund a VMS monitoring program, to date, it has not been possible because neither state nor federal funding is available for purchasing, installing, or maintaining VMS transceiver units, nor is funding available for data transmission. Because of the critical need to monitor the integrity of conservation areas that protect overfished stocks while allowing for the harvest of healthy stocks, NMFS moved forward with the rulemaking. Should funds become available in the future, NMFS is not precluded from reimbursing participants for all or a portion of the costs associated with the VMS monitoring program.

2.2 Alternatives being considered

As stated in the previous detection, this EA tiers off of the original VMS EA, titled The Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery. The intent of the EA is to analyze expanding the coverage of the initial VMS monitoring program to the open access fisheries to promote compliance with regulations that prohibit some fishing activities in the RCAs and other GCAs, while allowing legal fishing activity occurring within the GCAs to be effectively monitored. The purpose of this EA is to analyze a range of VMS program coverage levels for vessels fishing pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery.

The monitoring mechanism and payment structure that was implemented through the final rule published on November 4, 2003 (68 FR 62374) will not be affected by the proposed action. However, it must be noted that moving this rulemaking forward at this time will require open access fishery participants to bear the cost of purchasing, installing, and maintaining VMS transceiver units, VMS data transmissions, and reporting costs associated with declaration requirements. Neither state nor Federal funding are available at this time. If money becomes available in the future, fishery participants may be reimbursed for all or a portion of their VMS expenses.

<u>Open access coverage alternatives</u>

At the Council's September 2004 meeting, NMFS presented a draft EA that contained a range of five VMS coverage alternatives for the open access fishery. These alternatives were based on the ad hoc VMS committee's October 2003 recommendation to the Council. The coverage levels identified in Alternatives 2-5A are based on different combinations of the open access gear groups. In order of priority, the VMS ad hoc committee identified the need for VMS coverage for the following open access gear groups:: longline, groundfish pot, trawl (excluding shrimp), and line (excluding salmon). Alternative 2 requires all vessels using longline gear to have and use a VMS transceiver. Each of the following Alternatives 3-5A build on the previous alternative by adding the next open access gear group in order of priority. Each of these alternatives is described in detail below.

The Council reviewed the five alternatives, considered input from its advisory bodies, and listened to public testimony, before recommending a range of eight alternatives for further analysis and an October 1, 2005 implementation date for the expanded VMS program. Alternative 5B is based on the Enforcement Consultants recommendations to the Council. This alternative is the same as 5A except that it excludes vessels in fisheries where incidental catch of overfished species is very low, however it includes salmon troll vessels. Alternative 6A, though modified by the Council, was based on the Groundfish Advisory Panel's (GAP) majority view. Under Alternative 6A, VMS would be required on any commercial fishing vessel for which an RCA restriction applied. This alternative was viewed by the GAP as a simple and straight forward way to maintain the integrity of the RCAs. Alternative 7, is the GAP minority alternative, and is basically the same as Alternative 6 except that vessels under 12 feet (ft) in length are excluded. Though this alternative specifically excluded vessels that fish only in state waters, those vessels are already excluded because there is no link to Federal authority at this time (Federal nexus).

In October 2004, the VMS ad hoc committee met and reviewed the alternatives recommended by the Council for further analysis in the EA. At this same meeting, a variation of Alternative 6A was recommended by the VMS ad hoc committee. Alternative 6B is the alternative that the VMS ad hoc Committee requested to be added to the EA for analysis. Alternative 6B is the same as alternative 6A, except that only salmon troll vessels north of 40 10 N. lat. that fish pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery for groundfish species other than yellowtail rockfish would be required to carry and use a VMS transceiver and provide declaration reports under Alternative 6B. Table 2.0.1 is a Summary of the Alternative Management Actions for Expanding Coverage of the Monitoring System for Time-area Closures in the Pacific Coast Groundfish Fishery for the Open Access Fisheries and is followed by a more detailed description of each alternative.

Table 2.0.1: Summary of the Alternative Management Actions for Expanding Coverage of the Monitoring System for Time-area Closures in the Pacific Coast Groundfish Fishery for the Open Access Fisheries

VMS Coverage Alternatives	Number of Affected OA Vessels by Gear & Target Species: a/ b/	RCA Restrictions by Gear & Target Species	Overfished Species Estimated Total Mortality by Gear & Target Species
Alternative 1 – Status quo. Require declaration reports from OA exempted trawl vessels that are using allowed trawl gear to fish within a trawl RCA	Ridgeback prawn 32 vessels/yr Sea cucumber - 14 vessels/yr, 6 vessels/yr landed OA groundfish California halibut - 34 trawl vessels/yr, 17 vessels/yr landed OA groundfish: Pink shrimp - 98 vessels/yr	Pink shrimp - not subject to RCAs	Pink shrimp vessels use finfish excluders to minimize overfished species bycatch
Alternative 2 -- longline vessels. Require all vessels using longline gear in Federal waters fishing pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery to provide declaration reports and to activate and use a VMS transceiver.	c/ Groundfish directed - 131 vessels/yr used longline gear Pacific halibut - 49 vessels/yr 31 landed OA groundfish HMS - 47 vessels/yr in 2000 & 2001, 2 vessels/yr landed groundfish. HMS longline gear currently prohibited in EEZ.	Groundfish directed - non-trawl gear RCA applies to groundfish longline gear Pacific halibut - non-trawl RCA restrictions adopted under halibut regulations. HMS - Longline gear currently prohibited for HMS fishing in EEZ	Groundfish directed - bocaccio, canary, cowcod, darkblotched, lingcod, pop and yelloweye. Longline specific projections are not available. Pacific halibut - 0.5 mt of yelloweye projected for 2005. HMS- Longline gear currently prohibited in EEZ
Alternative 3 -- longline or pot vessels Require all vessels using longline or pot gear in Federal waters fishing pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery to provide declaration reports and to activate and use a VMS transceiver.	Longline - Same as Alt. 2 d/ Groundfish directed - 30 vessels/yr used pot gear Dungeness crab - 733 vessels/yr, 45 vessels/yr landed OA groundfish Prawn - 40 vessels/yr, 8 vessels/yr landed OA groundfish California sheephead (CA nearshore.) - 8 vessels/yr landed OA groundfish	Longline - Same as Alt. 2 Groundfish directed - non-trawl RCA applies to groundfish pot gear Dungeness crab, prawn, & California sheephead - non-trawl RCA restrictions apply when vessel takes and retains or possesses federally managed groundfish	Longline - Same as Alt. 2 Groundfish directed - bocaccio, canary, cowcod, darkblotched, lingcod, pop and yelloweye. Pot specific projections are not available. Dungeness crab, spot prawn & California sheephead - no overfished species catch projected for 2005 Ridgeback prawn vessels - 0.1 mt of bocaccio projected for 2005, all gear
Alternative 4 -- longline, pot, or trawl vessels, excluding pink shrimp trawl vessels. Require all vessels using longline, pot or trawl gear in Federal waters fishing pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery to provide declaration reports and to activate and use a VMS transceiver. Pink shrimp vessels are excluded.	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Spot prawn- 26 vessels - gear currently prohibited Ridgeback prawn 32 vessels/yr 18 vessels/yr landed groundfish Sea cucumber - 14 vessels/yr,67 vessels/yr landed OA groundfish California halibut - 34 trawl vessels/yr, 17 vessels/yr landed OA groundfish	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Ridgeback Prawn - exempted trawl RCAs south of Cape Mendocino (40°10' N. lat.) Sea cucumber, and California halibut - exempted trawl RCA south of 40°10' N. lat. Pink shrimp - not subject to RCAs	Longline gear - Same as Alt. 2 Pot gear- Same as Alt. 3 Ridgeback prawn vessels - 0.1 mt of bocaccio projected for 2005, all gear Spot prawn - gear currently prohibited Sea cucumber - no overfished species catch projected for 2005 California halibut - 0.1 mt of bocaccio, and 2.0 mt of lingcod projected for 2005, all gears

VMS COVERAGE ALTERNATIVES	Number of Affected OA Vessels by Gear & Target Species: a/ b/	RCA Restrictions by Gear & Target Species	Overfished Species Estimated Total Mortality by Gear & Target Species
Alternative 5A -- longline, pot, trawl and line gear vessels, excluding pink shrimp trawl and salmon troll vessels. Require all vessels using longline, pot, trawl, or line gear in Federal waters fishing pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery to provide declaration reports and to activate and use a VMS transceiver. Vessels using pink shrimp trawl gear are excluded. Vessels using salmon troll gear are excluded.	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4 Groundfish directed - 738 vessels/yr used line gear California halibut - 105 vessels/yr landed groundfish HMS - 221 line gear vessels/yr, 12 vessels/yr landed groundfish	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4 Groundfish directed - non-trawl RCA applies California halibut & HMS non-trawl RCA restrictions apply south of 40°10' N. lat. when vessel takes and retains or possesses federally managed groundfish	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4 Groundfish directed - bocaccio, canary, cowcod, darkblotched, lingcod, POP and yelloweye. Line gear specific projections are not available. California halibut - 0.1 mt of bocaccio, and 2.0 mt of lingcod projected for 2005, all gears HMS - no overfished species catch projected for 2005.
Alternative 5B – (Enforcement Consultants) longline, pot, trawl and line gear vessels; excluding pink shrimp trawl, HMS longline and line gear and Dungeness crab pot gear. Require all vessels using longline, pot, trawl, or line gear in Federal waters fishing pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery to provide declaration reports and to activate and use a VMS transceiver. Vessels using pink shrimp trawl gear are excluded. Vessels using gears where the incidental catch of overfished species is projected to be minimal (HMS longline and line gear and Dungeness crab pot gear) are excluded.	Longline - Same as Alt. 2, except that HMS is not included - gear is currently prohibited Pot - Same as Alt. 3, except that Dungeness crab vessels are excluded Trawl - Same as Alt. 4 Line gear - Same as Alt.5A, except 12 HMS line vessels and 2 HMS longline vessels are excluded, and 177 salmon troll vessels are included - 1,020 line vessels landed groundfish	Longline - Same as Alt. 2 Pot - Groundfish directed, prawn, & California sheephead, same as Alt. 3 Trawl - Same as Alt. 4 Line - Groundfish directed & California halibut are the same as Alt. 5A. Salmon troll - south of 40°10' the non-trawl RCA restrictions apply when vessel takes and retains or possesses federally managed groundfish; north of 40°10' , the non-trawl RCA restrictions apply when vessel takes and retains or possesses federally managed groundfish other than yellowtail rockfish	Longline - Same as Alt. 2 because no overfished species catch was projected for HMS vessels in 2005. Pot - Same as Alt. 3 because no overfished species catch was projected for Dungeness crab vessels in 2005. Trawl - Same as Alt. 4 Line gear - Same as Alt.5A, plus salmon troll vessels - 0.2 mt of bocaccio, 1.6 mt canary, 0.3 mt lingcod, 0.2 mt yelloweye was projected for HMS vessels in 2005. No overfished species catch was projected for HMS vessels in 2005
Alternative 6A – (GAP Majority with Council modifications) Any vessel engaged in commercial fishing to which a RCA restriction applies. Require all vessels engaged in a commercial fishery to which an RCA restriction applies to carry and use VMS transceivers. Vessels using salmon, Dungeness crab, CPS or HMS gear that do not take and retain groundfish are excluded. Pink shrimp vessels are excluded.	Longline - Same as Alt. 2, except that all Pacific halibut vessels are included Pot - Same as Alt. 3 Trawl - Includes all ridgeback prawn trawl 32 vessels/yr, Sea cucumber - 14 vessels, California halibut - 34 trawl vessels/yr, 23 vessels/yr landed OA groundfish Line gear -Same as Alt.5B Net gear (trammel, gillnet, setnet) - CPS - 250 vessels/yr, 3 vessels/yr landed OA groundfish. Other gears - other gears such as spear, dredge.. 4 vessels per year	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4. Line - Groundfish directed, HMS & California halibut are the same as Alt. 5A. Salmon troll - south of 40°10'; the non-trawl RCA restrictions apply when vessel takes and retains or possesses federally managed groundfish; north of 40°10' , the non-trawl RCA restrictions apply when vessel takes and retains or possesses federally managed groundfish other than yellowtail rockfish.	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4 Line gear - Same as Alt.5A, plus salmon troll vessels - 0.2 mt of bocaccio, 1.6 mt canary, 0.3 mt lingcod, 0.2 mt yelloweye was projected for HMS vessels in 2005. No overfished species catch was projected for HMS vessels in 2005 CPS - 0.3 mt of bocaccio

VMS COVERAGE ALTERNATIVES	Number of Affected OA Vessels by Gear & Target Species: a/ b/	RCA Restrictions by Gear & Target Species	Overfished Species Estimated Total Mortality by Gear & Target Species
Alternative 6B – (VMS committee) Any vessel engaged in commercial fishing to which a RCA restriction applies, except salmon troll vessels operating in waters north of 40°10' N. lat. that only retain yellowtail rockfish. Require all vessels engaged in a commercial fishery to which an RCA restriction applies to carry and use VMS transceivers. Vessels using salmon, Dungeness crab, CPS or HMS gear that do not take and retain groundfish are excluded. Salmon troll vessels operating in waters north of 40°10' N. lat. that only retain yellowtail rockfish are excluded. Pink shrimp vessels are excluded. If an RCA requirement is discontinued during the year, mandatory VMS coverage would be discontinued for the affected vessels.	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 6A Line gear -Same as Alt.5B, except salmon troll vessels operating in waters north of 40°10' N. lat. that only retain yellowtail rockfish are not included. >43 but <134 vessels/yr would be excluded from coast wide value Net gear - Same as Alt. 6A Other gears -Same as Alt. 6A	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4. Line gear - Same as Alt. 6A	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4 Line gear - Same as Alt.6A, north and south specific total catch projections for salmon troll are not available.
Alternative 7 – (GAP minority with Council modifications) Any vessel engaged in commercial fishing to which a RCA restriction applies, except vessels less than 12 feet in overall length. Require all vessels >12 ft in length that fish in federal waters for which there is an RCA requirement to carry and use VMS transceivers and to provide declaration reports. Vessels using salmon, Dungeness crab, CPS, or HMS gear that do not take and retain groundfish are excluded. Pink shrimp vessels are excluded. Vessels that fish exclusively in state waters are excluded.	Same as Alt. 6A except that approximately 22 vessels/yr, each less than 12 feet in length, would be excluded. This is an average of 6 longline, 2 pot, and 14 line gear vessels/yr.	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4. Line gear - Same as Alt. 6A	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4 Line gear - Same as Alt.6A

a/ Unless other wise noted, the number of vessels is the average number of participants for the years 2000-2003.
b/ The number vessels represents those that operated in both state and/or federal waters. The data does not allow vessels that only fished in federal waters to be identified.
c/ For longline gear, directed was defined as a vessel with an exvessel value of groundfish greater than $2,500
d/ Directed groundfish pot was defined as having an exvessel value greater than 20% of all other West Coast vessel revenue

Alternative 1: Status quo. Do not specify mandatory VMS program coverage requirements for vessels used to fish pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery.

Discussion: Vessels without limited entry permits that fish pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery would not be required to carry and use VMS transceiver units. However, vessels could elect to voluntarily carry a VMS transceiver unit and provide position reports to NMFS if they choose. Vessels registered to limited entry permits that land fish in the open access sector would continue to be required to carry and use a VMS transceiver and provide declaration reports. Declaration reports would continue to be required from vessels using exempted trawl gear.

Alternative 2: longline vessels. Beginning October 1, 2005, require all vessels using longline gear that fish pursuant to the harvest guidelines, quotas, and other management measures governing the open access fishery to carry and use VMS transceiver units and provide declaration reports. Prior to leaving port on a trip in which a vessel identified under this alternative is used to take and retain, possess, or land federally managed groundfish in federal waters, the vessel would be required to activate a VMS transceiver unit and to continuously operate the unit (24 hours a day) for the remainder of the calendar year. A declaration report would be required prior to leaving port on a trip in which the vessel was used to fish in a GCA in a manner that is consistent with the requirements of the conservation area. VMS requirements defined at 660.312 and prohibitions defined at 660.306 would apply to these vessels, as would the reporting requirements defined at 660.303 for vessels fishing in conservation areas.

Discussion: Between 2000 and 2003, an average of 131 vessels per year used longline gear for directed harvest of groundfish. These vessels targeted species such as sablefish, lingcod, and rockfish. For the purpose of this analysis, directed vessels were assumed to be those longline vessels with an annual exvessel landings value of groundfish that exceeded 30 percent. The average annual groundfish exvessel revenue for open access vessels that used longline gear for directed harvest of groundfish between 2000 and 2003 was $6,331 per vessel. Between 2000 and 2003, an average of 1 vessels per year landed groundfish while using longline gear to target California halibut. The average annual groundfish longline revenue for each of these vessels was $133. An average of 31 out of 49 directed Pacific halibut vessels that fished south of Point Chehalis, WA and landed groundfish between 2000 and 2003. Longline gear is no longer allowed in federal waters off the West Coast by vessels harvesting Highly Migratory Species (HMS) species. Unless a HMS vessel possessed groundfish taken with longline gear outside the EEZ, they would not be required to have VMS.

Overfished species interactions for all open access directed groundfish gears were projected to include bocaccio, canary rockfish, cowcod, darkblotched rockfish, lingcod, POP and yelloweye rockfish. Gear specific overfished species catch projections were not available for the directed open access gears. For the California halibut fishery, overfished species projections for 2005 were combined for trawl and longline gear. The California halibut overfished species catch projections for 2005 were 0.1 mt of bocaccio and 2.0 mt of lingcod. Overfished species from the Pacific halibut fishery were projected to be 0.5 mt of yelloweye rockfish for 2005. No overfished species catch was projected for the HMS longline fishery for 2005.

Vessels would be required to operate their VMS units continuously from the point at which a vessel leaves port on a trip in which the vessel uses longline gear to fish in the open access fishery in Federal waters. The use of the term “fish” or “fishing” includes possessing federally managed groundfish in federal waters, even if the groundfish were taken and retained seaward of the EEZ or in state waters. Under this alternative, data would be available to monitor vessels using longline gear in the open access fisheries for unlawful incursions into conservation areas. Vessels must continue to operate the VMS units once the requirement is triggered; therefore, position data would be available for the vessels when they participate in other state and federal fisheries. Because of the mobility of vessels within the open access fleet to fish with alternative open access gears, some vessels, particularly directed vessels or those in fisheries where alternative gears are allowed, may change gear (such at to pot or line gear) to avoid the VMS requirements.

Alternative 3: longline or pot vessels. In addition to those vessels identified under Alternative 2, beginning October 1, 2005, require all vessels using longline or pot gear to fishing pursuant to the harvest guidelines, quotas, and other management measures governing the open access fishery to carry and use VMS transceiver units and provide declaration reports. Prior to leaving port on a trip in which a vessel identified under this alternative is used to take and retain, possess, or land federally managed groundfish in Federal waters, the vessel would be required to activate a VMS transceiver unit and to continuously operate the unit (24 hours a day) throughout the remainder of the calendar year. A declaration report would be required prior to leaving port on a trip in which the vessel is used to fish in a GCA in a manner that is consistent with the requirements of the conservation area. VMS requirements defined at 660.312 and prohibitions defined at 660.306 would apply to these vessels, as would the reporting requirements defined at 660.303 for vessels fishing in conservation areas.

Discussion: The vessels identified under this alternative are in addition to those vessels identified under Alternative 2. Between 2000 and 2003, an average of 30 vessels per year used pot gear for directed harvest of groundfish in Federal waters. Target species included sablefish, lingcod, and rockfish. For the purpose of this analysis, directed vessels were assumed to be those with an annual exvessel value of groundfish that exceeded 20% of all West Coast fisheries revenue for the vessel. The average annual groundfish exvessel revenue for these vessels for the 2000-2003 period was $8,809 per vessel. Other fisheries where pot gear is used and incidentally caught groundfish are landed are the Dungeness crab, prawn, and California sheephead (currently part of the California nearshore species management group) fisheries. On average between 2000 and 2003, 45 vessels landed open access groundfish while using pot gear to fish for Dungeness crab. The average annual exvessel revenue of groundfish landed by Dungeness crab vessels during the 2000-2003 period was $2,555 per vessel. On average between 2000 and 2003, 8 vessels landed open access groundfish while using pot gear to fish for spot and ridgeback prawns. The average annual groundfish exvessel revenue for prawn vessels during the 2000-2003 period was $1,674 per vessel. On average between 2000 and 2003, 8 vessels per year landed open access groundfish taken in pot gear by vessels also fishing for California sheephead. The average annual groundfish exvessel revenue for California sheephead vessels in the 2000-2003 period was $1,584 per vessel.

Overfished species interactions in the directed groundfish fisheries are projected to include bocaccio, canary rockfish, cowcod, darkblotched rockfish, lingcod, POP and yelloweye rockfish. Gear specific overfished species catch projections were not available for the directed open access gears. No overfished species catch was projected for the Dungeness crab or ridgeback prawn pot gear fisheries in 2005. California sheephead are caught in the nearshore fishery in California. Overfished species bycatch projections for the California nearshore fisheries were included in the direct fisheries impact estimates for 2005.

Vessels would be required to operate their VMS units continuously from the point at which a vessel leaves port on a trip in which longline or pot gear to fish in the open access fishery in Federal waters. The use of the tern “fish” or “fishing” includes possessing federally managed groundfish in Federal waters, even if the groundfish were taken and retained seaward of the EEZ or in state waters. Under this alternative, data would be available to monitor vessels using longline or pot gear in the open access fisheries for unlawful incursions into conservation areas. Vessels must continue to operate the VMS units once the requirement is triggered, therefore, position data would be available for the vessels when they participate in other state and federal fisheries. Because of the mobility of vessels within the fleet to fish with alternative open access gears, some vessels, particularly directed vessels or those in fisheries were alternative gears are allowed, may change gear (such as to line gear) to avoid the VMS requirements.

Alternative 4: longline, pot, or trawl vessels, excluding pink shrimp trawl vessels. In addition to those vessels identified under Alternatives 2 and 3, beginning on October 1, 2005, require all vessels that use longline gear, pot or trawl gear, excluding pink shrimp trawl gear fishing pursuant to the harvest guidelines, quotas, and other management measures governing the open access fishery, to carry and use VMS transceiver units and to provide declaration reports. Prior to leaving port on a trip in which a vessel identified under this alternative is used to take and retain, possess, or land federally managed groundfish in Federal waters, the vessel would be required to activate a VMS transceiver unit and to continuously operate the unit (24 hours a day) throughout the remainder of the calendar year. A declaration report

would be required prior to leaving port on a trip in which the vessel is used to fish in a GCA in a manner that is consistent with the requirements of the conservation area. VMS requirements defined at 660.312 and prohibitions defined at 660.306 would apply to these vessels, as would the reporting requirements defined at 660.303 for vessels fishing in conservation areas.

Discussion: The vessels identified under this alternative are in addition to those vessels identified under Alternative 2 and 3. The open access fisheries in which trawl gear is used are the exempted trawl fisheries for sea cucumber, California halibut, ridgeback prawns, and pink shrimp. This alternative applies to exempted trawl vessels that take and retain, possess or land groundfish taken with exempted trawl gear, except pink shrimp. On average between 2000 and 2003, 6 vessels landed open access groundfish while using trawl gear to fish for sea cucumbers. The average annual groundfish exvessel revenue of groundfish landed by sea cucumber vessels during the 2000-2003 period was $153 per vessel. On average, between 2000 and 2003, 17 vessels landed open access groundfish while using trawl gear to fish for California halibut. The average annual exvessel revenue of groundfish landed by California halibut vessels during the 2000-2003 period was $729 per vessel. On average between 2000 and 2003, 18 vessels landed open access groundfish while using trawl gear to fish for ridgeback prawns. The average annual groundfish exvessel revenue of groundfish landed by ridgeback prawn vessels during the 2000-2003 period was $740 per vessel. After 2002, Washington State prohibited the use of trawl nets for harvesting spot prawns. On February 18, 2003, the California Fish and Game Commission adopted regulations prohibiting the use of trawl nets to take spot prawn. The regulations went into effect on April 1, 2003. After 2003, Oregon prohibited the use of trawl nets for harvesting spot prawns. Pink shrimp vessels are allowed to fish within the trawl RCA providing a declaration report is sent prior to leaving port on a trip in which the vessel is used to fish within the RCA with shrimp trawl gear. In addition, state requirements include the use of approved finfish excluders for pink shrimp vessels.

No overfished species catch was projected for the sea cucumber trawl fishery for 2005. The 2005 projected overfished species catch in the ridgeback prawn trawl fishery was 0.1 mt of bocaccio. Gear specific overfished species catch projections were not available for the California halibut trawl fishery. However, the 2005 projections for all gears targeting California halibut is 0.1 mt of bocaccio and 2.0 mt of lingcod.

Vessels would be required to operate their VMS units continuously from the point at which a vessel leaves port on a trip in longline or pot gear is used to fish in the open access fishery in Federal waters. The use of the tern “fish” or “fishing” includes possessing federally managed groundfish in Federal waters, even if the groundfish were taken and retained seaward of the EEZ or in state waters. Under this alternative, data would be available to monitor vessels using longline, pot, or exempted trawl gear (except fo pink shrimp trawl) in the open access fisheries for unlawful incursions into conservation areas. Vessels must continue to operate the VMS units once the requirement is triggered; therefore, position data would be available for the vessels when they participate in other state and federal fisheries. Mobility of vessels within the fleet to fish with alternative open access gears to avoid the VMS requirements is effectively the same as alternative 3, because it is unlikely that vessels exempted trawl gears would line gear to avoid the VMS requirements.

Alternative 5A: longline, pot, trawl and line gear vessels, excluding pink shrimp trawl and salmon troll vessels. In addition to those vessels identified under Alternatives 2-4, beginning on October 1, 2005, require all vessels that use longline, pot, trawl (excluding pink shrimp trawl) or line gear (excluding salmon troll gear) to fish pursuant to the harvest guidelines, quotas, and other management measures governing the open access fishery, to carry and use VMS transceiver units and provide declaration reports. Prior to leaving port on a trip in which a vessel identified under this alternative is used to take, retain, possess, or land federally managed groundfish in Federal waters, the vessel would be required to activate a VMS transceiver unit and to continuously operate the unit (24 hours a day) throughout the remainder of the calendar year. A declaration report would be required prior to leaving port on a trip in which the vessel is used to fish in a GCA in a manner that is consistent with the requirements of the conservation area. VMS requirements defined at 660.312 and prohibitions defined at 660.306 would apply to these vessels, as would the reporting requirements defined at 660.303 for vessels fishing in conservation areas.

Discussion: The vessels identified under this alternative are in addition to those vessels identified under

Alternative 2, 3 and 4. Between 2000 and 2003, an average of 738 vessels per year used line gear to target groundfish in the open access fishery. The average annual exvessel revenue of groundfish during this period was $2,639 per vessel. Other fisheries in which line gear is used and where incidentally caught groundfish are landed are the California halibut, HMS and salmon troll vessels. On average between 2000 and 2003, less than 105 vessels landed open access groundfish while using open access line gear to fish for California halibut. The average annual groundfish exvessel revenue of groundfish landed by California Halibut vessels during the 2000-2003 period was $225 per vessel. On average between 2000 and 2003, 12 vessels landed open access groundfish while using trawl gear to fish for HMS. The average annual groundfish exvessel revenue of groundfish landed by HMS vessels during the 2000-2003 period was $969 per vessel. The salmon troll fisheries are allowed to fish within the nontrawl RCA and are allowed to retain some groundfish. Because VMS cannot be used to determine where a particular species was caught, VMS was originally considered to be an effective enforcement tool for monitoring open access trip limit compliance by salmon troll vessels.

Overfished species interactions in the directed groundfish fisheries were projected to include bocaccio, canary rockfish, cowcod, darkblotched rockfish, lingcod, POP and yelloweye rockfish. Gear specific overfished species catch projections were not available for the directed open access gears nor were gear specific overfished species catch projections available for the California halibut trawl fishery. The 2005 However, 0.1 mt of bocaccio and 2.0 mt of lingcod were projected to be taken by all gears targeting California halibut. No overfished species catch was projected for the HMS line gear fisheries for 2005.

Vessels would be required to operate their VMS units continuously from the point at which a vessel leaves port on a trip in which longline or pot gear is used to fish in the open access fishery in Federal waters. The use of the tern “fish” or “fishing” includes possessing federally managed groundfish in Federal waters, even if the groundfish were taken and retained seaward of the EEZ or in state waters. Under this alternative, data would be available to monitor vessels using longline, pot, exempted trawl gear (except for pink shrimp trawl), and line gear (except salmon troll) in the open access fisheries for unlawful incursions into conservation areas. Vessels must continue to operate the VMS units once the requirement is triggered; therefore, position data would be available for the vessels when they participate in other state and federal fisheries.

Alternative 5B: longline, pot, trawl and line gear vessels; excluding pink shrimp trawl, HMS longline and line gear and Dungeness crab pot gear. Beginning on October 1, 2005, require all vessels that use longline, pot, trawl or line gear to fish pursuant to the harvest guidelines, quotas, and other management measures governing the open access fishery, to carry and use VMS transceiver units and provide declaration reports. Vessels using pink shrimp trawl gear are excluded under this alternative. In addition, vessels using HMS longline and line gear, and Dungeness crab pot gear, gears where the incidental catch of overfished species is projected to be minimal, are excluded. Prior to leaving port on a trip in which a vessel identified under this alternative is used to take and retain, possess, or land federally managed groundfish in Federal waters, the vessel would be required to activate a VMS transceiver unit and to continuously operate the unit (24 hours a day) throughout the remainder of the calendar year. A declaration report would be required prior to leaving port on a trip in which the vessel is used to fish in a GCA in a manner that is consistent with the requirements of the conservation area. VMS requirements defined at 660.312 and prohibitions defined at 660.306 would apply to these vessels, as would the reporting requirements defined at 660.303 for vessels fishing in conservation areas.

Discussion: The vessels identified under this alternative are the same vessels as those identified under Alternative 2, 3 and 4, except that vessels using gears where the incidental catch of overfished species is projected to be minimal, are excluded. Vessels using pink shrimp trawl gear are excluded under this alternative. The gears with low incidental catch of overfished species are HMS longline and line gear, and Dungeness crab pot gear. An average of 2 vessels per year between 2000 and 2003 landed groundfish taken with longline gear while targeting HMS (currently prohibited gear in the EEZ); approximately 12 vessels per year between 2000 and 2003 landed groundfish taken with line gear while targeting HMS; and approximately 45 vessels per year between 2000 and 2003 landed groundfish taken with pot gear while targeting Dungeness crab. Under this alternative, vessels using salmon troll gear to fish pursuant to the harvest guidelines, quotas, and other management measures governing the open access fishery would also be required to carry and use VMS transceivers and provide declaration reports. Between 2000 and

2003, an average of 177 vessels per year landed groundfish taken with salmon troll gear. The annual exvessel value of groundfish taken by salmon troll vessels during this period was $173 per vessel.

Overfished species interactions in the directed groundfish fisheries were projected to include bocaccio, canary rockfish, cowcod, darkblotched rockfish, lingcod, POP and yelloweye rockfish. Gear specific overfished species catch projections were not available for the directed open access gears. Though gear specific overfished species catch projections were not available for the California halibut trawl fishery, 0.1 mt of bocaccio and 2.0 mt of lingcod were projected to be taken by all gears targeting California halibut. For 2005, salmon troll vessels were projected to take 0.2 mt of bocaccio, 1.6 mt of canary rockfish, 0.3 mt of lingcod, and 0.2 mt of yelloweye rockfish.

Vessels would be required to operate their VMS units continuously from the point at which a vessel leaves port on a trip in which the vessel uses longline or pot gear to fish in the open access fishery in Federal waters. The use of the tern "fish" or "fishing" includes possessing federally managed groundfish in Federal waters, even if the groundfish were taken and retained seaward of the EEZ or in state waters. Under this alternative, the available data would be the similar to 5A. HMS vessels are currently prohibited from using longline gear in the EEZ, data from approximately 12 vessels landing groundfish taken with line gear while targeting HMS and approximately 45 vessels landing groundfish taken with pot gear while targeting Dungeness crab would be excluded. However, data from, an average of 177 salmon troll vessels per year would be available under this alternative.

Alternative 6A: Any vessel engaged in commercial fishing to which a RCA restriction applies. Require all vessels engaged in a commercial fishery to which an RCA restriction applies to carry and use VMS transceivers and provide declaration reports. Vessels using salmon, Dungeness crab, coastal Pelagic Species (CPS) or HMS gear that do not take and retain groundfish are excluded. Pink shrimp vessels are excluded. Because there is no link to Federal authority at this time (Federal nexus), vessels that fish exclusively in state waters are excluded. Prior to leaving port on a trip in which a vessel identified under this alternative is used to take and retain, possess, or land federally managed groundfish in Federal waters, the vessel would be required to activate a VMS transceiver unit and to continuously operate the unit (24 hours a day) throughout the remainder of the calendar year. A declaration report would be required prior to leaving port on a trip in which the vessel is used to fish in a GCA in a manner that is consistent with the requirements of the conservation area. VMS requirements defined at 660.312 and prohibitions defined at 660.306 would apply to these vessels, as would the reporting requirements defined at 660.303 for vessels fishing in conservation areas.

Discussion: The vessels identified under this alternative are the same vessels as those identified under Alternative 5A, except that all vessels using longline gear to target Pacific halibut and all vessels using exempted trawl gear to target ridgeback prawns, sea cucumber, and California halibut would be included rather than only those exempted trawl vessels that take and retain, possess or land groundfish. In addition, vessels using salmon troll, net and other gears to fish pursuant to the harvest guidelines, quotas, and other management measures governing the open access fishery would be required to have and use VMS transceiver units and provide declaration reports. An average of 49 vessels per year between 2000 and 2003 fished in the directed commercial fishery for Pacific halibut south of Point Chehalis. All of these would be included under this alternative. This alternative also included all vessels using exempted trawl gear. On average between 2000 and 2003, 34 vessels per year used trawl gear to fish for California halibut, 14 vessels per year used trawl gear to fish for sea cucumbers, and 32 vessels per year used trawl gear to fish for ridgeback prawn. Like Alternative 5B, vessels using salmon troll gear to fish pursuant to the harvest guidelines, quotas, and other management measures governing the open access fishery would also be required to carry and use VMS transceivers and provide declaration reports. Between 2000 and 2003, an average of 177 vessels per year landed groundfish taken with salmon troll gear. The annual exvessel value of groundfish taken by salmon troll vessels during this period was $ 173 per vessel. Vessels landing groundfish with CPS net gear would be included under this alternative and are projected to take 0.3 mt of bocaccio rockfish. Only 3 CPS vessels to landed groundfish with a per vessel exvessel revenue of $358.

Overfished species interactions under this alternative are the same as those under alternative 5B, because overfished species were projected to be taken in the HMS longline or line gear fisheries or for the Dungeness crab pot gear fishery for 2005.

Vessels would be required to operate their VMS units continuously from the point at which a vessel leaves port on a trip in which the vessel is used to fish in the open access fishery in Federal waters with a gear for which there is an RCA restriction. The use of the tern "fish" or "fishing" includes possessing federally managed groundfish in Federal waters, even if the groundfish were taken and retained seaward of the EEZ or in state waters.

Alternative 6B: Any vessel engaged in commercial fishing to which a RCA restriction applies, except salmon troll vessels operating in waters north of 40°10' N. lat. that only retain yellowtail rockfish. Require all vessels engaged in a commercial fishery to which an RCA restriction applies to carry and use VMS transceivers and provide declaration reports. Vessels using salmon, Dungeness crab, CPS or HMS gear that do not take and retain groundfish are excluded. Salmon troll vessels operating in waters north of 40°10' N. lat. that only retain yellowtail rockfish are excluded. Pink shrimp vessels are excluded. If an RCA requirement is discontinued during the year, mandatory VMS coverage would be discontinued for the affected vessels. Because there is no link to Federal authority at this time (Federal nexus), vessels that fish exclusively in state waters are excluded. Prior to leaving port on a trip in which a vessel identified under this alternative is used to take and retain, possess, or land federally managed groundfish in Federal waters, the vessel would be required to activate a VMS transceiver unit and to continuously operate the unit (24 hours a day) throughout the remainder of the calendar year. A declaration report would be required prior to leaving port on a trip in which the vessel is used to fish in a GCA in a manner that is consistent with the requirements of the conservation area. VMS requirements defined at 660.312 and prohibitions defined at 660.306 would apply to these vessels, as would the reporting requirements defined at 660.303 for vessels fishing in conservation areas.

Discussion: The vessels identified under this alternative are the same vessels as those identified under Alternative 6A except that salmon troll vessels operating in waters north of 40°10' N. lat. that only retain yellowtail rockfish are excluded (>43, but <134 vessels). In the long term, fewer vessels may be affected than under Alternative 6A. This is because Alternative 6B includes a provision to discontinued mandatory VMS coverage for open access gear groups when the RCA requirements are discontinued.

Overfished species interactions under this alternative are similar to those under alternative 5B and 6A. However data on the overfished species impacts for salmon troll vessel are not available for north and south of 40°10' N. lat. Vessels would be required to operate their VMS units continuously from the point at which a vessel leaves port on a trip in which the vessel is used to fish in the open access fishery in Federal waters with a gear for which there is an RCA restriction. The use of the tern "fish" or "fishing" includes possessing federally managed groundfish in Federal waters, even if the groundfish were taken and retained seaward of the EEZ or in state waters. Less salmon troll data would be available for vessels fishing north 40°10' N. lat than would be available under alternatives 5B or 6A.

Alternative 7: Any vessel engaged in commercial fishing to which an RCA restriction applies, except vessels less than 12 feet in overall length. Require all vessels greater than 12 ft in length that are engaged in a commercial fishery to which an RCA restriction applies to carry and use VMS transceivers and provide declaration reports. Vessels using salmon, Dungeness crab, CPS or HMS gear that do not take and retain groundfish are excluded. Pink shrimp vessels are excluded. Vessels that fish exclusively in state waters are excluded. Prior to leaving port on a trip in which a vessel identified under this alternative is used to take and retain, possess, or land federally managed groundfish in Federal waters, the vessel would be required to activate a VMS transceiver unit and to continuously operate the unit (24 hours a day) throughout the remainder of the calendar year. A declaration report would be required prior to leaving port on a trip in which the vessel is used to fish in a GCA in a manner that is consistent with the requirements of the conservation area. VMS requirements defined at 660.312 and prohibitions defined at 660.306 would apply to these vessels, as would the reporting requirements defined at 660.303 for vessels fishing in conservation areas.

Discussion: The vessels identified under this alternative are the same vessels as those identified under Alternative 6A, except that vessels less than 12 feet in length are excluded. An average of 22 vessels per year between 2000 and 2003 landed groundfish and were less than 12 feet in length. These vessel included 6 vessels that used longline gear, 2 vessels that used pot gear, and 14 vessels that used line gear.

Overfished species interactions under this alternative are similar to those under alternative 5B and 6A. Data on the overfished species impacts for vessel under 12 feet in length are not available. Vessels would be required to operate their VMS units continuously from the point at which a vessel leaves port on a trip in which the vessel used longline or pot gear to fish in the open access fishery in Federal waters. The use of the tern "fish" or "fishing" includes possessing federally managed groundfish in Federal waters, even if the groundfish were taken and retained seaward of the EEZ or in state waters. Less data would be available from approximately 6 vessels that use longline gear, 2 vessels that use pot gear, and 14 vessels that use line gear.

Vessels would be required to operate their VMS units continuously from the point at which a vessel leaves port on a trip in which the vessel is used to fish in the open access fishery in Federal waters with a gear for which there is an RCA restriction. The use of the tern "fish" or "fishing" includes possessing federally managed groundfish in Federal waters, even if the groundfish were taken and retained seaward of the EEZ or in state waters.

2.3 Alternatives rejected from further analysis

VMS coverage of the recreational fisheries is not being considered at this time. At its October 2003 meeting, the ad hoc VMS Committee considered expansion of the VMS program, including expansion into the charter and private sectors of the recreational fishery. After considerable discussion, the committee recommended that an area-by-area evaluation of the groundfish impacts by these participants was necessary before a final recommendation could be made.

The pink shrimp fisheries have not been included in the alternatives for VMS coverage. Pink shrimp vessels are allowed to fish within the trawl RCA providing a declaration report has been sent prior to leaving port on a trip in which the vessel is used to fish within a GCA or RCA. Pink shrimp trawl vessels were excluded in the coverage alternatives, because they are required to use finfish excluders, which dramatically reduce their catch of overfished species, primarily canary rockfish. The salmon troll fisheries are allowed to fish within the nontrawl RCA and are allowed to retain some groundfish. Because VMS cannot be used to determine where a particular species was caught it is not considered to be an effective enforcement tool for monitoring open access trip limit compliance by salmon troll vessels.

State and federal fisheries in which groundfish are incidentally taken, but not landed were not included in the analysis because fisheries where groundfish catch is not landed are not considered to be open access fishery. These vessels include: the those targeting targeting HMS with purse seine gear, and those targeting the gillnet complex (California halibut, white sea bass, sharks, and white croaker) with driftnet.

3.0 AFFECTED ENVIRONMENT

The purpose of this EA is to analyze a range of alternatives for expanding the VMS program into the open access groundfish fisheries off the coasts of Washington, Oregon, and California. The affected environment includes: the geographical location in which these fisheries occur; the groundfish and other species these vessels harvest and interact with; the fish buyers and processors that are dependent on the fishery; the suppliers and services; and ultimately, and the fishing-dependent communities where vessels dock and fishing families live. The following section of this document, Section 3, describes the physical, biological, and socio-economic characteristics of the affected environment.

3.1 Physical Environment

Essential Fish Habitat (EFH) for Pacific Coast groundfish is defined as the aquatic habitat necessary to allow for groundfish production to support long-term sustainable fisheries for groundfish and for groundfish contributions to a healthy ecosystem. When these EFHs for all groundfish species are taken together, the groundfish fishery EFH includes all waters from the mean higher high water line, and the upriver extent of saltwater intrusion in river mouths seaward to the boundary of the U.S. EEZ.

This is a tiered EA that expands on information presented in the original July 2003 VMS EA titled, The Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery. Section 3.1, Physical Environment, of the original EA contained detailed information on the marine ecosystem. In addition, Section 3.2 of the February 2005 Draft EFH EIS titled: The Pacific Coast Groundfish Fishery Management Plan, Essential Fish Habitat Designation and Minimization of Adverse Impacts, contains further information on the physical environment. Readers who are interested in more detailed information on the physical environment are referred to the Draft EFH EIS.

3.1.1 Current Habitat Protection Areas

There are many areas off the West Coast where marine habitat is afforded some level of protection through existing regulations. These are areas that have been established by federal, state, and local agencies or other organizations. Areas may have been established to regulate navigation, restrict access (e.g., for security or fishing purposes), protect certain natural resources, regulate use, or for other purposes. These areas are known generally as marine managed areas, but are more specifically called such things as National Wildlife Refuges, National Marine Sanctuaries, fishery closure areas, State Parks, oil platform navigation safety zones, national security zones, marine protected areas, or marine reserves: There are about 321 distinct areas. Fifty nine of which may be considered marine reserves where all fishing is prohibited due either to specific fishing regulations or to access restrictions. That is, the majority of sites included in the table do not prohibit all fishing activities. Some sites may, for example, prohibit commercial fishing but allow recreational fishing; others allow fishing for some, but not all species of fish or invertebrates. Still others may only regulate fishing for one type of organism. A description of the areas is contained in Section 3.6 of the Pacific Coast Groundfish Fishery Management Plan, Essential Fish Habitat Designation and Minimization of Adverse Impacts, Draft EIS, prepared in February 2005.

3.2 Biological Environment

3.2.1 Groundfish Resources

The Pacific Coast groundfish FMP manages over 80 species, which are divided into the following groups: roundfish, flatfish, rockfish, sharks, skates, ratfish, morids, and grenadiers. These species occur throughout the EEZ and occupy diverse habitats at all stages in their life history. Information on the interactions between the various groundfish species and between groundfish and non-groundfish species varies in completeness. While a few species have been intensely studied, there is relatively little information on most groundfish species.

Each fishing year, the Council uses the best available stock assessment data to evaluate the biological condition of the Pacific Coast groundfish fishery and to develop estimates of allowable biological catch (ABC) levels for major groundfish stocks. The ABCs are biologically based estimates of the amount of

fish that may be harvested from the fishery each year without jeopardizing the stability of the resource. The ABC may be modified to incorporate biological safety factors and risk assessment due to uncertainty.

Harvest levels or optimum yields (OYs) are established for the species or species groups that the Council proposes to manage. In 2005, OYs are defined for the following groundfish species and species groups: bocaccio, black rockfish, cabezon, canary rockfish, chilipepper rockfish, cowcod, darkblotched rockfish, Dover sole, lingcod, longspine thornyhead, the minor rockfish complexes (the unassessed northern and southern nearshore, continental shelf, and continental slope rockfish species,) Pacific cod, POP, Pacific whiting, sablefish, shortbelly rockfish, shortspine thornyhead, splitnose rockfish, widow rockfish, yelloweye rockfish, and yellowtail rockfish. Numerical OYs are not set for every stock.

The Magnuson-Stevens Act requires an FMP to prevent overfishing. Overfishing is defined in the National Standards Guidelines (63 FR 24212, May 1, 1998) as exceeding the fishing mortality rate needed to produce maximum sustainable yield. The OY harvest levels are set at levels that are expected to prevent overfishing, equal to or less than the ABCs. The term “overfished” describes a stock whose abundance is below its overfished/rebuilding threshold. Overfished/rebuilding thresholds are generally linked to the same productivity assumptions that determine the ABC levels. The default value of this threshold for the groundfish FMP is 25% of the estimated unfished biomass level. In 2005, eight groundfish species continue to be designated as overfished: bocaccio (south of Monterey), canary rockfish, cowcod (south of Point Conception), darkblotched rockfish, lingcod, Pacific ocean perch, widow rockfish, and yelloweye rockfish.

This is a tiered EA that expands on information presented in the July 2003 EA titled, The Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery. Section 3.2, Biological Environment, of the original EA, contained detailed biological information on the groundfish resources. Readers who are interested in further information on the status of the groundfish resources are referred to Section 4.0 of the EIS, prepared by the Pacific Fishery Management Council, for the Proposed Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2005-2006 Pacific Coast Groundfish Fishery.

3.2.2 Endangered Species

West Coast marine species listed as endangered or threatened under the ESA include marine mammals, seabirds, sea turtles, and salmon. Under the ESA, a species is listed as "endangered" if it is in danger of extinction throughout a significant portion of its range and "threatened" if it is likely to become an endangered species within the foreseeable future throughout all, or a significant portion, of its range. Table 3.2.2.1 lists the species are subject to the conservation and management requirements of the ESA because they are listed as threatened or endangered.

Table 3.2.2.1. West Coast Endangered Species

Marine Mammals	Seabirds
Threatened: • Steller sea lion (*Eumetopias jubatus*) Eastern Stock • Guadalupe fur seal (*Arctocephalus townsendi*) • Southern sea otter (*Enhydra lutris*) California Stock	Endangered: • Short-tail albatross (*Phoebastria (=Diomedea) albatrus*) • California brown pelican (*Pelecanus occidentalis*) • California least tern (*Sterna antillarum browni*) Threatened: • Marbled murrelet (*Brachyramphs marmoratus*)
Sea Turtles	**Salmon**
Endangered: • Green turtle (*Chelonia mydas*) • Leatherback turtle (*Dermochelys coriacea*) • Olive ridly turtle (*Lepidochelys olivacea*) Threatened: • Loggerhead turtle (*Caretta caretta*)	Endangered: • Chinook salmon (*Oncorhynchus tshawytscha)* Sacramento River Winter; Upper Columbia Spring • Sockeye salmon (*Oncorhynchus nerka)* Snake River • Steelhead trout (*Oncorhynchus mykiss)* Southern California; Upper Columbia Threatened: • Coho salmon (*Oncorhynchus kisutch)* Central California, Southern Oregon, and Northern California Coasts • Chinook salmon (*Oncorhynchus tshawytscha*) Snake River Fall, Spring, and Summer; Puget Sound; Lower Columbia; Upper Willamette; Central Valley Spring; California Coastal • Chum salmon (*Oncorhynchus keta)* Hood Canal Summer; Columbia River • Sockeye salmon (*Oncorhynchus nerka)* Ozette Lake • Steelhead trout (*Oncorhynchus mykiss)* South-Central California, Central California Coast, Snake River Basin, Lower Columbia, California Central Valley, Upper Willamette, Middle Columbia, Northern California

Marine Mammals: Table 3.2.3.1 of the original VMS EA identified marine mammal communities by depth categories (nearshore, shelf and slope depth) that approximate those defined by the RCAs for three coastal regions, which included southern California, central to northern California, and Oregon to British Columbia.

Seabirds: Over sixty species of seabirds occur in waters off the West Coast within the EEZ, including: loons, grebes, albatross, fulmars, petrels, shearwaters, storm-petrels, pelicans, cormorants, frigate birds, phalaropes, skuas, jaegers, gulls, kittiwakes, skimmers, terns, guillemots, murrelets, auklets, and puffins. The migratory range of these species includes areas where open access commercial fishing occurs; commercial fishing also occurs near the breeding colonies of many of these species. Besides entanglement in fishing gear, seabirds may be indirectly affected by commercial fisheries in various ways. Change in prey availability may be linked to fishing and the discarding of fish and offal. Vessel traffic may affect seabirds when it occurs in and around important foraging and breeding habitat and increases the likelihood of bird storms. In addition, seabirds may be exposed to at-sea garbage dumping and the diesel and oil discharged into the water associated with commercial fisheries.

Sea Turtles: Sea turtles are highly migratory; four of the six species found in U.S. waters have been sighted off the West Coast. Little is known about the interactions between sea turtles and West Coast commercial fisheries. The directed fishing for sea turtles in West Coast groundfish fisheries is prohibited, because of their ESA listings, but the incidental take of sea turtles by longline or trawl gear may occur. Sea turtles are known to be taken incidentally by the California-based pelagic longline fleet and the California halibut gillnet fishery. Because of differences in gear and fishing strategies between those fisheries and the West Coast groundfish fisheries, the expected take of sea turtles by groundfish gear is minimal.

Salmon: salmon caught in the U.S. West Coast fishery have life cycle ranges that include coastal streams and river systems from central California to Alaska and oceanic waters along the U.S. and Canada seaward

into the north central Pacific Ocean, including Canadian territorial waters and the high seas. Some of the more critical portions of these ranges are the freshwater spawning grounds and migration routes. The open access groundfish fishery includes vessels that take and retain groundfish while using troll gear to target salmon.

This is a tiered EA that expands on information presented in the original July 2003 EA titled, "The Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery" Section 3.2.2 of the original EA, "Endangered Species" contains more detailed information on these resources.

3.2.3 Non-groundfish Species Interactions

Dungeness Crab: Dungeness crab (*Cancer magister*) are distributed from the Aleutian Islands, Alaska, to Monterey Bay, California. They live in bays, inlets, around estuaries, and on the continental shelf. Dungeness crab are found to a depth of about 180 m (98 fm). Although Dungeness crab are found on mud and gravel, it is most abundant on sandy bottoms and in eelgrass. Dungeness crab, are typically harvested using traps (crab pots), ring nets, by hand (scuba divers) or dip nets, and may be incidentally taken or harmed unintentionally by groundfish gears.

Highly Migratory Species: Highly migratory species (HMS) include tunas, billfish, dorado, and sharks. HMS species range great distances during their lifetime, extending beyond national boundaries into international waters and among the EEZs of many nations in the Pacific. In 2003, the Council adopted a Highly Migratory Species FMP (PFMC 2003) to federally regulate the take of HMS within and outside the U.S. West Coast EEZ. NMFS approved the FMP, allowing implementation, on January 30, 2004. The HMS FMP describes species proposed for active management in detail. These are five tuna species, five shark species, striped marlin, swordfish, and dorado or dolphinfish.

Pacific Pink Shrimp: Pacific pink shrimp (*Pandalus jordani*) are found from Unalaska in the Aleutian Islands to San Diego, California, at depths of 25 to 200 fm (46 to 366 m). Off the U.S. West Coast, these shrimp are harvested with trawl gear from northern Washington to central California between 60 and 100 fm (110 to 180 m). The majority of the catch is taken off the coast of Oregon. Concentrations of pink shrimp are associated with well-defined areas of green mud and muddy-sand bottom. Shrimp trawl nets are usually constructed with net mesh sizes smaller than the net mesh sizes for legal groundfish trawl gear.

Ridgeback prawn: Ridgeback prawns (*Sicyonia ingentis*) are found south of Monterey, California to Baja, California in depths of 145 feet (73 fm) to 525 feet (263 fm) (Sunada *et al.* 2001). They are more abundant south of Point Conception and are the most common invertebrate appearing in trawls. Their preferred habitat is sand, shell and green mud substrate, and they are relatively sessile. Although information about their feeding habits is limited, these prawns probably are detritus feeders. In turn, they are prey for sea robins, rockfish, and lingcod. Unlike other shrimp species, which carry their eggs during maturation, ridgeback prawns release their eggs into the water column. They spawn seasonally from June to October. Surveys recorded increasing abundance of ridgeback prawns from 1982, when surveys began, to 1985. The population then declined. More recent CPUE data suggest increased abundance in the 1990s. These changes may be due to climate phenomena, particularly El Niño events.

Pacific Halibut:. Pacific halibut (*Hippoglossus stenolepis*), in the family Pleuronectidae , range along the continental shelf in the North Pacific and Bering Sea in waters of 22 to 366 fm (40 to 200 m). They have flat, diamond-shaped bodies and may migrate long distances. Juvenile halibut, mostly shorter than the legal size limit, tend to migrate from north to south until they reach maturity. Adult halibut migrate from shallow summer feeding grounds to deeper winter spawning grounds. Most adult fish return to the same feeding grounds each summer where most commercial and recreational fishing occurs.

California Halibut: California halibut (*Paralichthys californicus*) are a left-eyed flatfish of the family Bothidae. They range from Northern Washington at approximately the Quileute River to southern Baja, California (Eschmeyer et al. 1983), but are most common south of Oregon. The center of distribution occurs south of Oregon. They predominantly associate with sand substrates from nearshore areas just beyond the surf line to about 183 m. California halibut feed on fishes and squids and can take their prey well off the bottom. They are an important sport and commercial species, especially in California where they are

targeted using hook-and-line and trawl gear.

California Sheephead: California sheephead (*Semicossyphus pulcher*) are a large member of the wrasse family Labridae. They range from Monterey Bay south to Guadalupe Island in central Baja, California and in the Gulf of California, but are uncommon north of Point Conception. They can live to 50 years of age and attain a maximum length of 91 cm (16 kg). Like some other wrasse species, California sheephead change sex starting first as a female, but changing to a male at about 30 cm in length.

Coastal Pelagic Species (CPS): CPS are schooling fish not associated with the ocean bottom, that migrate in coastal waters. These species include: northern anchovy (*Engraulis mordax*), Pacific sardine (*Sardinops sagax*), Pacific (chub) mackerel (*Scomber japonicus*), jack mackerel (*Trachurus symmetricus*) and market squid (*Loligo opalescens*). These species are managed under the Coastal Pelagic Species Fishery Management Plan. Sardines inhabit coastal subtropical and temperate waters and at times have been the most abundant fish species in the California current. During times of high abundance, Pacific sardine range from the tip of Baja California to southeastern Alaska. When abundance is low, Pacific sardine do not occur in large quantities north of Point Conception, California. Pacific (chub) mackerel range from Banderas Bay, Mexico to southeastern Alaska. They are common from Monterey Bay, California to Cabo San Lucas, Baja California, and most abundant south of Point Conception, California. The central subpopulation of northern anchovy ranges from San Francisco, California to Punta Baja, Mexico. Jack mackerel are a pelagic schooling fish that range widely throughout the northeastern Pacific, however much of their range lies outside the U.S. EEZ. Adult and juvenile market squid are distributed throughout the Alaska and California current systems, but are most abundant between Punta Eugenio, Baja California and Monterey Bay, Central California.

Stock assessments for Pacific sardine and Pacific mackerel from December 1999 and July 1999, respectively, indicate increasing relative abundance for both species. Pacific sardine biomass in U.S. waters was estimated to be 1,581,346 mt in 1999; Pacific mackerel biomass (in U.S. waters) was estimated to be 239,286 mt. Pacific sardine landings for the directed fisheries off California and Baja California, Mexico, reached the highest level in recent history during 1999, with a combined total of 115,051 mt harvested. In 1998, near-record landings of 70,799 mt of Pacific mackerel occurred for the combined directed fisheries off California and Baja California.

Population dynamics for market squid are poorly understood, and annual commercial catch varies from less than 10,000 mt to 90,000 mt. They are thought to have an annual mortality rate approaching 100%, which means the adult population is almost entirely new recruits and successful spawning is crucial to future years' abundance. Amendment 10 to the CPS FMP (January 27, 2003; 68 FR 3819) describes and analyzes several approaches for estimating an MSY proxy for market squid.

Sea Cucumber: Two sea cucumber species are targeted commercially: the California sea cucumber *(Parastichopus californicus*) and the warty sea cucumber (*P. parvimensis*) (Rogers-Bennett and Ono 2001). These species are tube-shaped Echinoderms, a phylum that also includes sea stars and sea urchins. The California sea cucumber occurs as far north as Alaska, while the warty sea cucumber is uncommon north of Point Conception and does not occur north of Monterey. Both species are found in the intertidal zone to as deep as 300 feet. These bottom-dwelling organisms feed on detritus and small organisms found in the sand and mud. Because sea cucumbers consume bottom sediment and remove food from it, they can alter the substrate in areas where they are concentrated. They can also increase turbidity as they excrete ingested sand or mud particles. Sea stars, crabs, various fishes, and sea otters prey upon them. They spawn by releasing gametes into the water column, and spawning occurs simultaneously for different segments of a population. During development, they go through several planktonic larval stages, settling to the bottom two months to three months after fertilization of the egg. Little is known about the population status of these two species; and assessment is difficult, because of their patchy distribution. However, density surveys suggest abundance has declined since the late 1980s, which is not unexpected since a commercial fishery for these species began in the late 1970s and expanded substantially after 1990.

Spot prawn: Spot prawn (*Pandalus platyceros*) are the largest of the pandalid shrimp and range from Baja, California north to the Aleutian Islands and west to the Korean Strait (Larson 2001). They inhabit rocky or hard bottoms including coral reefs, glass sponge reefs, and the edges of marine canyons. They have a

patchy distribution, which may result from active habitat selection and larval transport. Spot prawns are hermaphroditic, first maturing as males at about three years of age. They enter a transition phase after mating at about four years of age when they metamorphose into females. Spot prawns are taken by both traps and trawls on the West Coast with the fishery taking predominantly older females. Further information on the biological environment can be found in Section 3 of the Pacific Coast Groundfish Fishery Management Plan, Essential Fish Habitat Designation and Minimization of Adverse Impacts, Draft EIS, prepared in February 2005.

3.3 SOCIO-ECONOMIC ENVIRONMENT

3.3.1 Conservation Areas and Depth-Based Management.

Since 1998, groundfish management measures have been shaped by the need to rebuild overfished groundfish stocks. The 80+ species in the West Coast groundfish complex mix with each other to varying degrees throughout the year and in different portions of the water column. Some species, like Pacific whiting, are strongly aggregated, making them easier to target with relatively little bycatch of other species. Conversely, other species like canary rockfish may occur in species-specific clusters, but are also found co-occurring with a wide variety of other groundfish species.

Over the past several years, groundfish management measures have been carefully crafted to recognize the tendencies of overfished species to co-occur with healthy stocks in certain times and areas. Management measures have been specifically designed to reduce incidental interception of overfished species taken in fisheries targeting more abundant groundfish stocks. In addition to reduce overfished species catch by reducing trip limits for target species that co-occurrence with overfished species, GCAs and RCAs (large geographically defined conservation areas where fishing is restricted or prohibited to protect overfished species) areas have been used to manage the fishery.

The Council and NMFS began using closed areas to reduce fisheries impacts on overfished groundfish species in 2001. NMFS initially defined two Cowcod Conservation Areas (CCAs) in the Southern California Bight. These areas were closed to recreational and commercial fishing for groundfish. These closures were located in areas of known cowcod abundance and were intended to prevent fishing vessels from taking cowcod either directly or incidentally in fisheries targeting other species. The CCAs have remained in place since 2001 and continue to be part of the Council's long-term rebuilding strategy for cowcod.
In September 2002, NMFS introduced its first large-scale conservation area, a Darkblotched Rockfish Conservation Area (DBCA,) extending from the U.S/Canada border to Cape Mendocino, California. The DBCA extended between boundary lines approximating the 100 fm (183 m) and 250 fm (457 m) depth contours, with trawling prohibited within the conservation area. This closure was intended to reduce incidental darkblotched rockfish interception by fisheries targeting more abundant (continental) slope species.

Beginning in 2003, the Council recommended a greater suite of area closures intended to protect different overfished species from incidental harvest by vessels targeting other, more abundant species. Similar to Council efforts to craft landings limits and seasons to protect overfished species, the 2003 conservation areas were intended to protect overfished species at depths where they are most likely encountered and from gear that is most likely to encounter those species. For example, POP has historically been taken almost exclusively by trawl gear, while yelloweye rockfish is more susceptible to hook-and-line gear used in commercial and recreational fisheries. Since 2003, GCAs included the two CCAs; the Yelloweye RCA off the Washington coast that has been closed to recreational fishing; and the trawl and nontrawl RCAs. The trawl and nontrawl RCAs extended along the entire length of the West Coast and are based on ocean bottom depths. The RCAs can vary seasonally depending on when and where the overfished species targeted for protection were taken by historic fisheries. RCA boundary lines were designated by a series of latitude/longitude coordinates intended to approximate ocean bottom depth contours delineating overfished species habitats. A more in-depth discussion of the introduction of depth-based management to West Coast groundfish fisheries management is provided in the proposed rule to implement the 2003 and 2004 specifications and management measures (January 7, 2003, 68 FR 936 and January 8, 2004, 68 FR 1380.)

3.3.2 Commercial fisheries

Commercial fisheries land a larger portion, by weight, of West Coast fish than any other sector. CPS, followed by groundfish, crab, and HMS have made up the largest landings by weight since 2000. Crab, followed by groundfish, CPS, and HMS were the highest-valued fisheries between 2000 and 2003 (Table 3.3.2.1). During this same period, the gear groups with the largest amount of landings, by weight, were gill and trammel net, trawl, trap/pot, and troll gear (Table 3.3.2.2)

In 1994, NMFS implemented Amendment 6 to the groundfish FMP, a license limitation program intended to restrict vessel participation in the directed commercial groundfish fisheries off Washington, Oregon, and California. The limited entry permits that were created specified the type of gear that a permitted vessel could use in the limited entry fishery. Each limited entry permit also had an associated vessel length. Most of the Pacific Coast non-tribal commercial groundfish harvest is taken by vessels registered to limited entry permits. The groundfish limited entry program includes vessels using trawl, longline, and trap (or pot) gears.

There are also several open access fisheries that take groundfish incidentally or directly. Participants in those fisheries may use, among other gear types, longline, vertical hook-and-line, troll, pot, setnet, trammel net, shrimp and prawn trawl, California halibut trawl, and sea cucumber trawl. These vessels may target groundfish or catch them incidentally, yet they do not hold groundfish limited entry permits. Though the overall open access groundfish landings are much smaller than limited entry landings, they are part of the economic make-up of West Coast groundfish vessels.

As of August 2004, there were 406 vessels with Pacific Coast groundfish limited entry permits, of which approximately 43% were trawl only vessels, 48% were longline only vessels, 7% were trap vessels, and the remaining 2% were combinations of 2 or more gears. The number of vessels registered for use with limited entry permits has decreased since the implementation of the permit stacking program for sablefish-endorsed limited entry fixed gear permits in 2001 and the limited entry trawl vessel buyback program in late 2003.

Table 3.3.2.1. Shoreside Landings and Exvessel Revenue by Species Category and Year

		Year			
Species Group	Data type	2000	2001	2002	2003
CPS	Landed weight (lbs)	498,232,740	431,544,771	403,146,744	266,368,388
	Exvessel Revenue ($)	42,069,760	32,494,118	32,732,787	33,824,432
Crab	Landed weight (lbs)	30,562,479	26,645,343	37,156,344	75,126,504
	Exvessel Revenue ($)	64,575,735	54,017,788	62,570,332	118,393,209
Groundfish	Landed weight (lbs)	268,754,713	226,402,046	164,010,829	180,765,829
	Exvessel Revenue ($)	62,689,248	52,034,893	43,438,224	48,945,438
HMS	Landed weight (lbs)	23,217,661	27,365,996	23,269,259	38,071,415
	Exvessel Revenue ($)	22,790,849	24,253,397	17,256,645	28,126,563
Other	Landed weight (lbs)	21,579,099	19,705,423	20,890,419	16,868,699
	Exvessel Revenue ($)	27,123,067	23,982,459	23,098,380	20,616,940
Salmon	Landed weight (lbs)	7,122,757	6,458,681	9,790,983	11,493,417
	Exvessel Revenue ($)	13,962,096	10,605,885	14,345,088	20,959,564
Shellfish	Landed weight (lbs)	18,101,109	18,552,442	27,117,595	26,746,585
	Exvessel Revenue ($)	45,577,879	44,101,002	61,294,480	69,678,867
Shrimp	Landed weight (lbs)	35,906,296	40,960,953	57,818,606	32,160,356
	Exvessel Revenue ($)	20,543,414	16,753,777	21,407,954	11,479,887
Total Landed weight (lbs)		903,476,854	797,635,655	743,200,779	647,601,193
Total Exvessel Revenue ($)		299,332,048	258,243,320	276,143,890	352,024,899

Source: PacFIN ftl table. August 2004
Note: Data shown is for PFMC management areas and does not include inside waters such as Puget Sound and Columbia River.

Table 3.3.2.2. Shoreside Landings and Revenue by Gear Type and Year

		Year			
Gear	Data type	2000	2001	2002	2003
Dredge	Landed weight (lbs)			C	
	Exvessel Revenue ($)			C	
Hook and Line	Landed weight (lbs)	11,802,585	11,020,956	12,614,636	10,825,355
	Exvessel Revenue ($)	20,935,838	19,225,187	17,679,231	19,776,877
Misc	Landed weight (lbs)	35,380,715	33,635,105	42,904,188	38,561,396
	Exvessel Revenue ($)	62,944,925	58,034,808	74,019,410	79,445,478
Net	Landed weight (lbs)	502,470,237	435,111,623	406,345,771	268,877,740
	Exvessel Revenue ($)	48,226,898	36,665,962	36,382,949	36,919,258
Pot	Landed weight (lbs)	33,746,129	29,263,663	39,942,815	78,765,977
	Exvessel Revenue ($)	75,724,736	64,286,487	71,891,553	129,824,380
Troll	Landed weight (lbs)	25,541,566	28,789,324	27,054,341	45,832,676
	Exvessel Revenue ($)	29,247,312	29,245,055	25,667,562	43,931,473
Trawl	Landed weight (lbs)	259,658,663	220,003,436	157,474,652	173,261,044
	Exvessel Revenue ($)	43,868,230	36,547,531	31,428,967	33,034,613
Shrimp Trawl	Landed weight (lbs)	34,876,959	39,811,548	56,862,974	31,477,005
	Exvessel Revenue ($)	18,384,109	14,238,290	19,072,882	9,092,821
Total Landed weight (lbs)		903,476,854	797,635,655	743,199,377*	647,601,193
Total Exvessel Revenue ($)		299,332,048	258,243,320	276,142,553*	352,024,899

Source: PacFIN ftl table. August 2004
Note: Data shown is for PFMC management areas only and does not include areas such as Puget Sound and Columbia River for example.
C means data was restricted due to confidentiality
* totals do not include confidential data

3.3.3 Open Access Groundfish Fisheries

Unlike the limited entry sector, the open access fishery has unrestricted participation and is comprised of vessels targeting or incidentally catching groundfish with a large variety of nontrawl gears. Open access vessels must comply with cumulative trip limits established for the open access sector and are subject to the other operational restrictions imposed in the regulations, including the GCA and RCA restrictions. While the open access groundfish fishery is under federal management and does not have participation restrictions, some state and federally managed fisheries that land groundfish in the open access fishery have implemented their own limited entry (restricted access) fisheries or enacted management restrictions that have affected participation in groundfish fisheries. The open access fisheries are generally distributed along the coast in patterns governed by factors such as location of target species and ports with supporting marine supplies and services, and restrictions or regulations imposed by state and federal governments.

The commercial open access groundfish fishery consists of vessels that do not necessarily depend on revenue from the sale of groundfish as their a major source of income and is split between vessels targeting groundfish (*directed fishery*) and vessels targeting other species (*incidental fishery*). The incidental catch of groundfish occurs in fisheries such as prawn, shrimp, California halibut, seas cucumber, salmon, HMS, and CPS. The majority of landings by the directed groundfish fishery, by weight, occur off California, while Oregon shows the next highest landings, followed by Washington. In the incidental groundfish fisheries, Washington has the lowest groundfish landings, by weight (Hastie 2001). Combining both the directed and incidental fisheries, the commercial groundfish open access fishery is potentially very large and includes a large variety of gear types.

Open access landings and estimated exvessel values by major species groups north and south of 40˚ 10' N lat. are shown in Tables 3.3.3.1 and 3.3.3.2. When landings and revenue are measured, the open access fishery is more expansive south of 40˚ 10' N lat. Open access fishers in the south earned more per pound for

their landed groundfish catch, reflecting the more lucrative live fish markets, among other things, in that region. In 1999, only 25 percent of the groundfish was landed north of 40˚ 10' N Lat and the remaining 75 percent was landed in the southern area. The landings differential between the two regions is now less dramatic. By 2003, the open access landings were nearly equally divided between the north and the south with 48 percent of the groundfish landed north of 40˚ 10' N Lat and 52 percent was landed in the southern area.

Rockfish in the south was 57 percent of the total groundfish landings by weight in 1999 and was an important component of the overall open access groundfish landings. By 2003, rockfish in the south was only 21 percent of the total groundfish landings by weight. The overfished declarations for certain rockfish species, bocaccio and cowcod in particular, may partly explain the steep drop in landings south of 40˚ 10' N Lat. In 2003. Substantial increases in sablefish landings were observed in both regions between 1999 and 2003.

Many open access vessels predominately fish for non-groundfish species and inadvertently catch and land groundfish. In times and areas when fisheries for other species are not as profitable, some vessels will transition into the groundfish open access fishery for short periods. Table 3.3.3.3 shows the historical harvests (landings) of groundfish and non-groundfish by open access vessels. In 2003, the first complete year in which coastwide RCAs were implemented, the round weight of groundfish landed by the open access fishery increased substantially over previous years while landings of non-groundfish species decreased. This change was primarily due to increased sablefish landings (shown in Table 3.3.3.1) in recent years.

Table 3.3.3.1 Historical harvest of groundfish by species group in the open access fishery north and south of Cape Mendocino, 1999-2003

Landings north of 40° 10 ‘ N. lat. in metric tons							
Year	Lingcod	Whiting	Flatfish	Sablefish	Rockfish	Other groundfish	Total Groundfish
1999	19.0	0.2	3.9	4.1	116.1	16.4	159
2000	14.8	0.0	0.7	8.5	90.9	7.1	122
2001	17.0	0.0	1.3	21.7	125.0	15.5	180
2002	28.1	0.0	1.2	13.2	109.3	45.9	198
2003	43.8	0.1	3.7	291.7	188.2	88.5	616
Landing south of 40° 10 ‘ N. lat. in metric tons							
	Lingcod	Whiting	Flatfish	Sablefish	Rockfish	Other groundfish	Total Groundfish
1999	15.0	0.0	19.2	2.8	276.2	168.8	482
2000	7.4	0.0	17.1	6.3	159.9	142.0	333
2001	11.5	0.2	23.1	6.3	154.7	107.9	304
2002	17.0	0.0	17.5	28.2	136.1	75.2	274
2003	27.5	0.1	14.7	315.2	166.1	139.6	663

Based on Table 8-6 in DEIS, Proposed Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2005-2006 Pacific Coast Groundfish fishery

Table 3.3.3.2 Exvessel revenues from historical harvest of groundfish by species group in the open access fishery north and south of Cape Mendocino, 1999-2003 (revenue in thousands of current dollars)

North of 40° 10 ' N. lat.							
Year	Lingcod	Whiting	Flatfish	Sablefish	Rockfish	Other groundfish	Total Groundfish
1999	42	0	3	12	216	54	327
2000	28	0	0	29	176	32	266
2001	50	0	1	75	312	99	537
2002	82	0	1	45	321	324	772
2003	141	0	3	1,082	613	359	2,199
South of 40° 10 ' N. lat.							
	Lingcod	Whiting	Flatfish	Sablefish	Rockfish	Other groundfish	Total Groundfish
1999	46	0	49	10	1,272	835	2,212
2000	17	0	54	39	1,307	1,003	2,420
2001	38	1	69	34	1,249	628	2,018
2002	63	0	64	132	1,033	399	1,692
2003	109	0	39	937	1,072	530	2,686

Extracted from Table 8-6 in DEIS, Proposed Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2005-2006 Pacific Coast Groundfish fishery

Table 3.3.3.3. Historical harvests for the open access fishery, 1999-2003 (landed round weight in mt and exvessel revenue in thousands of current dollars)

Year	Groundfish round weight (mt)	Groundfish exvessel value ($)	Non-groundfish round weight (mt)	Non-groundfish exvessel value ($)	Total round weight (mt)	Total exvessel value ($)
1999	642	2,539	225,410	189,886	226,052	192,425
2000	455	2,686	277,349	191,658	277,804	194,344
2001	484	2,555	247,790	159,985	248,274	162,541
2002	472	2,463	250,954	166,343	251,426	168,807
2003	1,279	4,885	198,583	227,072	199,862	231,957

Extracted from table 8-3 DEIS, Proposed Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2005-2006 Pacific Coast Groundfish fishery

The open access groundfish fishery consists of many vessels that predominately fish for other non-groundfih species where they inadvertently catch and land groundfish. Because these incidental vessels do not necessarily depend on their revenue from the groundfish fishery as their major source of income, understanding the level of dependency that such participants have on the open access groundfish fishery must be considered in light of their overall fisheries revenues. Table 3.3.3.4 shows the number of open access vessels by vessel length and level of dependency on the groundfish fishery (proportion of annual revenue that is from groundfish). Table 3.3.3.5 shows the number of open access vessels by level of dependency based on gross income for all West Coast landings. Between November 2000 and October 2001, 1,287 vessels landed groundfish in the open access sector of the groundfish fishery. Of these vessels,

771 vessels (60%) had a greater than 5% dependency on the groundfish fishery with 345 of these vessels having a 95-100% level of dependency of groundfish. The open access fishery is dominated by vessels under 40 feet in length. About 78 percent of the vessels that landed open access groundfish between November 2000 and October 2001 were less than 40 feet on length. It is assumed that a portion of these smaller vessels fish exclusively in state waters, and thus would be excluded from the VMS requirements. However, the data is not available to identify the proportion of vessels that fish only in state waters. Approximately 36 percent of the open access vessels had a greater than 65 percent dependency on groundfish, with 56 percent of the most dependent vessels having less than $5,000 in gross fishing income. A greater proportion of vessels with lower levels of dependency on groundfish fell within income categories greater than $5,000. However, increases in higher valued groundfish catch in 2003 (primarily sablefish) may reduce the proportion of open access vessels in the lowest (<$5,000) income category.

Table 3.3.3.4 Number of open access vessels by level of dependency and vessel length (based on data from November 2000 - October 2001) a/

	<40'	40'-50'	50'-60'	60'-70'	70'-150'	Unspecified	Total
<5%	324	109	29	28	25	1	516
>5% &<35%	154	32	6	4	1	0	197
>35% &<65%	96	8	1	0	0	0	105
>65% &<95%	115	5	0	0	1	3	124
>95% &<100%	310	21	5	2	0	7	345

Extracted from table 6-18a DEIS, Proposed Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2005-2006 Pacific Coast Groundfish fishery
a/ open access vessels with more than half of their total landings value coming from groundfish are considered to be in the directed fishery

Table 3.3.3.5 Number of open access vessels by gross income levels of dependency for all West Coast landings (based on data from November 2000 - October 2001) a/

	Exvessel revenue from West Coast landings				
	<5,000	$5,000-$50,000	$50,000-$200,000	>$200,000	Total
<5%	45	268	169	34	516
>5% &<35%	52	101	44	0	197
>35% &<65%	47	50	8	0	105
>65% &<95%	63	55	6	0	124
>95% &<100%	200	138	7	0	345

Extracted from table 6-17a DEIS, Proposed Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2005-2006 Pacific Coast Groundfish fishery
a/ open access vessels with more than half of their total landings value coming from groundfish are considered to be in the directed fishery

Table 3.3.3.6 Historical landings of overfished species by commercial fishers prior to the implementation of RCAs and state requirements for finfish excluders on pink shrimp vessels, 1999-2001 (Extracted from table 6-14 DEIS, Proposed Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2005-2006 Pacific Coast Groundfish fishery)

	1999		2000		2001	
	OA landed catch (mt)	OA & LE landed catch (mt)	OA landed catch (mt)	OA & LE landed catch (mt)	OA landed catch (mt)	OA & LE landed catch (mt)
Bocaccio	Non-shrimp-22.8 Shrimp-0.2 Total-23.0	58.5 (40% OA)	Non-shrimp-5.9 Shrimp-0.0 Total- 5.9	24.6 (24% OA)	Non-shrimp-6.4 Shrimp-0.1 Total- 6.5	22.8 (3.5% OA)
Canary rockfish	Non-shrimp-56.6 Shrimp-21.3 Total- 77.9	642.2 (12% OA)	Non-shrimp-5.0 Shrimp-7.2 Total-12.2	55.8 (22% OA)	Non-shrimp-2.8 Shrimp-2.0 Total- 4.8	36.2 (13% OA)
Cowcod	Non-shrimp-2.2 Shrimp-0.2 Total- 2.4	6.5 (37% OA)	Non-shrimp-0.4 Shrimp-0.1 Total- 0.5	2.4 (21% OA)	Non-shrimp-0.0 Shrimp-0.0 Total- 0.0	0.8 (0% OA)
Darkblotched rockfish	Non-shrimp-0.1 Shrimp-2.0 Total- 2.1	284.3 (0.7% OA)	Non-shrimp-0.5 Shrimp-0.0 Total- 0.5	218.8 (0.2% OA)	Non-shrimp-0.2 Shrimp-0.0 Total- 0.2	143.1 (0.1% OA)
Lingcod	Non-shrimp-84.7 Shrimp-17.5 Total- 102.2	354.5 (29% OA)	Non-shrimp-49.0 Shrimp-9.1 Total- 58.1	143.5 (40% OA)	Non-shrimp-63.5 Shrimp-5.5 Total- 69	147.8 (47% OA)
POP	Non-shrimp-0.2 Shrimp-0.1 Total- 0.3	481.8 (0% OA)	Non-shrimp-0.0 Shrimp-0.1 Total- 0.1	140.6 (0% OA)	Non-shrimp-0.0 Shrimp-0.0 Total- 0.0	187.6 (0% OA)
Widow rockfish	Non-shrimp-41.4 Shrimp-4.6 Total- 46	3,903.5 (1% OA)	Non-shrimp-17.7 Shrimp-1.7 Total- 19.4	3,787.5 (0.5% OA)	Non-shrimp-13.0 Shrimp-0.6 Total- 13.6	1,765 (0.8% OA)
Yelloweye rockfish	Total-15.4	83.5 (18% OA)	Total- 2.9	8.95 (32% OA)	Total- 2.9	12.0 (24% OA)

Table 3.3.3.6 shows historical landings of overfished species in the open access fishery relative to all open access and limited entry catch. Table 3.3.3.6 is based on data that were collected prior to implementation of RCAs and prior to the state requirements regarding the use of finfish excluders on vessels targeting pink shrimp. Historically, most of the open access fishing activity has occurred in the nearshore and shelf areas. As a result, bocaccio, canary rockfish, lingcod, yelloweye rockfish, and cowcod have been encountered more frequently than the other overfished species. Deeper slope species such as darkblotched rockfish and POP, and pelagic shelf species such as widow rockfish, are more vulnerable to trawl gear, and have therefore been taken in smaller proportions in the open access fishery. Projected catches of overfished species in the open access sectors of the 2005 groundfish fishery are presented in Table 3.3.3.7.

As discussed above, fishery managers divide the open access sector into directed and incidental categories. The directed fishery comprises vessels targeting groundfish while the incidental fishery category applies to vessels targeting other groundfish, but landing some groundfish in the process. However, it is difficult to segregate vessels into these two categories because the choice depends on the intention of the fisher. Over the course of a year or during a single trip, a fisher may engage in different strategies and they may switch between directed and incidental fishing categories. Such changes in strategy are likely the result of a variety of factors, including the potential economic return from landing a particular mix of species.

Table 3.3.3.7 Total catch projections of overfished species in the 2005 open access fisheries. (Extracted from table2-13a DEIS, Proposed Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2005-2006 Pacific Coast Groundfish fishery)

	2005 bycatch projections (mt)							
	Bocaccio	Canary Rockfish	Cowcod	Darkblotched Rockfish	Lingcod	Pop	Widow	Yelloweye
Groundfish directed	10.6	1.0	0.1	0.2	70.0	0.1		0.6
California Halibut	0.1			0.0	2.0	0.0		
California Gillnet	0.5			0.0		0.0	0.0	
California Sheephead				0.0		0.0	0.0	0.0
CPS wetfish	0.3							
CPS squid								
Dungeness crab	0.0		0.0	0.0		0.0		
HMS		0.0	0.0	0.0				
Pacific Halibut	0.0		0.0	0.0		0.0	0.0	0.5
Pink Shrimp	0.1	0.5	0.0	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	0.0
Salmon troll	0.2	1.6	0.0	0.0	0.0	0.0	0.0	0.2
Sea cucumber	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spot prawn (trap)								
Total 2005 Projected catch	11.9	3.1	0.1	0.2	72.0	0.1	0.1	1.4

Table 3.3.3.8. Open access groundfish landings by gear group, 2000 - 2003 (based on 8/24/04 PacFin data)

Open access gear group	Number of vessels landing groundfish	Landed weight of groundfish (mt)	Exvessel revenue of groundfish ($)	Exvessel revenue per vessel ($)
Longline - all groundfish a\				
2000	399	435	1,847,800	4,627
2001	392	408	1,656,395	4,221
2002	287	349	1,268,537	4,422
2003	307	507	1,728,038	5,625
4-year average	*346*	*425*	*1,625,193*	*4,724*
Longline - groundfish directed b\	133	399	1,679,851	12,619
2000	115	367	1,466,101	12,765
2001	96	318	1,129,437	11,733
2002	113	469	1,541,727	13,610
2003	*114*	*388*	*1,454,279*	*12,682*
4-year average				
Longline - CA Halibut				
2000	4	3	24,226	6,057
2001	2	3	29,774	14,887
2002	2	1	5,352	2,676
2003	0	0	0	0
4-year average	*2*	*2*	*19,784*	*7,873*
Pot - groundfish directed c\				
2000	28	164	834,087	29,789
2001	34	145	720,680	21,196
2002	35	124	573,289	16,380
2003	41	194	763,732	18,628
4-year average	*35*	*157*	*722,947*	*21,498*
Pot - Dungeness crab				
2000	71	45	165,638	2,333
2001	63	29	124,674	1,979
2002	63	34	149,311	2,370
2003	61	39	173,518	2,845
4-year average	*65*	37	*153,285*	*2,382*
Pot - prawn/shrimp				
2000	12	1	3,973	331
2001	10	5	21,569	2,157
2002	8	1	9,869	1,234
2003	7	6	25,635	3,662
4-year average	*9*	*3*	*15,262*	*1,846*
Pot - sheephead				
2000	49	4	43,446	887
2001	40	3	30,770	769
2002	36	9	58,951	1,638
2003	22	1	14,542	661
4-year average	*37*	5	*36,927*	*989*
Trawl - sea cucumber				
2000	3	0.1	189	63
2001	10	0.8	1,649	165
2002	8	0.8	2,962	370
2003	6	0.3	650	108
4-year average	*7*	*1*	*1,363*	*177*
Trawl - CA halibut				
2000	24	22	38,697	1,612
2001	30	7	12,324	411
2002	21	6	12,961	617
2003	15	2	5,513	368
4-year average	*23*	*9*	*17,374*	752
Trawl -Ridgeback Prawn				
2000	28	11	28,468	1,017
2001	0	0	0	0
2002	0	0	0	0
2003	0	0	0	0
4-year average	--	--	--	--
Open access gear group	Number of vessels landing groundfish	Landed weight of groundfish (mt)	Exvessel revenue of groundfish ($)	Exvessel revenue per vessel ($)

Line gear - all groundfish a/				
2000	1,180	391	2,029,516	1,720
2001	1,175	418	2,136,846	1,818
2002	881	406	2,178,544	2,474
2003	641	326	1,614,643	2,521
4-year average	*969*	*385*	*1,989,887*	*2,133*
Line gear - CA halibut				
2000	< 285	10	32,419	114
2001	< 270	7	31,471	117
2002	< 250	5	31,333	125
2003	< 245	6	40,284	164
4-year average	*< 263*	*7*	*33,877*	*129*
Line gear - Salmon troll (coastwide)				
2000	304	17	37,806	124
2001	229	14	27,860	122
2002	212	10	25,336	120
2003	220	9	19,604	89
4-year average	*241*	*12*	*27,651*	115
Line gear - Salmon troll (north only)				
2000	163	11	24,280	149
2001	177	11	19,014	107
2002	152	6	13,742	90
2003	154	6	11,304	73
4-year average	*162*	*9*	*17,085*	*106*
Net gear - CPS				
2000	3	2	738	369
2001	1	0	2	1
2002	1	0	14	14
2003	3	0	52	17
4-year average	*2*	*1*	*213*	100

a/ multiple records exist for landings with HKL gear that do not have an associated vessel id. The vessel count in this case is an estimate
b/ annual revenue of $2,500 is used as a proxy for vessels that had efforts directed at groundfish
c\ if ≥20% of revenue was from groundfish, a vessel was assumed to have target groundfish at some point during the year

Open Access Directed Fisheries

Participation in the directed open access fishery segment varies between years. Participants may move into other, more profitable fisheries, or they may have taking time off from fishing, or they may quit fishing altogether. Fishers use various non-trawl gears to target particular groundfish species or species groups. Longline and hook-and-line gear are the most common open access gear types used by vessels directly targeting groundfish and is generally used to target sablefish, rockfish, and lingcod. Pot gear is used for targeting sablefish, thornyheads and rockfish. Though largely restricted from use under current regulations, in the past in Southern and Central California setnet gear was used to target rockfish, including chilipepper, widow rockfish, bocaccio, yellowtail rockfish, and olive rockfish, and to a lesser extent vermillion rockfish.

Within the directed open access fishery, fishers are further grouped into the "dead" and/or "live" fish fisheries. The terms dead and live fish fisheries refers to the state of the fish when it's landed. The dead fish fishery has historically been the most common way to land fish. In 2001, the dead fish fishery made up 80% of the directed open access landings. However, more recently, the market value for live fish has resulted in increased landings in the live fish fishery. In 2001, 20% of fish landed (by weight, coastwide) by directed open access fishers was landed alive as compared to only 6% in 1996 (PFMC 2004).

In the live-fish fishery, groundfish are primarily caught with hook and line gear (rod-n-reel), with limited entry longline gear and with limited entry pot gear, and a variety of other hook gears (e.g. stick gear). The fish are kept alive in a seawater tank on board the vessel. California halibut and rockfish taken in gill and trammel nets have increasingly appeared in the live fish fishery (CDFG 2001). Live fish are sold at a premium price to food fish markets and restaurants, primarily in Asian communities in California. Only limited information exists on the distribution of effort by open access vessels. Because the open access sector has an increasingly large live-fish fishery component with nearshore species making up most of the live fish landings, effort located near shore likely accounts for most live fish landings.

In California, hook and line gear for the live-fish fishery has been limited, since 1995, to a maximum of 150 hooks per vessel and 15 hooks per line within one mile of the mainline shore (CDFG 2001). Traps are limited to 50 per fisherman. In Washington, it is illegal to possess live bottom fish taken under a commercial fishing license. In Oregon, nearshore rockfish and species such as cabezon and greenling are the primary target of the live fish fishery. Sablefish and rockfish are also landed alive in Oregon, and are managed under limits which count against the federally set limited-entry allocations. The Oregon live fish fishery occurs in waters of ten fathoms or less (18 m). Only legal gears are allowed to be used to catch nearshore live fish. In early 2002, an Oregon Development Fisheries Permit was required for fishermen landing live fish species (e.g. Cabezon, greenling (except kelp greenling), brown, gopher, copper, black and yellow, kelp, vermilion, and grass rockfish (among others), buffalo sculpin, Irish lords, and many surfperch species). However, commercial fishing for food fish is prohibited in Oregon bays and estuaries and within 600 feet (183 m) seaward of any jetty.

Open Access Incidental Fisheries Many fishers catch groundfish incidentally when targeting other species, because of the kind of gear they use and the co-occurrence of target and groundfish species in a given area. Managers classify vessels as being in the open access incidental fishery if groundfish comprises 50% or less of their landings, measured by dollar value. These incidental open access fisheries may also account for substantial amounts of bycatch, especially for overfished groundfish species. Fisheries targeting pink shrimp, spot prawn, ridgeback prawn, California and Pacific halibut, Dungeness crab, salmon, sea cucumber, coastal pelagic species, California sheephead (California nearshore fishery), highly migratory species, and the mix of species caught in net fisheries comprise this incidental segment of the open access sector. These fisheries and associated target species are described below.

Dungeness Crab Fishery

The states of Oregon and California, and Washington in cooperation with the Washington Coast treaty tribes manage the Dungeness crab fishery. The Pacific States Marine Fisheries Commission (PSMFC) provides inter-state coordination. The Dungeness crab fishery is divided between treaty sectors, covering catches by Indian Tribes, and a non-treaty sector. This fishery is managed on the basis of simple "3-S" principles: sex, season, and size. The commercial fishery may retain only male crabs (thus protecting the reproductive potential of the populations); the fishery has open and closed seasons; and the commercial fishery must comply with a minimum size limit on male crabs.

Washington manages the Dungeness fishery with a limited entry system with two tiers of pot limits and a season from December 1 through September 15. In Oregon, 306 vessels made landings in 1999. The Oregon season generally starts on December 1. In California, distinct fisheries occur in Northern and Central California, with the northern fishery covering a larger area. California implemented a limited entry program in 1995, and as of March 2000 about 600 California residents and 70 non-residents hold limited entry permits. Nonetheless, effort has increased with the entry of larger multipurpose vessels from other fisheries. Landings have not declined. The effort increase has resulted in a "race for fish" with more than 80% of total landings made during the month of December.

Both personal use fishers and commercial fishers target Dungeness crab. At the commercial level, the Dungeness crab fishery generated $67 to $130 million in exvessel revenue (Table 3.3.3.9); in recent years (2002 and 2003) the amount of exvessel revenue generated by the fishery has been increasing due in part to increases in stock biomass. For many vessels, the Dungeness crab fishery has been the fishery with the largest exvessel revenues.

The majority of Dungeness crab fishing effort and catch occurs during the months of December and January. Many types of vessels participate in this fishery including vessels that may otherwise be limited entry groundfish trawlers and fixed gear vessels, as well as other types of vessels.

The Dungeness crab fishery tends to occur in areas nearer to shore than the limited entry trawl and fixed gear fisheries. To avoid gear interactions with the Dungeness crab fishery, a conscious effort has been made to allow groundfish trawl vessels access to waters deeper than 60 fathoms during winter months. All three states are comparable in terms of landed weight and revenue in coastal management areas, and Washington has an additional component in Puget Sound that is substantial. Washington had the highest landings recent years for coastal Dungeness crab, followed closely by Oregon and California. The ports with

highest landings are distributed among the three states (Table 3.3.3.10).

Table 3.3.3.9. Landings and Exvessel Revenue of Dungeness Crab by Area, State, and Year (2000 - 2003)

			YEAR			
Area	State	Data type	2000	2001	2002	2003
Coastal Management Areas	CA	Landed weight (lbs)	6,482,913	3,546,106	7,297,676	22,196,754
		Exvessel revenue ($)	13,751,700	9,009,756	13,458,089	35,270,665
	OR	Landed weight (lbs)	11,180,845	9,689,804	12,442,612	23,480,735
		Exvessel revenue ($)	23,710,261	19,291,484	20,759,342	36,399,904
	WA	Landed weight (lbs)	11,700,416	12,049,827	16,101,625	28,191,992
		Exvessel revenue ($)	25,609,842	24,003,463	26,707,196	45,129,820
Other Management Areas	CA	Landed weight (lbs)				C
		Exvessel revenue ($)				C
	WA	Landed weight (lbs)	6,732,220	7,522,403	6,944,948	6,941,032
		Exvessel revenue ($)	14,084,886	14,752,254	13,548,402	13,259,518
Total Landed weight (lbs)			36,096,394	32,808,140	42,786,861	80,810,513*
Total Exvessel revenue ($)			77,156,690	67,056,957	130,059,907	130,071,468*

Source: PacFIN ftl table. August 2004
Note: C represents data restricted due to confidentiality
"Other management areas" includes inside waters such as Puget Sound and Columbia River
* totals do not include confidential data

Table 3.3.3.10. Top 15 Ports for Dungeness Crab Landings and Revenue (2000 - 2003)

Rank	Top Ports for Dungeness Crab by Weight	Top Ports for Dungeness Crab by Value
1	WESTPORT	WESTPORT
2	ASTORIA	ASTORIA
3	CRESCENT CITY	CRESCENT CITY
4	NEWPORT	NEWPORT
5	BELLINGHAM BAY	BELLINGHAM BAY
6	CHARLESTON (COOS BAY)	CHARLESTON (COOS BAY)
7	EUREKA	EUREKA
8	BROOKINGS	BLAINE
9	BLAINE	BROOKINGS
10	ILWACO	SAN FRANCISCO
11	SAN FRANCISCO	LACONNER
12	CHINOOK	ILWACO
13	LACONNER	CHINOOK
14	TAHOLAH	TAHOLAH
15	ANACORTES	PRINCETON / HALF MOON BAY

Source: PacFIN FTL table. July 2004

Highly Migratory Species Fisheries

HMS fishery management unit includes five tuna species, five shark species, striped marlin, swordfish, and dorado. Complex management of HMS fisheries results from the multiple management jurisdictions, users, and gear types targeting these species, and from the oceanic regimes that play a major role in determining species availability and which species will be harvested off the U.S. West Coast in a given year.

Albacore tuna account for a large majority of the landed weight and value (Table 3.3.3.11). NMFS will monitor the numerous species caught by the HMS fishery, but which are not part of the fishery management unit. Commercial fishers use five distinctive gear types used to harvest HMS: hook-and-line, driftnet, pelagic longline, purse seine, and harpoon (Table 3.3.3.12). While hook-and-line gear catches many HMS species, traditionally it has been used to harvest tunas. The principal target species for hook-and-line fisheries include albacore and other tunas, swordfish and other billfish, several shark species, and dorado. Albacore make up the highest hook and line landings, with the majority taken by troll and jig-and-bait gear (92% in 1999). Gillnet, drift longline, and other gear take a small portion of fish. These gear types vary in the incidence of groundfish interception depending on the area fished and time of year. Overall, nearly half of the total coastwide landings of albacore, by weight, were landed in

California.
Fishers use pelagic longline to target swordfish, shark and tunas; drift gillnet gear to target swordfish, tunas, and sharks off California and Oregon; purse seine gear to target tuna off California and Oregon; and harpoon to target swordfish off California and Oregon. Some vessels, especially longliners and purse seiners, fish outside of the EEZ, but may deliver to West Coast ports. Drift gillnets intercept most groundfish, including whiting, spiny dogfish, and yellowtail rockfish. Most landings occur in Washington and Oregon (Table 3.3.3.11), and the top several ports occur in these states (Table 3.3.3.13).

Table 3.3.3.11 Landings and Revenue of HMS by Species and Year

		Year			
Species Type	Data Type	2000	2001	2002	2003
Albacore	Landed weight (lbs)	19,848,814	24,495,425	22,063,692	36,485,624
	Exvessel revenue ($)	17,103,010	20,577,991	14,272,304	24,305,367
Shark	Landed weight (lbs)	547,195	567,274	517,745	491,807
	Exvessel revenue ($)	720,450	670,249	629,727	588,697
Other Tuna	Landed weight (lbs)	1,559,831	1,644,104	78,491	113,077
	Exvessel revenue ($)	900,461	833,464	90,157	100,998
Dorado and Marlin	Landed weight (lbs)	8,946	18,394	C	C
	Exvessel revenue ($)	12,633	13,501	C	C
Swordfish	Landed weight (lbs)	1,252,875	640,799	609,248	980,229
	Exvessel revenue ($)	4,054,296	2,158,192	2,264,288	3,131,158
Total Landed Weight (lbs)		23,217,661	27,365,996	23,269,176*	38,070,737*
Total Exvessel Revenue ($):		22,790,849	24,253,397	17,256,476*	28,126,220*

Source: PacFIN FTL table. July 2004
Note: C represents data restricted due to confidentiality
* totals do not include confidential data

Table 3.3.3.12 HMS Landings and Exvessel Revenue by State, Year, and Major Gear Group

			YEAR			
State	Gear Group	Data Type	2000	2001	2002	2003
CA	Hook and Line	Landed weight (lbs)	2,323,968	2,402,114	4,534,829	2,697,411
		Exvessel revenue ($)	2,741,226	2,334,606	2,945,594	2,741,955
	Net	Landed weight (lbs)	2,902,991	2,802,769	1,090,415	930,255
		Exvessel revenue ($)	3,975,012	2,850,343	2,225,363	1,741,480
	Troll	Landed weight (lbs)	1,964,550	3,907,886	1,364,167	1,360,872
		Exvessel revenue ($)	1,872,012	3,063,523	1,024,421	988,564
OR		Landed weight (lbs)	C	76,513	323,497	C
	Hook and Line	Exvessel revenue ($)	C	41,340	198,261	C
	Net	Landed weight (lbs)	C		C	86,604
		Exvessel revenue ($)	C		C	13,720
	Troll	Landed weight (lbs)	8,755,933	8,948,222	4,036,735	9,039,680
		Exvessel revenue ($)	7,488,326	7,545,405	2,752,640	6,115,181
WA		Landed weight (lbs)	C	C	C	
	Hook and Line	Exvessel revenue ($)	C	C	C	
	Net	Landed weight (lbs)	C			
		Exvessel revenue ($)	C			
	Troll	Landed weight (lbs)	7,020,617	9,145,451	11,776,387	23,792,124
		Exvessel revenue ($)	5,836,813	7,947,279	7,418,555	15,706,940

Source: PacFIN FTL table. July 2004.
Note: C represents data restricted due to confidentiality

Table 3.3.3.13. Top Ports for HMS Landings and Exvessel Revenue (2000 - 2003)

Rank	Top 15 Ports by Weight	Top 15 Ports by Exvessel Revenue
1	ILWACO	ILWACO
2	NEWPORT	NEWPORT
3	WESTPORT	WESTPORT
4	ASTORIA	ASTORIA
5	CHARLESTON (COOS BAY)	SAN DIEGO
6	TERMINAL ISLAND	MORRO BAY
7	EUREKA	SAN PEDRO
8	MORRO BAY	CHARLESTON (COOS BAY)
9	MOSS LANDING	TERMINAL ISLAND
10	BELLINGHAM BAY	EUREKA
11	SAN PEDRO	MOSS LANDING
12	SAN DIEGO	BELLINGHAM BAY
13	OCEANSIDE	SAN FRANCISCO
14	FIELDS LANDING	OCEANSIDE
15	CRESCENT CITY	CRESCENT CITY

Source: PacFIN FTL table. July 2004

Pacific Pink Shrimp Fishery

The Council has no direct management authority over pink shrimp. In 1981, the three coastal states established uniform coastwide regulations for the pink shrimp fishery. The season runs from April 1 through October 31. Regulations authorize pink shrimp commercial harvest only by trawl nets or pots. Trawl gear harvests most of these shrimp off the West Coast from Northern Washington to Central California at depths from 60 fm and 100 fm (110 m to 180 m), with the majority taken off Oregon (Table 3.3.3.14). The ports with highest landings also occur in Oregon, followed by Washington and Oregon ports (Table 3.3.3.15).

Most shrimp trawl gear has a mesh size of one inch to three-eights inches between knots. Shrimp trawl nets are usually constructed with net mesh sizes smaller than the net mesh sizes for legal groundfish trawl gear. Thus, shrimp trawlers commonly catch groundfish, while groundfish trawlers catch little shrimp. In some years the pink shrimp trawl fishery has accounted for a significant share of canary rockfish incidental catch. The Council has discussed methods to control shrimp fishing activities, such as requiring all vessels to use bycatch reduction devices (finfish excluders). In 2002, finfish excluders in the pink shrimp fisheries were mandatory in California, Oregon, and Washington. Many vessels that participate in the shrimp trawl fishery also have groundfish limited entry permits. Vessels participating in the pink shrimp fishery must abide by the same rules as vessels that do not have groundfish limited entry permits. However, all groundfish landed by vessels with limited entry permits are included in the limited entry total.

Table 3.3.3.14 Pink Shrimp Landings and Exvessel Revenue by Year and State (LBS and USD)

		YEAR			
State	Data Type	2000	2001	2002	2003
CA	Landed weight (lbs)	2,459,095	3,612,205	4,116,213	2,147,685
	Exvessel revenue ($)	1,049,119	992,644	1,275,023	657,159
OR	Landed weight (lbs)	25,462,479	28,482,140	41,583,534	20,545,976
	Exvessel revenue ($)	10,192,294	7,560,473	11,352,588	5,051,246
WA	Landed weight (lbs)	4,360,914	6,590,344	10,105,043	7,893,802
	Exvessel revenue ($)	1,700,410	1,713,687	2,745,707	1,959,662
Total Landed Weight (lbs)		32,282,488	38,684,689	55,804,790	30,587,463
Total Exvessel Revenue ($)		12,941,823	10,266,804	15,373,317	7,668,068

Source: PacFIN FTL table. July 2004

Table 3.3.3.15 Top 15 Ports for Pink Shrimp Landings and Exvessel Revenue (2000–2003)

Rank	Top Ports by Weight	Top Ports by Exvessel Revenue
1	ASTORIA	ASTORIA
2	NEWPORT	NEWPORT
3	CHARLESTON (COOS BAY)	CHARLESTON (COOS BAY)
4	WESTPORT	WESTPORT
5	GARIBALDI (TILLAMOOK)	GARIBALDI (TILLAMOOK)
6	EUREKA	EUREKA
7	CRESCENT CITY	CRESCENT CITY
8	BROOKINGS	BROOKINGS
9	ILWACO	ILWACO
10	SOUTH BEND	SOUTH BEND
11	TOKELAND	MORRO BAY
12	MORRO BAY	TOKELAND
13	AVILA	AVILA
14	FIELDS LANDING	FIELDS LANDING
15	MONTEREY	MONTEREY

Source: PacFIN FTL table. July 2004

Ridgeback Prawn Fisheries

The Ridgeback prawn fishery occurs exclusively in California, centered in the Santa Barbara Channel and off Santa Monica Bay. In 1999, 32 boats participated in the ridgeback prawn fishery. Traditionally, a number of boats fish year-round for both ridgeback and spot prawns, targeting ridgeback prawns during the closed season for spot prawns and vice versa. Most boats typically use single-rig trawl gear. Shrimp gear accounts for nearly all prawn landings, although groundfish trawl and other gears take minor amounts (Table 3.3.3.16). The top ports for landed weight and exvessel value occur in the Santa Barbara Channel-Santa Monica Bay region (Table 3.3.3.17). The State of California manages the ridgeback prawn fishery. Similar to spot prawn and pink shrimp fisheries, prawns are an “exempted” fishery in the federal open access groundfish fishery, entitling to groundfish trip limits.

Following a 1981 decline in landings, the California Fish and Game Commission adopted a June through September closure to protect spawning female and juvenile ridgeback prawns. Regulations allow an incidental take of 50 pounds of prawns or 15% by weight during the closed period. During the open prawn season, federal regulations limit finfish landings per trip to a maximum of 1,000 pounds, with no more than 300 pounds of groundfish. A vessel operator may land any amount of sea cucumbers with ridgeback prawns as long as the operator possesses a sea cucumber permit. Other regulations include a prohibition on trawling within state waters, a minimum fishing depth of 25 fm, a minimum mesh size of 1.5 inches for single-walled cod ends or 3 inches for double-walled cod ends and maintaining a logbook (required since 1986).

Table 3.3.3.16. Ridgeback Prawn Landings and Exvessel Revenue by Year (LBS and USD)

		YEAR			
Gear Group	Data Type	2000	2001	2002	2003
Trawl	Landed weight (lbs)	141,160	16,920	19,735	12,454
	Exvessel revenue ($)	165,345	26,976	31,599	14,641
Shrimp Trawl	Landed weight (lbs)	1,414,844	340,024	422,240	486,890
	Exvessel revenue ($)	1,633,636	508,853	606,064	669,274
Other Gears	Landed weight (lbs)	10,172			237
	Exvessel revenue ($)	13,201			641
Total Landed Weight (lbs)		1,566,176	356,944	441,975	499,581
Total Exvessel Revenue ($)		1,812,182	535,829	637,663	684,557

Source: PacFIN FTL table. July 2004

Table 3.3.3.17. Rank of All Ports with Ridgeback Prawn Landings and Exvessel Revenue (2000–2003)

Rank	Rank of Ports by Weight	Rank of Ports by Exvessel Revenue
1	SANTA BARBARA	SANTA BARBARA
2	VENTURA	VENTURA
3	OXNARD	OXNARD
4	TERMINAL ISLAND	TERMINAL ISLAND
5	LONG BEACH	LONG BEACH
6	PLAYA DEL REY	PLAYA DEL REY
7	PORT HUENEME	PORT HUENEME
8	SAN PEDRO	SAN PEDRO
9	MORRO BAY	MORRO BAY
10	AVILA	AVILA
11	SAN SIMEON	SAN SIMEON
12	POINT ARENA	POINT ARENA
13	PRINCETON / HALF MOON BAY	PRINCETON / HALF MOON BAY

Source: PacFIN ftl table. August 2004

Salmon

The ocean commercial salmon fishery, both non-treaty and treaty, is managed by both the states and the federal government. The Council manages fisheries in the EEZ while the states manage fisheries in their waters. All ocean commercial salmon fisheries off the West Coast states use troll gear, and primarily target chinook and coho. Limited pink salmon landings occur in odd-years. A gillnet/tangle net fishery that does not technically occur in Council-managed waters may have some impact on groundfish that migrate through state waters. Commercial coho landings fell precipitously in the early 1990s and remain very low. In response to the listing of many wild salmon stocks under the ESA, the management regime is largely structured around so-called “no jeopardy standards” developed through the ESA-mandated consultation process. Ocean fisheries are managed according to zones reflecting the distribution of salmon stocks and are structured to allow and encourage capture of hatchery-produced stocks while avoiding depressed natural stocks. The Columbia River, on the Oregon/Washington border; the Klamath River in Southern Oregon; and the Sacramento River in Central California support the largest runs of returning salmon.

California accounts for most landings and revenues of salmon caught in the coastal management areas,

followed by Oregon and Washington (Table 3.3.3.18). However, Washington landings in Puget Sound and other non-coastal areas substantially exceed the total coastal landings. Most of the top 10 ports for quantity of landings occur in Washington (Table 3.3.3.19), but the top ports in terms of revenues occur more evenly distributed by state.

The salmon troll fishery has a small incidental catch of Pacific halibut and groundfish, including yellowtail rockfish. The historical data show that salmon troll trips that did not land halibut had a higher range of groundfish landings (11-149 mt) than troll trips that landed halibut (1-19 mt). However, looking at groundfish catch frequency, either by vessel or trips, reveals that groundfish are caught more often by vessels or on trips catching halibut. To account for yellowtail rockfish landed incidentally while not promoting targeting on the species, federal managers have allowed salmon trollers to land up to one pound of yellowtail per two pounds of salmon in 2001, not to exceed 300 pounds per month (north of Cape Mendocino).

Table 3.3.3.19 Salmon Landings and Exvessel Revenue by Area, State, and Year (LBS and USD)

			YEAR			
Area	State	Data type	2000	2001	2002	2003
Coastal Management Areas	CA	Landed weight (lbs)	5,143,030	2,407,615	4,941,537	6,382,942
		Exvessel revenue ($)	10,325,395	4,772,551	7,643,076	12,166,622
	OR	Landed weight (lbs)	1,563,697	2,960,716	3,501,154	3,667,155
		Exvessel revenue ($)	3,069,828	4,736,557	5,388,352	7,198,494
	WA	Landed weight (lbs)	416,030	1,090,350	1,348,292	1,443,320
		Exvessel revenue ($)	566,873	1,096,778	1,313,661	1,594,448
Other Management Areas	OR	Landed weight (lbs)	1,340,819	1,855,600	2,089,757	2,438,378
		Exvessel revenue ($)	961,419	1,125,372	1,543,793	1,586,972
	WA	Landed weight (lbs)	12,750,614	28,791,819	32,904,386	31,122,453
		Exvessel revenue ($)	9,772,895	11,298,116	12,013,803	11,100,583
Total Landed weight (lbs)			21,214,190	37,106,100	44,785,126	45,054,248
Total Exvessel revenue ($)			24,696,410	23,029,373	27,902,685	33,647,119

Source: PacFIN ftl table. August 2004
Note: "Other management areas" includes inside waters such as Puget Sound and Columbia River

Table 3.3.3.20 Top 15 Ports for Salmon Landings and Exvessel Revenue (2000–2003)

Rank	Top 15 Ports by Weight	Top 15 Ports by Exvessel Revenue
1	BELLINGHAM BAY	NEWPORT
2	SEATTLE	FORT BRAGG
3	SHELTON	BELLINGHAM BAY
4	COLUMBIA RIVER PORTS - OREGON	CHARLESTON (COOS BAY)
5	TAHOLAH	BODEGA BAY
6	LACONNER	SAN FRANCISCO
7	NEWPORT	COLUMBIA RIVER PORTS - OREGON
8	EVERETT	SHELTON
9	FORT BRAGG	PRINCETON / HALF MOON BAY
10	TACOMA	SEATTLE
11	BLAINE	MOSS LANDING
12	COPALIS BEACH	TACOMA
13	PORT ANGELES	TAHOLAH
14	BODEGA BAY	PORT ANGELES
15	CHARLESTON (COOS BAY)	BLAINE

Source: PacFIN ftl tables. August 2004

Pacific Halibut

The bilateral (U.S./Canada) IPHC recommends conservation regulations for Pacific halibut, and the governments of Canada and the U.S. implement the regulations in their own waters. The IPHC requires a license to participate in the commercial Pacific halibut fishery in waters off Washington, Oregon, and California (Area 2A). Area 2A licenses, issued for the directed commercial fishery, have decreased from 428 in 1997 to 215 in 2004.The Pacific and North Pacific Fishery Management Councils have responsibility for allocation in Council waters within the IPHC management regime. The Pacific Halibut Catch Sharing Plan (CSP) for Area 2A specifies allocation agreements of the Council, the states of Washington, Oregon, and California, and the Pacific halibut treaty tribes. The CSP specifies recreational and commercial fisheries for Area 2A. The commercial sector has both a treaty and non-treaty components. Regulations limit the directed non-treaty commercial fishery in Area 2A to south of Point Chehalis, Washington, Oregon, and California. Commercial landings have ranged from about 0.5 to 1.0 million pounds (head on dressed weight) and $1.5 to $2.3 million (Table 3.3.3.21). Washington accounts for the majority of the highest-producing ports for landed weight and revenue (Table 3.3.3.22). In the non-treaty commercial sector, the directed halibut fishery receives an allocation of 85% of the harvest and the salmon troll fishery receives 15% to cover incidental catch. The limited entry primary sablefish fishery north of Point Chehalis, Washington (46º 53' 18" N latitude) may retain halibut when the Area 2A total allowable halibut catch (TAC) is above 900,000 pounds. In 2003, the TAC was above this level, and the allocation was 70,000 pounds. Final landings for this fishery in 2003 were 65,325 pounds; 56% (47,946 pounds) of the allocation was harvested.

Table 3.3.3.21 Pacific Halibut Commercial Landings and Exvessel Revenue by Year and Gear (LBS and USD)

		YEAR			
Gear Group	Data Type	2000	2001	2002	2003
Hook and Line	Landed weight (lbs)	519,645	745,500	949,274	807,131
	Exvessel revenue	1,358,462	1,578,914	1,941,603	2,226,31
Troll	Landed weight (lbs)	25,574	37,639	42,811	48,416
	Exvessel revenue	62,210	78,409	81,505	107,640
Total Landed weight		545,219	783,139	992,085	855,547
Total Exvessel Revenue		1,420,671	1,657,323	2,023,108	2,333,98

Source: PacFIN ftl table. August 2004

Table 3.3.3.22 Top 15 Ports for Pacific Halibut Landings and Exvessel Revenue (2000–2003)

Rank	Top 15 Ports by Weight	Top 15 Ports by Exvessel Revenue
1	NEAH BAY	NEAH BAY
2	NEWPORT	NEWPORT
3	PORT ANGELES	PORT ANGELES
4	TAHOLAH	BELLINGHAM BAY
5	BELLINGHAM BAY	TAHOLAH
6	LAPUSH	LAPUSH
7	ASTORIA	ASTORIA
8	WESTPORT	WESTPORT
9	CHARLESTON (COOS BAY)	CHARLESTON (COOS BAY)
10	EVERETT	BLAINE
11	BLAINE	EVERETT
12	FLORENCE	FLORENCE
13	PORT ORFORD	GARIBALDI (TILLAMOOK)
14	GARIBALDI (TILLAMOOK)	CHINOOK
15	CHINOOK	PORT ORFORD

Source: PacFIN ftl table. August 2004

California Halibut

The commercial California halibut fishery extends from Bodega Bay in northern California to San Diego in Southern California, and across the international border into Mexico. California halibut, a state-managed species, is targeted with hook-and-line, setnets and trawl gear, all of which intercept groundfish. Federal

regulations allow fishing with 4.5-inch minimum mesh size trawl in Federal waters, but California regulations prohibit trawling within state waters, except in the designated "California halibut trawl grounds," where a 7.5-inch minimum mesh size must be used during open seasons. Historically, California commercial halibut fishers have preferred setnets because of these restrictions, and predominantly use 8.5-inch mesh and maximum length of 9,000. These nets take most of the landings (Table 3.3.3.23) Setnets are prohibited in certain designated areas, including a Marine Resources Protection Zone (MRPZ), covering state waters (to 3 nm) south of Point Conception and waters around the Channel Islands to 70 fm, but extending seaward no more than one mile. In comparison to trawl and setnet landings, commercial hook-and-line catches are historically insignificant. Over the last decade they have ranged from 11% to 23% of total California halibut landings. Most of those landings were made in the San Francisco Bay area by salmon fishers mooching or trolling slowly over the ocean bottom (Kramer et al. 2001). Overall, the ports with highest California halibut landings occur in central and southern California (Table 3.3.3.24).

Table 3.3.3.23. California Halibut Landings and Exvessel Revenue by Year and Gear (LBS and USD)

		YEAR			
Gear Group	Data type	2000	2001	2002	2003
Hook and Line	Landed weight (lbs)	118,519	124,241	166,307	208,887
	Exvessel revenue ($)	366,478	398,222	523,217	654,537
Misc.	Landed weight (lbs)	C	C	C	C
	Exvessel revenue ($)	C	C	C	C
Net	Landed weight (lbs)	380,105	319,235	255,720	181,439
	Exvessel revenue ($)	1,122,396	981,323	820,973	601,822
Pot	Landed weight (lbs)	463	170	1,501	592
	Exvessel revenue ($)	1,225	531	3,594	2,419
Troll	Landed weight (lbs)	9,163	10,382	8,259	13,735
	Exvessel revenue ($)	21,241	24,687	18,784	29,589
Trawl	Landed weight (lbs)	277,878	377,094	451,186	342,609
	Exvessel revenue ($)	728,537	1,076,334	1,276,334	912,487
Shrimp Trawl	Landed weight (lbs)	63,947	66,634	55,534	77,324
	Exvessel revenue ($)	214,903	226,478	203,011	326,085
Total Landed weight (lbs)		850,075	897,756	938,507	824,586
Total Exvessel revenue ($)		2,454,780	2,707,575	2,845,913	2,526,939

Source: PacFIN ftl table. August 2004:
Note: totals exclude confidential data

Table 3.3.3.24 Top 15 Ports for California Halibut Landings and Exvessel Revenue (2000–2003)

Rank	Top 15 Ports by Weight	Top 15 Ports by Exvessel Revenue
1	SAN FRANCISCO	SAN FRANCISCO
2	PRINCETON / HALF MOON BAY	VENTURA
3	VENTURA	PRINCETON / HALF MOON BAY
4	SANTA BARBARA	SANTA BARBARA
5	SAN PEDRO	TERMINAL ISLAND
6	TERMINAL ISLAND	SAN PEDRO
7	OXNARD	OXNARD
8	MOSS LANDING	PORT HUENEME
9	SANTA CRUZ	OCEANSIDE
10	AVILA	SANTA CRUZ
11	PORT HUENEME	AVILA
12	OCEANSIDE	MOSS LANDING
13	MONTEREY	SAN DIEGO
14	SAN DIEGO	MONTEREY
15	MORRO BAY	MORRO BAY

Source: PacFIN ftl table. August 2004

California Sheephead

Pot fishermen account for well over half of the total catch and revenues of Sheephead (Table 3.3.3.25), followed by hook and line gear. Nets and other gears take minimal amounts of Sheephead. The top 15 ports in California have a similar order of landed weight and revenue (Table 3.3.3.26)

Table 3.3.3.25 Landings and Exvessel Revenue of California Sheephead by State, Gear, and Year (LBS and USD)

			YEAR			
State	Gear	Data type	2000	2001	2002	2003
California	Hook and Line	Landed weight (lbs)	33,211	23,928	22,698	24,587
		Exvessel revenue ($)	93,186	73,996	66,304	82,449
	Other Gears	Landed weight (lbs)	1,506	1,268	1,199	2,677
		Exvessel revenue ($)	4,663	2,860	4,100	10,131
	Net	Landed weight (lbs)	3,067	3,097	1,432	474
		Exvessel revenue ($)	5,897	3,401	1,388	1,317
	Pot	Landed weight (lbs)	136,161	121,941	95,719	79,618
		Exvessel revenue ($)	490,773	437,409	339,741	292,673
Total Landed weight (lbs)			173,945	150,234	121,048	107,356
Total Exvessel revenue ($)			594,519	517,666	411,532	386,570

Source: PacFIN ftl table. August 2004

Table. 3.3.3.26 Ports for Sheephead Landings and Exvessel Revenue (2000–2003)

Rank	Top 15 Ports by Weight	Top 15 Ports by Exvessel Revenue
1	OXNARD	OXNARD
2	SAN DIEGO	SAN DIEGO
3	SANTA BARBARA	TERMINAL ISLAND
4	TERMINAL ISLAND	SANTA BARBARA
5	NEWPORT BEACH	NEWPORT BEACH
6	VENTURA	MISSION BAY
7	MISSION BAY	VENTURA
8	OCEANSIDE	OCEANSIDE
9	DANA POINT	DANA POINT
10	SAN PEDRO	SAN PEDRO
11	POINT LOMA	POINT LOMA
12	LONG BEACH	LONG BEACH
13	MORRO BAY	PLAYA DEL REY
14	PLAYA DEL REY	REDONDO BEACH
15	REDONDO BEACH	MORRO BAY

Source: PacFIN ftl table. August 2004

Coastal Pelagic Species

The CPS fisheries are concentrated in California (Table 3.3.3.27), but CPS fishing also occurs in Washington and Oregon. Vessels using round haul gear (purse seines and lampara nets) account for 99% of total CPS landings and revenues per year (Table 3.3.3.28). In Washington, the Emerging Commercial Fishery regulations provides for the sardine fishery as a trial commercial fishery. The trial fishery targets sardines, but also lands anchovy, mackerel, and squid. Regulations limit the fishery to vessels using purse seine gear; prohibits fishing inside of three miles, and requires logbooks. Eleven of the 45 permits holders participated in the fishery in 2000, landing 4,791 mt of sardines (Robinson 2000). Three vessels accounted for 88% of the landings. Of these, two fished out of Ilwaco and one out of Westport. Oregon manages the sardine fishery under the Development Fishery Program under annually-issued permits, which have ranged from 15 in 1999 and 2000 to 20 in 2001. Landings, almost all by purse seine vessels, have rapidly increased in Oregon: from 776 mt in 1999 to 12,798 mt in 2001. The Southern California round haul fleet is the most important sector of the CPS fishery in terms of landings, and most of the highest production ports occur in this area (Table 3.3.3.29). This fleet is primarily based in Los Angeles Harbor, along with fewer vessels in the Monterey and Ventura areas. The fishery harvests Pacific bonito, market squid, and tunas as well as CPS. The fleet consists of about 40 active purse

seiners averaging 20 m in length. Approximately one-third of this fleet are steel-hull boats built during the last 20 years, the remainder are wooden-hulled vessels built from 1930 to 1949, during the boom of the Pacific sardine fleet. Because stock sizes of these species can radically change in response to ocean conditions, the CPS FMP takes a flexible management approach. Pacific mackerel and Pacific sardine are actively managed through annual harvest guidelines based on periodic assessments. Northern anchovy, jack mackerel, and market squid are monitored through commercial catch data. If appropriate, one third of the harvest guideline is allocated to Washington, Oregon, and northern California (north of 35E40' N latitude) and two-thirds is allocated to Southern California (south of 35E40' N latitude). An open access CPS fishery is in place north of 39°N latitude and a limited entry fishery is in place south of 39° N latitude. The Council does not set harvest guidelines for anchovy, jack mackerel, or market squid (PFMC 1998).

Table 3.3.3.27 CPS Landings and Exvessel Revenue by Area, State, and Year (LBS and USD)

			YEAR			
Area	State	Data type	2000	2001	2002	2003
Coastal Management Areas	CA	Landed weight (lbs)	465,666,430	376,633,573	316,754,663	182,994,919
		Exvessel revenue ($)	40,179,911	29,373,729	27,852,840	29,261,203
	OR	Landed weight (lbs)	21,629,154	29,337,380	50,396,664	56,500,887
		Exvessel revenue ($)	1,173,218	1,726,387	2,835,693	3,016,660
	WA	Landed weight (lbs)	10,937,156	25,573,818	35,995,417	26,872,582
		Exvessel revenue ($)	716,632	1,394,002	2,044,254	1,546,569
Other Management Areas	OR	Landed weight (lbs)	C	C	C	C
		Exvessel revenue ($)	C	C	C	C
	WA	Landed weight (lbs)	530,364	813,484	1,196,872	1,070,620
		Exvessel revenue ($)	208,419	297,702	529,434	510,373
Total Landed weight (lbs)			498,763,104	432,358,255	404,343,616	267,439,00
Total Exvessel revenue ($)			42,278,180	32,791,820	33,262,222	34,334,805

Source: PacFIN ftl table. August 2004
Note: C represents data restricted due to confidentiality
Totals do not include confidential data
"Other management areas" includes inside waters such as Puget Sound and Columbia River

Table 3.3.3.28 CPS Landings and Exvessel Revenue by Year and Gear(LBS and USD)

		YEAR			
Gear Group	Data type	2000	2001	2002	2003
Hook and Line	Landed weight (lbs)	447,269	132,292	46,697	135,851
	Exvessel revenue ($)	64,810	63,396	30,017	53,557
Misc	Landed weight (lbs)	238,310	53,720	90,661	141,291
	Exvessel revenue ($)	82,093	390,882	621,647	463,864
Net	Landed weight (lbs)	496,714,839	430,478,604	404,186,770	266,878,952
	Exvessel revenue ($)	42,035,766	32,142,853	32,605,922	33,761,365
Pot	Landed weight (lbs)	100,375	1,240	347	57,592
	Exvessel revenue ($)	10,194	398	126	15,534
Troll	Landed weight (lbs)	645,533	307,434	558	43,777
	Exvessel revenue ($)	57,140	11,811	666	15,701
Trawl	Landed weight (lbs)	626,541	1,384,594	21,999	181,009
	Exvessel revenue ($)	28,150	182,129	2,734	24,105
Shrimp Trawl	Landed weight (lbs)	1,086	371	1,255	536
	Exvessel revenue ($)	569	351	1,577	678
Total Landed weight (lbs)		498,773,953	432,358,255	404,348,287	267,439,008
Total Exvessel revenue ($)		42,278,722	32,791,820	33,262,689	34,334,805

Source: PacFIN ftl table. August 2004

Table. 3.3.3.29 Top 15 Ports for CPS Landings and Exvessel Revenue (2000–2003)

Rank	Top 15 Ports by Weight	Top 15 Ports by Exvessel Revenue
1	SAN PEDRO	SAN PEDRO
2	PORT HUENEME	PORT HUENEME
3	TERMINAL ISLAND	MOSS LANDING
4	MOSS LANDING	TERMINAL ISLAND
5	ASTORIA	VENTURA
6	VENTURA	ASTORIA
7	ILWACO	SAN FRANCISCO
8	MONTEREY	MONTEREY
9	SAN FRANCISCO	ILWACO
10	WESTPORT	SAUSALITO
11	SAUSALITO	PRINCETON / HALF MOON BAY
12	PRINCETON / HALF MOON BAY	WESTPORT
13	SANTA BARBARA	TACOMA
14	LONG BEACH	MARSHALL
15	MARSHALL	SANTA BARBARA

Source: PacFIN ftl table. August 2004

Sea Cucumber

California implemented a permit program for sea cucumber in 1992. In 1997 the state established separate, limited entry permits for the dive and trawl sectors. Permit rules encourage permit transfer to the dive sector which has lead to growth in this sector. The dive sector currently accounts for 80% of landings. There are currently 113 sea cucumber dive permits and 36 sea cucumber trawl permits. Many commercial sea urchin and/or abalone divers also hold sea cucumber permits and began targeting sea cucumbers more heavily beginning in 1997. At up to $20 per pound wholesale for processed sea cucumbers, there is a strong incentive to participate in this fishery. California fishers account for the majority of sea cucumbers by weight and value, followed by Washington fishers (Table 3.3.3.30); Oregon has too few participants for public release of data.

Sea cucumbers are managed by the states. Along the West Coast, sea cucumbers are harvested by diving or trawling (Table 3.3.3.31). Only the trawl fishery for sea cucumbers lands an incidental catch of

groundfish. The warty sea cucumber is fished almost exclusively by divers. The California sea cucumber is caught principally by trawling in Southern California, but is targeted by divers in Northern California. The top ports for landed weight and ex-vessel revenue occur roughly equally in California and Washington (Table 3.3.3.32).

Sea cucumber fisheries have expanded worldwide. On the West Coast, a dive fishery for warty sea cucumbers occurs in Baja California, Mexico, and dive fisheries for California sea cucumbers occur in Washington, Oregon, Alaska, and British Columbia, Canada (Rogers-Bennett and Ono 2001). In Washington, the sea cucumber fishery only occurs inside Puget Sound and the Straight of Juan de Fuca. Most of the harvest is taken by diving, although the tribes can also trawl for sea cucumbers in these waters.

Table 3.3.3.30 Sea Cucumber Landings and Exvessel Revenue by Area, State, and Year (LBS and USD)

			YEAR			
Area	State	Data type	2000	2001	2002	2003
Coastal Management Areas	CA	Landed weight (lbs)	643,310	717,695	946,810	758,569
		Exvessel revenue ($)	606,578	584,970	801,276	687,854
	OR	Landed weight (lbs)	C	C	C	C
		Exvessel revenue ($)	C	C	C	C
Other Management Areas	WA	Landed weight (lbs)	605,755	661,657	549,127	438,707
		Exvessel revenue ($)	836,720	903,570	598,820	560,533
Total Landed weight (lbs)			1,249,065	1,379,352	1,495,937	1,197,276
Total Exvessel revenue ($)			1,443,297	1,488,540	1,400,096	1,248,387

Source: PacFIN ftl table. August 2004
Note: C represents data restricted due to confidentiality
"Other management areas" includes inside waters such as Puget Sound and Columbia River

Table 3.3.3.31 Sea Cucumber Landings and Exvessel Revenue by Year and Gear (LBS and USD)

		YEAR			
Gear aggregation	Data type	2000	2001	2002	2003
Misc. (including dive gear)	Landed weight (lbs)	574,689	465,804	660,598	466,855
	Exvessel revenue ($)	558,029	419,318	610,742	475,262
Other Gears	Landed weight (lbs)	674,667	913,583	835,339	731,109
	Exvessel revenue ($)	885,777	1,069,291	789,354	774,084
Total Landed weight (lbs)		1,249,065	1,379,352	1,495,937	1,197,276
Total Exvessel revenue ($)		1,443,297	1,488,540	1,400,096	1,248,387

Source: PacFIN ftl table. August 2004
Note: C represents data restricted due to confidentiality
"Other management areas" includes inside waters such as Puget Sound and Columbia River
totals are equivalent to previous table to protect confidentiality

Table 3.3.3.32 Top 15 Ports for Sea Cucumber Landings and Exvessel Revenue (2000–2003)

Rank	Top 15 Ports by Weight	Top 15 Ports by Exvessel Revenue
1	OXNARD	OXNARD
2	SANTA BARBARA	BLAINE
3	BLAINE	ANACORTES
4	ANACORTES	SANTA BARBARA
5	TERMINAL ISLAND	TERMINAL ISLAND
6	POULSBO	BELLINGHAM BAY
7	BELLINGHAM BAY	POULSBO
8	SEATTLE	SEATTLE
9	TACOMA	TACOMA
10	VENTURA	LACONNER
11	LACONNER	VENTURA
12	PUGET ISLAND	PUGET ISLAND
13	FRIDAY HARBOR	FRIDAY HARBOR
14	SAN PEDRO	SAN PEDRO
15	MISSION BAY	PORT TOWNSEND

Source: PacFIN ftl table. August 2004

Spot Prawn

Spot prawns are targeted with both trawl and pot gear (Table 3.3.3.33). These fisheries are state-managed. For the purposes of managing incidentally-caught groundfish, the trawl fishery has been categorized as exempted trawl in the open access sector of the groundfish fishery. California has the largest and oldest trawl fishery with about 54 vessels operating from Bodega Bay south to the U.S./Mexico border. California has the top 15 ports for landed weight and ex-vessel revenue (Table 3.3.3.34). (Most vessels operate out of Monterey, Morro Bay, Santa Barbara, and Ventura, although some Washington-based vessels participate in this fishery during the fall and winter.) Standard gear is a single-rig shrimp trawl with roller gear, varying in size from eight-inch disks to 28-inch tires. Washington State phased out its trawl fishery by converting its trawl permits to pot/trap permits in 2003. California instituted area and season closures for the trawl fleet in 1984 to protect spot prawns during their peak egg-bearing months of November through January. In 1994, the trawl area and season closure was expanded to include the entire Southern California Bight. As of 2003, the spot prawn trawl fishery is closed. After 2003 Oregon prohibited the use of trawl nets for harvesting spot prawns. These closures, along with the development of ridgeback prawn, sea cucumber, and other fisheries, and also greater demand for fresh fish, have kept spot prawn trawl landings low and facilitated growth of the trap fishery. The trap fishery began in 1985 with a live prawn segment developing subsequently. The fleet operates from Monterey Bay, where six boats are based, to Southern California, where a 30 to 40 boat fleet results in higher production. Fishers in both fishing areas set traps at depths of 600 feet to 1,000 feet along submarine canyons or along shelf breaks. Between 1985 and 1991 trapping accounted for 75% of statewide landings; trawling accounted for the remaining 25% (Larson 2001). Landings continued to increase through 1998, when they reached a historic high of 780,000 pounds. Growth in participation and a subsequent drop in landings led to the development of a limited entry program, which is still in the process of being implemented. Other recent regulations include closures, trap limits, bycatch reduction measures for the trawl fishery, and an observer program.

Table 3.3.3.33 Spot Prawn Landings and Exvessel Revenue by Year and Gear in California (LBS and USD)

		Year			
Gear	Data type	2000	2001	2002	2003
Pot	Landed weight (lbs)	180,339	218,813	175,497	159,168
	Exvessel revenue ($)	1,646,474	1,993,004	1,607,681	1,505,684
Trawl (all trawl types)	Landed weight (lbs)	266,682	203,346	218,067	6,841
	Exvessel revenue ($)	2,188,968	1,709,452	1,759,197	61,364
Total Landed weight (lbs)		447,021	422,159	393,564	166,009
Total Exvessel Revenue ($)		3,835,442	3,702,456	3,366,877	1,567,049

Source: PacFIN ftl table. August 2004

Note: Spot prawn landings do not show up specifically in landed catch data for WA and OR

Table 3.3.3.34 Top 15 Ports for Spot Prawn Landings and Exvessel Revenue in California (2000–2003)

Rank	Top 15 Ports by Weight	Top 15 Ports by Exvessel Revenue
1	MORRO BAY	MORRO BAY
2	MONTEREY	MONTEREY
3	OXNARD	OXNARD
4	VENTURA	VENTURA
5	DANA POINT	DANA POINT
6	TERMINAL ISLAND	TERMINAL ISLAND
7	SANTA BARBARA	OCEANSIDE
8	OCEANSIDE	SANTA BARBARA
9	SAN DIEGO	MOSS LANDING
10	RICHMOND	SAN DIEGO
11	MOSS LANDING	RICHMOND
12	SAN FRANCISCO	SAN FRANCISCO
13	FORT BRAGG	FORT BRAGG
14	BODEGA BAY	BODEGA BAY
15	HUNTINGTON BEACH	MISSION BAY

Source: PacFIN ftl table. August 2004

Buyers and Processors

Excluding Pacific whiting delivered to at-sea processors, vessels participating in Pacific groundfish fisheries deliver to shore-based processors within Washington, Oregon, and California. Buyers are located along the entire coast; however, processing capacity has been consolidating in recent years. Several companies have left the West Coast or have chosen to quit the business entirely, have been consoloidated or are inactive. This has led to trucking groundfish from certain ports to another community for processing. Therefore, landings do not necessarily indicate processing activity in those communities. However, examination of the species composition of landed catch by state can lead to inferences of some processor characteristics.

According to PacFIN data, in 2002 Oregon had the largest amount of groundfish landings (56%), followed by Washington (28%), and California (16%). In contrast, Oregon has the largest amount of exvessel revenue (40%), followed by California (32%) and Washington (22%), respectively. Oregon accounts for the majority of Pacific whiting landings, which creates a large difference between the percentage of landed catch and exvessel revenue because Pacific whiting has a relatively low price per pound. The relatively high amount of Pacific whiting being landed in Oregon may create a case where many processors must generate capacity to handle large quantities at a time. Groundfish processors in Washington may receive landings from Alaska fisheries. Depending on the amount of catch Washington processors can draw from Alaska fisheries, some groundfish processors may require the capacity to process large amounts of product. California processors concentrating on West Coast fisheries may focus on relatively smaller throughput of groundfish.

The seafood distribution chain begins with deliveries by the harvesters (exvessel landings) to the shoreside networks of buyers and processors, and includes the linkage between buyers and processors and seafood markets. In addition to shoreside activities, processing of certain species (e.g., Pacific whiting) also occurs offshore on factory ships. Several thousand entities have permits to buy fish on the West Coast (Table 3.3.3.38). Of these, 1,780 purchased fish caught in the ocean area and landed on Washington, Oregon, or California state fishtickets in the year 2000 (excluding tribal catch) and 732 purchased groundfish (PFMC 2004).[1]

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[1]/ A "buyer" was defined here by a unique combination of PacFIN port code and state buyer code on the fishticket. For California, a single company may have several buying codes that vary only by the last two digits. In PacFIN, these last two digits are truncated, and so were treated as separate buying units only if they appear for different ports.

According to PacFIN data, the number of unique companies buying groundfish along the West Coast has declined in recent years. This trend coincides with recent regulatory restrictions and diminished landings of higher valued species such as rockfish (Table 3.3.3.38). The number of buyers purchasing other species such as crab and salmon has been stable or increasing in recent years.

Table 3.3.3.38 Count of Fish Buyers by Year, Species Type, and State (not unique records)

		Year			
State	Species Group	2000	2001	2002	2003
CA	Coastal Pelagic	174	126	118	112
	All Crab	298	306	291	351
	Groundfish	412	385	324	310
	HMS	233	241	222	199
	Other species	558	515	510	505
	All Salmon	277	225	269	273
	All Shell fish	6	10	2	2
	All Shrimp & Prawns	154	126	129	107
OR	Coastal Pelagic	14	15	16	16
	All Crab	67	77	81	83
	Groundfish	84	74	79	81
	HMS	96	112	125	138
	Other species	90	91	103	94
	All Salmon	104	134	143	150
	All Shell fish	19	14	46	27
	All Shrimp & Prawns	36	36	30	26
WA	Coastal Pelagic	12	17	16	15
	All Crab	125	125	158	168
	Groundfish	43	42	40	45
	HMS	37	39	55	53
	Other species	109	102	98	106
	All Salmon	189	218	219	213
	All Shell fish	167	178	177	171
	All Shrimp & Prawns	75	72	72	80

Source: PacFIN ftl and ft tables. July 2004
Note: records are not unique buyers and should not be summed

Fishing Communities

Fishing communities, as defined in the MSA, include not only the people who catch the fish, but also those who share a common dependency on directly related fisheries-dependent services and industries. Commercial fishing communities may include boatyards, fish handlers, processors, and ice suppliers. Similarly, entities that depend on recreational fishing may include tackle shops, small marinas, lodging facilities catering to out-of-town anglers, and tourism bureaus advertising charter fishing opportunities. People employed in fishery management and enforcement makes up another component of fishing communities.

Fishing communities on the West Coast depend on commercial and/or recreational fisheries for many species. Participants in these fisheries employ a variety of fishing gears and combinations of gears. Community patterns of fishery participation vary coastwide and seasonally, based on species availability, the regulatory environment, and oceanographic and weather conditions. Communities are characterized by the mix of fishery operations, fishing areas, habitat types, seasonal patterns, and target species. Although unique, communities share many similarities. For example, all face danger, safety issues, dwindling resources, and a multitude of state and federal regulations. Individuals in unique communities have differing cultural heritages and economic characteristics. Examples include a Vietnamese fishing community of San Francisco Bay and an Italian fishing community in Southern California. Native U.S. communities with an interest in the groundfish fisheries are also considered. In spite of a variety of ethnic backgrounds, fishers in many areas come together to form the fishing communities, drawn together by their common interests in economic and physical survival in an uncertain and changing ocean and regulatory environment. The top 15 ports for open access groundfish and revenue are found in Table 3.3.3.39.

Table 3.3.3.39 Top Ports for Open Access Groundfish Landings and Revenue (2000 - 2003)

Rank	Top 15 Ports for Landed Revenue	Top 15 Ports for Landed Weight

1	Morro Bay	Moss Landing
2	Port Orford	Neah Bay
3	Moss Landing	Fort Bragg
4	Fort Bragg	Port Orford
5	Gold Beach	Port Angeles
6	Avila	Morro Bay
7	Santa Barbara	Gold Beach
8	Port Angeles	Westport
9	Crescent City	Eureka
10	Neah Bay	Crescent City
11	San Francisco	Astoria
12	Monterey	San Francisco
13	Astoria	Avila
14	Eureka	Charleston (Coos Bay)
15	Westport	Brookings

Source: PacFIN VSMRFD files. July 2004

An overview of West Coast fishing communities organized around regions comprising port groups and ports consistent with the organization of fish landings data in the PacFIN database can be found in the The Pacific Coast Groundfish Fishery Management Plan, Essential Fish Habitat Designation and Minimization of Adverse Impacts, Draft EIS, prepared in February 2005.

Enforcement

Scarce State and Federal resources also limit the use of traditional enforcement methods. Traditional fishery monitoring techniques include air and surface craft surveillance, declaration requirements, landing inspections, and analysis of catch records and logbooks. Current assets for patrolling offshore areas include helicopter and fixed wing aircraft deployed by the U.S. Coast Guard and state enforcement entities, one large 210 foot Coast Guard cutter, and smaller Coast Guard and state enforcement vessels. Only the aircraft and large cutter are suitable for patrolling the more distant offshore closed areas. The availability of Coast Guard assets may be challenged by other missions such as Homeland Security and search and rescue

Shoreside enforcement activities complement at-sea monitoring and declaration requirements by inspecting recreational and commercial vessels for compliance with landing limits, gear restrictions, and seasonal fishery closures. State agencies are increasingly using dockside sampling as a means of assessing groundfish catch in recreational fisheries, which when combined with state and federal enforcement patrols at boat launches and marinas, provides a means of ensuring compliance with bag limits and fishery closures. Commercial landings are routinely investigated upon landing or delivering to buying stations or processing plants and can be tracked through fish ticket and logbook records.

4.0 IMPACTS OF THE ALTERNATIVES

The terms "effect" and "impact" are used synonymous under NEPA. Impacts includes ecological, aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Direct effects are caused by the action and occur at the same time and place and Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. Cumulative impacts are those impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Sections 4.1 through 4.3 of this document discusses the direct and indirect impacts on the physical, biological, and socio-economic environment that are likely to occur under each of the proposed alternatives, including the status quo alternative. Section 4.4 presents the reasonably foreseeable cumulative effects of the environment from the proposed alternatives.

4.1 Physical Impacts

PHYSICAL ENVIRONMENT - COMPARISON OF THE ALTERNATIVES	
PHYSICAL STRUCTURE	Changes to the physical environment as a result of VMS regulations
Alternative 1 Status quo	Direct impact No direct impacts beyond what has been considered in previous NEPA documents. Indirect impact Little data available to assess OA fishing location and intensity.
Alternative 2 Vessels using longline gear	Direct impact Data from vessels 165 vessels using longline gear to take and retain, possess or land OA groundfish (approximately 131 directed groundfish, 31 Pacific halibut, CA halibut, and 2 HMS vessels) could be used to maintain the integrity of habitat protection areas from longline effects. Unforeseen effects on the physical environment resulting from illegal fishing in the RCAs or habitat areas for OA vessels using longline gear will likely be reduced as a result of the deterrent effect. Indirect impact VMS data can be combined with data on fishing gear impacts and habitat to better understand how effort shifts and closed area management measures affect the physical environment. Data would be available from 165 vessels using longline gear to take and retain, possess or land OA groundfish (approximately 131 directed groundfish, 31 Pacific halibut, 1 CA halibut, and 2 HMS vessels) .
Alternative 3 Vessels using longline or pot gear	In addition to impacts identified under Alt. 2 Direct impact Adds data from 128 vessels that take and retain, possess or land OA groundfish with pot gear (approximately 30 directed, 45 Dungeness crab, 8 prawn, 8 CA sheephead, and 37 CA halibut) could be used to maintain the integrity of habitat protection areas from pot fishing gear impacts. Deterrent effect will likely reduce RCA or habitat area incursions by vessels identified under this Alt. Indirect impact Adds VMS position data from approximately 128 vessels (30 directed, 45 Dungeness crab, 8 prawn, 8 CA sheephead, and 37 CA halibut) that can be combined with data on fishing gear impacts and habitat to better understand effort shifts and the potential effects on the physical environment from closed area management measures.
Alternative 4 Vessels using longline, pot or trawl gear, except: pink shrimp trawl	In addition to impacts identified under Alt. 2 and 3 Direct impact Data from 41vessels using trawl gear, excluding pink shrimp, to take and retain, possess or land OA groundfish (from approximately 18 ridgeback prawn, 6 sea cucumber and 17 CA halibut vessels) that could be used to maintain the integrity of habitat protection areas from trawl gear affects. Deterrent effect will likely reduce RCA or habitat area incursions by vessels identified under this Alt. Indirect impact Provides VMS position data from approximately 41 vessels (18 ridgeback prawn, 6 sea cucumber and 17 CA halibut vessels) that can be combined with data on fishing gear impacts and habitat to better understand effort shifts and potential effects on the physical environment from closed area management measures. Understanding where bottom trawl effort is distributed will likely be the most important because trawl gear is believed to have greater impact on physical habitat than OA fixed gears.

Alternative 5A Vessels using longline, pot, trawl or line gear, except: pink shrimp trawl and salmon troll	In addition to impacts identified under Alt. 2, 3 and 4 Direct impact Data from 855 vessels using line gear, excluding salmon troll, to take and retain, possess or land OA groundfish (approximately 738 groundfish, 105 California halibut, and 12 HMS vessels) could be used to maintain the integrity of habitat protection areas from line gear impacts. Deterrent effect will likely reduce RCA or habitat area incursions by vessels identified under this Alt. Indirect impact Provides VMS position data from approximately 855 vessels (738 groundfish, 105 California halibut, and 12 HMS vessels) using line gear to take and retain, possess or land OA groundfish, that can be combined with data on fishing gear impacts and habitat to better understand effort shifts and the potential effects on the physical environment from closed area management measures.
Alternative 5B Vessels using longline, pot, trawl or line gear, except: pink shrimp trawl, HMS longline and line, and Dungeness crab pot gear	Direct impact Data from 163 vessels using longline gear as identified under Alt. 2 (excluding 2 HMS vessels); 83 vessels using pot gear as identified under Alt.3. (excluding 45 Dungeness crab vessels); 41vessels using trawl gear as identified under Alt.4, and 1,020 vessels using line gear as identified under Alt. 5A (plus177 salmon troll vessels coastwide) that take and retain, possess or land OA groundfish could be used to maintain the integrity of habitat protection areas from longline, pot, trawl, and line gear impacts. Deterrent effect will likely reduce RCA or habitat area incursions by vessels identified under this Alt. Indirect impact Provides VMS position data from approximately 1,307 vessels that can be combined with data on fishing gear impacts and habitat to better understand effort shifts and the potential effects on the physical environment from closed area management measures. These vessels include 163 vessels using longline gear as identified under Alt. 2, except that HMS vessels would be excluded; 83 vessels using pot gear as identified under Alt.3., excluding Dungeness crab vessels; 41vessels using trawl gear as identified under Alt.4; and 1,020 vessels using line gear to take and retain, possess or land groundfish as identified under Alt. 5A, except HMS vessels using line gear are excluded, and including approximately 241 salmon troll vessels.
Alternative 6A Vessels with RCA restrictions; except pink shrimp trawl	Direct impact Data from 1,423 vessels could be used to maintain the integrity of habitat protection areas from longline, pot, trawl, line, net and other fishing gear impacts. Includes data from: vessels using longline gear as identified under Alt. 2 except that all Pacific halibut vessels are included; 128 vessels using pot gear identified under Alt. 3; all vessels using trawl gear (approximately 32 ridgeback prawn, 14 Sea cucumber, and 34 California halibut vessels); 1,032 vessels using line gear as identified under Alt. 5B (includes salmon troll coastwide and 12 HMS vessels) to take and retain, possess or land OA groundfish; vessels using net gear (approximately 3 CPS vessels); and 4 vessels using other OA gears (approximately 4 vessels). Deterrent effect will likely reduce RCA or habitat area incursions by vessels identified under this Alt. Indirect impact Provides VMS position data from approximately 1,423 vessels that can be combined with data on fishing gear impacts and habitat to better understand effort shifts and the potential effects on the physical environment from closed area management measures. These vessels include: 214 vessels using longline gear as identified under Alt. 2, except that all 49 Pacific halibut vessels are included; 128 vessels using pot gear identified under Alt. 3; 80 vessels using trawl gear includes approximately 32 ridgeback prawn, 14 Sea cucumber, and 34 California halibut vessels; 1,032 vessels using line gear to take and retain, possess or land OA groundfish as identified under Alt. 5B (includes salmon coastwide and 12 HMS vessels), vessels using net gear (trammel, gillnet, setnet) include approximately 3 CPS vessels, and approximately 4 vessels using other OA gears.

Alternative 6B Vessels with RCA restrictions: except salmon troll north that retain only yellowtail rockfish and pink shrimp trawl	Direct impact Essentially the same as Alt. 6A except that data that could be used to maintain the integrity of areas closed to protect habitat from fishing gear impacts is not available for salmon troll vessels that retain only yellowtail rockfish north of 40°10' N. lat. would not be available. Total of 1,289 vessels. Indirect impact Essentially the same as Alt. 6A except that position data from salmon troll vessels that retain only yellowtail rockfish north of 40°10' N. lat. would not be available.
Alternative 7 Vessel >12 ft with RCA restriction; except, pink shrimp trawl	Direct impact Essentially the same as 6A except that data from approximately 22 vessels (6 longline, 2 pot, and 14 line gear vessels) would not be available. Total of 1,401 vessels. Indirect impact Essentially the same as 6A except that data from approximately 22 vessels (6 longline, 2 pot, and 14 line gear vessels) would not be available. It is likely that none of these small vessels are not fishing outside of 3 miles.
Each of the alternatives identifies and estimated number of vessels that are likely to be affected by the VMS requirement. These values are based on the average level of participation from 2000 to 2003. However, it is important to point out that these values may not be the actual number of vessels that would continue to use a particular gear type if VMS requirements were adopted due to the easy abiltiy of directed groundfish fishers to change gears or for incidental groundfish fishers to discontinue participation in the OA fisheries by not retaining groundfish species.	

4.1.1 Physical structure

Direct impacts on the physical environment from fishery management actions generally result from changes to the structure of the benthic environment as a result of fishing practices.

The proposed action pertains to a program that is expected to provide information for monitoring fishing locations in relation to time/area closures. Fleet coverage level, that portion of the overall open access fishing fleet that would be required to have VMS and provide declaration reports, is the only difference between the proposed alternatives. Each of the 9 alternatives defines the portion of the open access fleet, that would be required to carry and use VMS transceivers and provide gear declaration reports.

Direct effects on the physical environment could occur if the gathering of the position information resulted in changes to fishing gear impacts on the physical structure or habitat. VMS data could be used to maintain the integrity of habitat protection areas designed to protect the physical environment from fishing gear impacts. Different fishing gears have different effects on the benthic environment. Further discussion on the different direct effects of the gears used in the open access fishery can be found in the Pacific Coast Groundfish Fishery Management Plan, Essential Fish Habitat Designation and Minimization of Adverse Impacts, Draft EIS, prepared in February 2005. This DEIS also describes the physical impacts on the environment under status quo management.
One of the major benefits of VMS is its deterrent effect. VMS is expected to have a beneficial deterrent effect (the reduction in illegal fishing in closed areas when fishing vessel operators know that they are being monitored) by reducing the likelihood of unforeseen effects on the physical environment resulting from unknown illegal fishing in the RCAs. It has been demonstrated that if fishing vessel operators know that they are being monitored and that a credible enforcement action will result from illegal activity, then the likelihood of that illegal activity occurring is significantly diminished. In this context, VMS is a preventive measure that may reduce potential violations of areas that are closed for habitat protection.

At this time, there are no areas in federal waters specifically closed to protect groundfish habitat from fishing gear impacts. However, proposals for such areas are currently being considered. Further discussion on the proposed groundfish habitat areas can be found in the Pacific Coast Groundfish Fishery Management Plan, Essential Fish Habitat Designation and Minimization of Adverse Impacts, Draft EIS, prepared in February 2005. This DEIS also describes the physical impacts on the environment under status quo management.

Indirect impacts from fishery management actions include changes in fishing practices that affect the physical environment, but are further away in time or location than those occurring as a direct impact. Area management involves closing and sometimes opening areas formerly closed to specific open access fishing gear groups. When the size or location of closed areas change, the fishing fleet makes shifts in fishing effort. Understanding the nature of effort shifts, especially understanding where the effort shifts to (and the habitat types most common in these areas) and where the effort shifts from (and the habitat types most common in these areas), is critical to understanding how management actions will likely increase or decrease beneficial and adverse impacts to habitat.

VMS is expected to provide data that can be used in combination with data on fishing gear impacts and habitat to better understand effort shifts and the potential effects on the physical environment. Therefore, VMS provides an indirect benefit to the physical environment. The amount of information available for assessing the impacts of fishing effort on the physical environment varies under each of the alternatives. Therefore, the indirect effects vary between the alternatives and depend on the proportion of the fleet that is required to carry VMS and provide declaration reports as well as the potential impacts associated with a particular gear type.

Comparison of the Alternatives
Alternative 1, Status Quo, would continue the requirement for declaration reports from open access vessels using exempted trawl gear in the RCAs. Under Alternative 1, open access fishery position data

would be available from vessels who voluntarily use VMS units and from vessels that fish pursuant to the open access regulations, but carry VMS because the vessel is registered to a limited entry permit. Section 3.3 of the EIS, for the Proposed Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2005-2006 Pacific Coast Groundfish fishery addressed the physical impacts on the environment under status quo management. In addition, the Pacific Coast Groundfish Fishery Management Plan, Essential Fish Habitat Designation and Minimization of Adverse Impacts, Draft EIS, prepared in February 2005 also describes the physical impacts on the environment under status quo management.

Alternative 2 maintains the declaration provisions of status quo, but adds the VMS and declaration reporting requirements for approximately 165 vessels (131 directed groundfish, 31 Pacific halibut, California halibut, and 2 HMS) vessels using longline gear to take and retain, possess or land groundfish. Of the alternatives that require VMS, Alternative 2 would provide the least amount of data for monitoring areas established for habitat protection or for assessing fishing effort and intensity relative to fishing fleet activity. This is because Alternative 2 would require the smallest proportion of the open access fleet (only vessels using longline gear) to have and use VMS. Given the mobility of vessels within the fishery, directed longline vessels could change gears to avoid the VMS requirements. Alternative 3, includes the same vessels as Alternative 2, but adds the VMS and declaration reporting requirements for approximately 128 vessels (30 directed, 45 Dungeness crab, 8 prawn, 8 CA sheephead, and 37 CA halibut vessels) using pot gear to take and retain, possess or land groundfish. Similar to Alternative 2, some vessels may change to line gear to avoid the VMS requirement. Alternative 3 would provide more data than Alternative 2, however it would provide less data than Alternative 4, which includes the same vessels as Alternative 3, but adds the VMS and declaration reporting requirement for approximately 41vessels (18 ridgeback prawn, 6 sea cucumber and 17 California halibut vessels) using exempted trawl gear that take and retain, possess or land groundfish.

Alternative 5A includes the same vessels as Alternative 4, but adds the VMS and declaration reporting requirements for approximately 738 groundfish, 105 California halibut, and 12 HMS vessels using line gear to take and retain, possess or land groundfish. Alternative 5B, includes slightly more vessels than 5A because the number of salmon troll vessels (177 vessels) that would be added under this alternative is greater than the number of HMS (12 line and 2 longline vessels) and Dungeness crab (45 vessels) vessels that would be excluded. Though Alternative 5B does not include vessels in fisheries that are projected to have minimal impacts on overfished species, it does include salmon troll vessels. Alternative 6A, which applies to any vessel engaged in commercial fishing to which a RCA restriction applies, includes the largest number of open access vessels (1,423) and would therefore provide the largest amount of data for monitoring habitat protection areas or for assessing fishing effort and intensity relative to fishing fleet activity. Unlike Alternatives 4-5B, all 80 exempted trawl vessels would be included under Alternative 6A, not just those that take and retain, possess or land groundfish. Because the trawl sector is believed to have a greater fishing gear impact on the physical environment, Alternatives 6A- 7 which include all 80 trawl vessels, would be much more beneficial than the Alternatives 4-5B that include only a portion of the trawl vessels (41 vessels). There is no difference in trawl data availability between Alternatives 6A, 6B and 7. Alternative 6B, is essentially the same as Alternative 6A, but affects approximately >134 vessels, all of which use salmon troll gear. Alternative 7, is essentially the same as Alternative 6A because it applies to all the same vessels except those vessels less than 12 feet in length. Vessels under 12 feet in length are not expected to fish in Federal waters and would therefore not be required to have VMS.

The open access fishery does not require participants to have permits or gear endorsements. Directed groundfish participants using fixed gear have the mobility to choose between the legal open access fixed gears for harvesting groundfish. Therefore, if VMS requirements under Alternative 2 or 3 were implemented, it will likely result in some directed groundfish participants changing gear to avoid the VMS requirements. Because a substantial proportion of the fleet is required to use VMS under Alternatives 4-7, the number of directed groundfish vessel operators that are likely to change gear to avoid VMS requirements is reduced. Vessels that incidentally catch groundfish while targeting other species are less

likely to change gears to avoid VMS requirements. This is because the various state and federal requirements for the target fishery they are participating in generally restricts the type of gear participants can use. However, participants that catch groundfish incidentally are not considered to be in the open access groundfish fishery unless they take and retain, possess or land groundfish. Therefore, these participants may choose to avoid the VMS requirements by not retaining groundfish, though they would continue to catch groundfish incidentally to the target fishery. The number of participants that would choose to discard groundfish to avoid VMS requirements is unknown; however, a substantial number of participants making less than $1000 of exvessel revenue per year from groundfish would likely avoid VMS requirements.

4.2 Biological Impacts

BIOLOGICAL ENVIRONMENT - COMPARISON OF THE ALTERNATIVES	
TOTAL CATCH	Changes in groundfish mortality levels as a result of VMS regulations
Alternative 1 Status quo	Direct impacts A higher level of fishing mortality than those being used to estimate total catch, may affect the integrity of closed areas if incursions result in higher rates of overfished species catch than projected. Indirect impacts Little specific information on fishing location is available from the OA fleet for understanding impacts of effort shifts on adult and juvenile populations, or for refining overfished species total catch estimates. Declaration reports may be used to estimate the number of vessels/trips in conservation areas by exempted trawl vessels.
Alternative 2 Vessels using longline gear	Direct impacts Allows the integrity of nontrawl RCAs to be maintained in relation to 165 vessels using longline gear to take and retain, possess of land OA groundfish (approximately 131 directed groundfish, 31 Pacific halibut, 1 CA halibut, and 2 HMS vessels). The risk of actual catch exceeding the OYs for overfished species is reduced for directed groundfish and Pacific halibut longline vessels that take and retain, possess or land groundfish. No change over Alt.1 for HMS longline vessels because they are not projected to catch overfished species. Indirect impacts Fishing effort and location data could improve manager's understanding of groundfish mortality by approximately 165 vessels (131 directed groundfish, 31 Pacific halibut, and 2 HMS vessels) using longline gear to take and retain, possess or land groundfish. Data can be combined with observer, survey, and fish ticket data to better estimate: 1) total fishing mortality, 2) impacts on juveniles and other fishery resources related to changes in fishing locations and intensity, 3) data on fishing intensity (amount of time vessels are in an area) would be available, and 4) changes in fishing location and intensity over time.
Alternative 3 Vessels using longline or pot gear	In addition to impacts identified under Alt. 2: Direct impacts Improves ability to maintain integrity of nontrawl RCAs in relation to 128 vessels using pot gear that take and retain, possess or OA land groundfish (30 directed, 45 Dungeness crab, 8 prawn, 8 CA sheephead, and 37 CA halibut vessels). The risk of actual catch exceeding the OYs for overfished species is reduced for directed groundfish pot and prawn vessels. No change over Alt.1 for Dungeness crab vessels because no overfished species catch is projected. Indirect impacts Fishing effort and location data from approximately 128 vessels could improve manager's understanding of groundfish mortality for pot vessels in the same ways as identified under Alt. 2 for longline vessels.
Alternative 4 Vessels using longline, pot or trawl gear, except: pink shrimp trawl	In addition to impacts identified under Alt. 2 & Alt. 3: Direct impacts Adds the ability to maintain the integrity of nontrawl RCAs in relation to 41 vessels using exempted trawl gear to take and retain, possess or land groundfish (approximately 18 ridgeback prawn, 6 sea cucumber and 17 California halibut vessels). The risk of actual catch exceeding the OYs for overfished species is reduced for exempted trawl vessels. Indirect impacts Fishing effort and location data from approximately 41 vessels (18 ridgeback prawn, 6 sea cucumber and 17 California halibut vessels) could improve manager's understanding of groundfish mortality for trawl vessels in the same ways as identified under Alt. 2 for longline vessels.

Alternative 5A Vessels using longline, pot, trawl or line gear, except: pink shrimp trawl and salmon troll	In addition to impacts identified under Alt. 2, 3, and 4: Direct impacts Improves the ability to maintain integrity of nontrawl RCAs in relation to vessels using line gear that take and retain, possess or land OA groundfish . The risk of actual catch exceeding overfished species OYs is reduced for directed groundfish vessels. No change over Alt. 1 for HMS line vessels because they are not projected to catch overfished species. Impacts on overfished species taken incidentally is neutral because they are expected to be encountered with or without VMS. However, VMS would likely deter mixed fishing strategies where vessels alter gear to catch groundfish within the RCAs. Indirect impacts Fishing effort and location data available from approximately 738 vessels groundfish, 105 California halibut, and 12 HMS vessels could improve managers understanding of groundfish mortality for line vessels in the same ways as identified under Alt. 2 for longline vessels.
Alternative 5B Vessels using longline, pot, trawl or line gear, except: pink shrimp trawl, HMS longline and line, and Dungeness crab pot gear	Direct impacts Adds the ability to maintain the integrity of gear nontrawl RCAs in relation to: 163 vessels using longline gear as identified under Alt. 2 (excluding 2 HMS vessels are excluded); 83 vessels using pot gear as identified under Alt.3. (excluding 45 Dungeness crab vessels); 41 vessels using trawl gear as identified under Alt.4, and vessels using line gear as identified under Alt. 5A (plus177 salmon troll vessels coastwide) that take and retain, possess or land OA groundfish. No change over Alt.1 for HMS or Dungeness crab vessels because they are not projected to catch overfished species. Because canary rockfish, lingcod, bocaccio, and yelloweye rockfish are vulnerable to salmon troll gear, maintaining the integrity of the RCAs in relation to targeted groundfish fishing by salmon troll vessels would be beneficial. Impacts on incidentally taken overfished species is neutral because they would be encountered with or without VMS. However, VMS would likely deter fishing strategies where vessels alter their gear to catch more groundfish within the RCAs. Indirect impacts Fishing effort and location relative to areas where overfished species are distributed would be available from vessels identified under Alt. 2, 3, 4 and 5A, except that vessels using Dungeness crab pot, HMS longline and HMS line gear would be excluded, but approximately 177 salmon troll vessels would be included. VMS data could improve manager's understanding of groundfish mortality in the same ways as identified under Alt. 2 for longline vessels.
Alternative 6A Vessels with RCA restrictions; except pink shrimp trawl	Direct impacts In addition to benefits identified under Alt. 2, 3, 4, and 5A, adds the ability to maintain the integrity of nontrawl RCAs in relation to all vessels with RCA requirements (pink shrimp vessels are excluded). Includes data from: 165 vessels using longline gear as identified under Alt. 2 except that all 49 Pacific halibut vessels are included; 128 vessels using pot gear identified under Alt. 3; all 80 vessels using trawl gear (approximately 32 ridgeback prawn, 14 Sea cucumber, and 34 California halibut vessels); 1,032 vessels using line gear as identified under Alt. 5B (includes salmon troll coastwide) to take and retain, possess or land OA groundfish; vessels using net gear (approximately 3 CPS vessels); and vessels using other OA gears (approximately 4 vessels). Because canary rockfish, lingcod, bocaccio, and yelloweye rockfish are vulnerable to salmon troll gear, maintaining the integrity of the RCAs in relation to targeted groundfish fishing in the RCAs by salmon troll vessels would be beneficial. In 2005, salmon troll vessels are projected to encounter 1.6 mt or 52 percent of the canary rockfish taken in all open access fisheries. Impacts on incidentally taken overfished species within the RCAs is neutral because they would be encountered with or without VMS. VMS would likely deter mixed fishing strategies where vessels alter their gear to catch more groundfish in the RCAs. No change over Alt. 1 for HMS line and sea cucumber vessels because they are not projected to catch overfished species Indirect impacts In addition to benefits identified under Alt. 2, 3, 4, and 5, adds the ability to maintain the integrity of nontrawl RCAs in relation to all vessels with RCA requirements (pink shrimp vessels are excluded). Total of approximately 1,423 vessels.

Alternative 6B Vessels with RCA restrictions: except salmon troll north that retain only yellowtail rockfish and pink shrimp trawl	Direct impacts The ability to maintain the integrity of the RCAs is slightly less than those identified under Alt. 6A, because salmon troll vessels fishing north of 40°10' N. lat. that only land yellowtail rockfish would be excluded. Indirect impacts Increased data on fishing effort is slightly less than those identified under Alt. 6A, because salmon troll vessels fishing north of 40°10' N. lat. that only land yellowtail rockfish would be excluded.
Alternative 7 Vessel >12 ft with RCA restriction; except, pink shrimp trawl	Direct impacts The ability to maintain the integrity of the RCA is slightly less than those identified under Alt. 6A because approximately 22 vessels (those <12 feet in length) less than that identified under Alt. 6A are excluded. Few if any of these vessels are likely to fish in Federal waters. Indirect impacts Increased data on fishing effort is slightly less than that identified under Alt. 6A; approximately 22 vessels (those <12 feet in length) less than those identified under Alt. 6A are excluded. Few if any of these vessels are likely to fish in Federal waters.

4.2.1 Fishing mortality

Direct impacts on fishing mortality include changes in the mortality of target and non-target species (incidental catch). This action would expand the VMS program to the open access gear sectors to monitor fishing location in relation to time-area closures. Direct benefits result if the integrity of RCAs are maintained as a result of VMS requirements.

To monitor the attainment of OYs, the total catch level must be estimated for each species or species group. The fishing mortality level (total catch level) for each species is the sum of retained catch and discarded catch (incidental or targeted catch that is not retained and landed by the vessel). There is no exact measure of discard amounts in the open access fisheries. For all species except lingcod, sablefish, and nearshore rockfish species, it is assumed that discarded fish are dead or die soon after being returned to the sea. Total catch estimates of overfished species in the limited entry fisheries are currently based a bycatch accounting model (for further information on current bycatch model see the preamble discussion in the proposed rules for the Harvest Specifications and Management Measures from 2003, 2004 and 2005-2006; January 7, 2003, 68 FR 936) which has applied depth-related discard assumptions since 2003. At this time, total catch estimates of overfished species taken in the open access fishery are based on landed catch from fish tickets, assumed discard rates, discard and discard mortality assumptions, expertise from state fisheries managers, and industry advisory body input. However, as observer and other data become available more formal bycatch modeling is expected to be used for a portion (directed) or perhaps all of the open access fisheries. The current bycatch model for the limited entry fisheries uses overfished species bycatch rates that are representative of fishing outside the RCAs, and would be higher if areas within the RCAs were included. An open access fishery bycatch model would likely be similar for the directed open access fisheries.

Discard assumptions used for modeling the fishery to estimate total catch of overfished species have been based on bycatch rates for areas where fishing is expected to occur. Thus, higher total mortality than assumed by the model could result if the integrity of the closed areas were not adequately maintained. This is especially a concern for those overfished species that constrain the fisheries and for which the OY is fully attained each fishing year. If incursions into the RCAs occur, the estimated total mortality would likely be underestimated and the risk of exceeding the OYs for overfished species increased, with the risk being greatest for species most frequently encountered by the open access gears (bocaccio, lingcod, yelloweye rockfish and canary rockfish), which the closed areas are intended to protect. If the true discard rates are higher than the discard assumptions used to estimate total catch, the OYs could unknowingly be exceeded. If the OYs are substantially exceeded, a stock's ability to rebuild could be impaired. If a rebuilding deficit is created for an overfished stock because the OY is repeatedly unknowingly exceeded, the stock may not be able to recover within the specified rebuilding time. For stocks in the precautionary zone (B25%-B40%), the stock biomass could be further reduced, possibly leading to an overfished status.

Indirect impacts from fishery management actions include changes in fishing practices that affect the biological environment, but are further away in time or location than those occurring as a direct impact. The prohibition of fishing in certain areas or during certain times is used to reduce overall fishing effort and to protect vulnerable populations. When depth-based RCA management was adopted, large areas of the continental shelf were closed to groundfish fishing to protect overfished species. This was expected to result in effort shifts to open areas that are shoreward and seaward of the conservation areas. Overtime, area management involves closing and sometimes opening formerly closed areas. When the size or location of closed areas change, the fishing fleet makes shifts in fishing effort. Knowing when and where fishing is occurring is necessary: for understanding total fishing mortality; evaluating possible impacts on the adult and juvenile groundfish species; assessing impacts with non-groundfish species; and determining if regulatory changes are needed.

Commercial data is primarily in the form of landing receipts or "fish tickets," which are filled out by fish buyers at the time of delivery from a fishermen. Fish tickets are a major source of information on the amount of fish and which provide information on the total weight landed by species or market categories, price per pound, and the condition of the catch. Little specific information on fishing locations is available for the open access fleet. Therefore, little is known about fishing patterns in the West Coast groundfish

open access fishery or how fishing effort shifts from closed areas to the remaining open fishing areas.

Logbooks are a useful tool for verifying landing receipts and for tracking fishing activity. The information recorded in logbooks typically consists of date, boat name and identification number, crew size, catch location, numbers or pounds of fish, gear type used, mesh size, principle target species, associated species taken and landing receipt number. Logbook data is not available from the directed open access fisheries at this time, but are for a few incidental fisheries such as the California gill and trammel nets, traps, and trawl gear fisheries. Without effort data, estimates of catch per unit of effort (CPUE) cannot be made. CPUE is the number or weight of fish caught per unit of effort. Typically, effort evaluated by gear type, gear size, and length of time the gear is used. CPUE can be used a measure of relative abundance for a particular species and can be used to understand abundance changes over time. VMS can aid in estimating CPUE base on fishing location and days at sea.

VMS systems provide accurate harvest location data that could be used to estimate the distribution of fishing effort throughout the WOC. Hourly position reports allow changes in fishing location and intensity to be monitored and assessed, it also allows the number of vessel trips to be verified. Because VMS would be required to be operated continuously after a vessel fishes in the open access fishery in Federal waters, data from additional non-groundfish fisheries off the West Coast may also be available. When VMS position information can be combined with data collected by at-sea observers and used to better understand the impacts of the effort shift on adult and juvenile populations. Overfished species bycatch estimates may be refined with VMS data. The response time for management to address unintended impacts on stocks resulting from effort shifts could be improved with VMS. However, the ability to understand the extent of the impacts resulting from effort shifts on groundfish and other resources would depend on the amount, availability and applicability of other data such as at-sea observer data for the different gears and sectors of the open access fishery.

Comparison of the Alternatives The level of fleet coverage, that portion of the overall open access fishing fleet that would be required to have VMS and provide declaration reports, is the only difference between the alternatives. Alternative 1, Status Quo, would continue the requirement for declaration reports from open access vessels using exempted trawl gear in the RCAs. Under Alternative 1, a higher level of fishing mortality than that being used to estimate total catch, may result if the integrity of closed areas are not maintained and incursions result in higher rates of overfished species than projected. The difficulty in maintaining the integrity of closed areas are greatest under status quo, Alternative 1. Alternative 2 maintains the provisions of status quo, but adds the VMS and declaration reporting requirements for approximately 131 directed groundfish, 31 Pacific halibut, and 2 HMS vessels using longline gear to take or retain, possess or land OA groundfish. Of the alternatives that require VMS, Alternative 2 requires the smallest proportion of the open access fleet (only vessels using longline gear) to have and use VMS. Alternative 3, includes the same vessels as Alternative 2, but adds the VMS and declaration reporting requirements for approximately 128 vessels (30 directed, 45 Dungeness crab, 8 prawn, 8 CA sheephead, and 37 CA halibut vessels) vessels using pot gear to take or retain, possess or land OA groundfish. Therefore, Alternative 3 would provide more data than Alternative 2, however it would provide less data than Alternative 4.

Alternative 4 includes the same vessels as Alternative 3, but adds the VMS and declaration reporting requirement for approximately 18 ridgeback prawn, 6 sea cucumber and 17 California halibut vessels using exempted trawl gear (excludes pink shrimp vessels) to take or retain, possess or land OA groundfish. Alternative 5A includes the same vessels as Alternative 4, but adds the VMS and declaration reporting requirements for approximately1,032 vessels (738 groundfish, 105 California halibut, and 12 HMS vessels) using line gear to take and retain, possess or land groundfish (excludes salmon troll vessels). Alternative 5B, includes slightly more vessels (1,307 vessels) than 5A (1,189 vessels) because the number of salmon troll vessels that would be added under this alternative is greater than the number of HMS and Dungeness crab vessels that would not be included. Though alternative 5B does not include vessels in fisheries that are projected to have minimal impacts on overfished species (12 HMS line and 2 longline, 45 Dungeness crab pot), it includes the approximately 241 salmon troll vessels that take or retain, possess or land OA groundfish. Alternative 6, which applies to any vessel engaged in commercial fishing to which a RCA restriction applies, includes the largest number of open access vessels. Therefore Alternative 6 would provide the largest amount of data for assessing fishing effort and intensity relative to

fishing fleet activity. Alternative 6B affects approximately 79 fewer vessels annually than does Alternative 6A, all of which use salmon troll gear. Alternative 7, is almost the same as Alternative 6A because it applies to the same vessels except that vessels less than 12 feet in length would be excluded. Most, if not all, vessels under 12 feet in length are unlikely to fish in Federal waters and would therefore not trigger the VMS requirement.

Table 3.3.3.7 shows the projected catch of overfished species impacts for 2005 for the open access directed groundfish incidental fisheries. The proportion of all open access catch projected to be taken by the open access directed fisheries together is 89 percent of the bocaccio; 32 percent of the canary rockfish; 100 percent of the cowcod, pop, and darkblotched rockfish; 97 percent of the lingcod, 43 percent of the yelloweye rockfish, and 0 percent of the widow rockfish. On average between 2000 and 2003, directed longline vessels took approximately 425 mt of groundfish as compared to 157 mt taken by directed vessels using pot gear and 385 mt taken by vessels using line gear. Alternatives 2 and 3 each cover only a portion of the open access directed gears, leaving vessels using line gear to take and retain, possess or land groundfish without VMS coverage. Mobility in the fishery between directed gears could result in fishers shifting gears types to avoid VMS coverage, leaving less data available for estimating total catch and understanding shifts in fishing effort and intensity. Alternative 5A provides coverage to those sectors that catch the largest proportion of groundfish and prevents directed fishers from changing gears to avoid the VMS requirements.

Alternative 6A and 7 provide the most amount of information on fishing locations for the greatest number of participants, followed by 6B and then 5B. The integrity of the RCAs can be best maintained with these alternatives, because they provide coverage for the sectors that are projected to have the greatest impact on overfished species, reduce the ability of fishers to use alternative gears to avoid the VMS requirements, and reduce the incentive for salmon troll vessels to use their gear in a way that would increase groundfish bycatch in the RCAs. In 2005, salmon troll vessels are projected to encounter 1.6 mt or 52 percent of the canary rockfish taken in all open access fisheries. Alternatives 6A, 7 and 5B are similar in that all salmon troll vessels that take and retain, possess or land groundfish would be required to have and use VMS. Because alternative 6B does not require VMS for salmon vessels north of 40° 10' N. lat. that only land yellowtail rockfish, there are slightly fewer benefits than Alternatives 6A, 7 and 5B. Alternative 5B covers fewer vessels than Alternatives 6A or 7 because it excludes all 14 HMS, all 45 Dungeness crab, and 39 exempted trawl vessels (other than pink shrimp) that do not retain groundfish. There is no projected catch of overfished species for the HMS or Dungeness crab vessels, and the projected catch of overfished species by the exempted trawl fisheries is 0.1 mt of bocaccio, 1 percent of the catch in all open access fisheries. However, an unknown amount of small lingcod may be taken in Dungeness crab pots. When handled gently and immediately returned to the sea, lingcod have a strong chance of surviving capture. Therefore, the increased benefits from the availability of data for estimating total catch and monitoring the attainment of overfished species OYs resulting from Alternatives 6A and 7 over alternative 5B is minimal. The benefits of position data availability should be considered in the longer term because there is currently very little data (observer or otherwise) from open access vessels on the amounts and types of bycatch in their fisheries. In the short-term, using effort data obtained from a VMS system to estimate total catch and to monitor the attainment of OYs will be limited until more data becomes available.

4.2.2 Other Resources

Non-groundfish species interactions

The action is to expand the VMS program to monitor the integrity of closed areas in relation to open access fishing activities. None of the management alternatives is expected to have an adverse effect on the incidental mortality levels of CPS, Dungeness crab, Pacific pink shrimp, Pacific halibut, forage fish or miscellaneous species over what has been considered in previous NEPA analyses. Information on where fishing effort is occurring (Alternatives 2- 7) may be positive because it may allow NMFS observer data and data from other sources to be joined together to derive a better understand of potential fishing related impacts on these species.

Salmonids

The action is to expand the VMS program to monitor the integrity of closed areas in relation to open access fishing activities. None of the management alternatives is expected to have an adverse effect on the incidental mortality levels of listed salmon species over what has been considered in previous NEPA analyses. Information on where fishing effort is occurring (Alternatives 3- 7) may have a positive effect because it could be joined with NMFS observer data and data from other sources to derive a better understand of potential fishing related impacts on these species.

Marine Mammals

The action is to expand the VMS program to monitor the integrity of closed areas in relation to open access fishing activities The West Coast groundfish fisheries are considered Category III fisheries, where the annual mortality and serious injury of a stock by the fishery is less than or equal to 1% of the PBR level (potential biological removal). Information on where fishing effort is occurring (Alternatives 3- 7) may have a positive effect because it could be joined with NMFS observer data and data from other sources to derive a better understand of potential fishing related impacts on these species.

Seabirds

The action is to expand the VMS program to monitor the integrity of closed areas in relation to open access fishing activities. None of the proposed management alternatives are likely to affect the incidental mortality levels of seabirds over what has been considered in previous NEPA analyses. Information on where fishing effort is occurring (Alternatives 3- 7) may have a positive effect because it could be joined with NMFS observer data and data from other sources to derive a better understand of potential fishing related impacts on these species.

Sea Turtles

The action is to expand the VMS program to monitor the integrity of closed areas in relation to open access fishing activities. None of the proposed management alternatives are likely to affect the incidental mortality levels of sea turtles over what has been considered in previous NEPA analyses. Information on where fishing effort is occurring (Alternatives 3- 7) may have a positive effect because it could be joined with NMFS observer data and data from other sources to derive a better understand of potential fishing related impacts on these species.

Endangered Species

Species listed under the ESA are identified in Section 3.2 of this EA. Specific discussion of species listed under the ESA can be found above in the sections titled salmonids, marine mammals, sea birds and sea turtles.

4.3 Socio-economic Impacts

SOCIO-ECONOMIC ENVIRONMENT - COMPARISON OF THE ALTERNATIVES	
FISHERY ENFORCEMENT	Changes in the ability to enforce groundfish fishery regulations as a result of VMS regulations
Alternative 1 Status quo	Direct impact Declaration reports may aid in identifying OA trawl vessels legally fishing in conservation areas.
Alternative 2 Vessels using longline gear	Direct impact Accurate and timely position data will allow enforcement resources to be used efficiently to maintain the integrity of RCAs in relation to approximately 165 vessels (131 directed groundfish, 31 Pacific halibut, 1 CA halibut, and 2 HMS longline vessels) that take and retain, possess or land OA groundfish. Deterrent effect will likely reduce the number of area violations by vessels using OA longline gear. Can be used to target at-sea and dockside inspections of OA vessels using longline gear. Indirect impact VMS position data from 165 longline vessels: may be used as basis for enforcement actions; may be used to establish probable cause for investigations; may be beneficial to homeland security activities, and; may be used to support enforcement actions for closed area management in the Pacific Halibut directed fishery.
Alternative 3 Vessels using longline or pot gear	In addition to impacts under Alt. 2: Direct impact Accurate and timely position data will allow enforcement resources to be used efficiently to maintain the integrity of RCAs in relationship to approximately 128 vessels (30 directed, 45 Dungeness crab, 8 prawn, 8 CA sheephead, and 37 CA halibut vessels) vessels using pot gear that take and retain, possess or land groundfish. Deterrent effect will likely reduce the number of area violations by vessels using OA pot gear. Can be used to target at-sea and dockside inspections of OA vessels using pot gear. Indirect impact VMS position data from 165 longline and 128 pot vessels: may be used as basis for enforcement actions; may be used to establish probable cause for investigations; may be beneficial to homeland security activities, and; may be used to support enforcement actions for closed area management in the Dungeness crab and spot prawn pot fisheries.

Alternative 4 Vessels using longline, pot or trawl gear, except: pink shrimp trawl	In addition to impacts under Alt. 2 and 3: Direct impact Accurate and timely position data allow enforcement resources to be used efficiently to maintain the integrity of RCAs in relation to approximately 41 vessels (18 ridgeback prawn, 6 sea cucumber and 17 CA halibut vessels) using exempted trawl gear to take and retain, possess or land OA groundfish. Deterrent effect will likely reduce the number of area violations by vessels using exempted trawl gear. Can be used to target at-sea and dockside inspections of OA vessels using exempted trawl gear. Indirect impact VMS position data from 165 longline, 128 pot, and 41 trawl (except shrimp trawl) vessels: may be used as basis for enforcement actions; may be used to establish probable cause for investigations; may be beneficial to homeland security activities, and; may be used to support enforcement actions for closed area management in the ridgeback prawn, sea cucumber, and CA halibut fisheries excluding pink shrimp.
Alternative 5A Vessels using longline, pot, trawl or line gear, except: pink shrimp trawl and salmon troll	In addition to impacts under Alt. 2, 3 and 4, Direct impact Accurate and timely position data will allow enforcement resources to be used efficiently to maintain the integrity of RCAs in relation to approximately 855 (738 vessels using line gear to target groundfish, 12 HMS, and 105 CA halibut OA vessels) using line gear to take and retain, possess or land groundfish. Deterrent effect will likely reduce the number of area violations by vessels using line gear. Can be used to target at-sea and dockside inspections for OA vessels using line gear. Indirect impact VMS position data from 165 longline,128 pot, 41 trawl (except shrimp trawl), and 855 line (except salmon troll) vessels: may be used as basis for enforcement actions; may be used to establish probable cause for investigations; may be beneficial to homeland security activities; and may be used for closed area management in the line fisheries excluding salmon troll.
Alternative 5B Vessels using longline, pot, trawl or line gear, except: pink shrimp trawl, HMS longline , HMS line, and Dungeness crab pot gear	Direct impact Accurate and timely position data will allow enforcement resources to be used efficiently to maintain the integrity of RCAs in relation to vessels using longline gear as identified under Alt. 2 (excluding 2 HMS vessels); 83 vessels using pot gear as identified under Alt.3. (excluding 45 Dungeness crab vessels); 41 vessels using trawl gear as identified under Alt.4, and 1,020 vessels using line gear as identified under Alt. 5A (plus177 salmon troll vessels coastwide) that take and retain, possess or land OA groundfish. Deterrent effect will likely reduce the number of area violations for incidental OA fisheries including salmon fishery area management measures. Can be used to target at-sea and dockside inspections for OA vessels Indirect impact VMS position data from 163 longline (excludes 2 HSM vessels), 83 pot (excludes 45 Dungeness crab vessels), 41 trawl (excludes shrimp trawl), and 1,020 line (includes 177 salmon troll vessels but excludes 12 HMS vessels), may be used as basis for enforcement actions; may be used to establish probable cause for investigations; may be beneficial to homeland security activities; and; may be used for closed area management in the in OA incidental fisheries excluding pink shrimp, HMS longline, HMS line and Dungeness crab pot fisheries, but including salmon troll.

Alternative 6A Vessels with RCA restrictions; except pink shrimp trawl	Direct impact Accurate and timely position data availability Will allow enforcement resources to be used efficiently to maintain the integrity of RCAs in relation to all vessels with RCA requirements (excluding pink shrimp vessels). Includes data from: 214 vessels using longline gear as identified under Alt. 2 except that all 49 Pacific halibut vessels are included; 128 vessels using pot gear identified under Alt. 3; all 80 vessels using trawl gear (approximately 18 ridgeback prawn, 14 Sea cucumber, and 34 California halibut vessels); 1,032 vessels using line gear as identified under Alt. 5B (includes salmon troll coastwide) to take and retain, possess or land OA groundfish; 3 vessels using net gear (approximately 3 CPS vessels); and 4 vessels using other OA gears. Deterrent effect will likely reduce the number of area violations for OA incidental fisheries including the salmon fishery. Can be used to target at-sea and dockside inspections for all OA vessels with RCA restrictions, including salmon troll coastwide. Indirect impact VMS position data from 214 longline, 128 pot, 80 trawl (excludes shrimp trawl), and 1,032 line (includes 177 salmon troll vessels but excludes 12 HMS vessels) vessels: may be used as basis for enforcement actions; may be used to establish probable cause for investigations; may be beneficial to homeland security activities; and; may be used for closed area management in the in OA incidental fisheries with RCA restrictions, including salmon troll.
Alternative 6B Vessels with RCA restrictions: except salmon troll north that retain only yellowtail rockfish and pink shrimp trawl	Direct impact Slightly less accurate and timely position data than identified under Alt. 6A, because salmon troll vessels fishing north of 40°10' N. lat. that only land yellowtail rockfish would be excluded Indirect impact VMS position data from 214 longline, 128 pot, 80 trawl (excludes shrimp trawl), and >898 line (excludes salmon troll North though some land groundfish other than yellowtail) vessels: may be used as basis for enforcement actions; may be used to establish probable cause for investigations; may be beneficial to homeland security activities; and; may be used for closed area management in the in OA incidental fisheries with RCA restrictions.
Alternative 7 Vessel >12 ft with RCA restriction; except, pink shrimp trawl	Direct impact Slightly less accurate and timely position data than identified under Alt. 6A because approximately 22 vessels (6 longline, 2 pot, and 14 line gear vessels <12 feet in length) fewer vessels (1,383 vessels) than those identified under Alt. 6A are excluded. Few if any of these vessels fish in Federal waters. Indirect impact VMS position data from 214 longline, 120 pot, 80 trawl (excludes shrimp trawl), and 1,018 line (includes 177salmon troll vessels) vessels: may be used as basis for enforcement actions; may be used to establish probable cause for investigations; may be beneficial to homeland security activities; and; may be used for closed area management in the in OA incidental fisheries with RCA restrictions.

4.3 Socio-economic Impacts

This section of the EA looks at impacts, positive and negative, on the socio-economic environment. Basic information regarding the people and the fisheries that are projected to be affected by the management alternatives was presented in Section 3 of this document. The following section differs in that it discusses what is projected to happen to the affected people, what social changes are expected to occur, and, how changes are expected to affect fishing communities. Changes in harvest availability to the different sectors of the fishery, changes in income and revenue, costs to participants; the effectiveness and costs of enforcing the management measures, effects on fishing communities, and how the actions affect safety of human life at sea will be examined in the following impact analysis.

Circumstances vary substantially between open access target fisheries and gear groups. In addition, little social and economic information is available on the various open access fisheries and the participants. Therefore, it is not possible to produce a detailed cost benefit study for VMS implementation in the open access fishery. The following analysis takes a general approach by examining; the costs and benefits to the open access fishery participants that are likely to result from the alternative VMS actions relative to economic status of the fishery participants; the ecological health of the resources; the geographical nature of the fishery; the type of fishing conducted (directed or incidental); the type of gear used; the quantity and size of vessels; fisheries enforcement; the management regime; and safety of human life at-sea.

4.3.1 Fishery Enforcement

Direct impacts on enforcement from fishery management actions includes; changes in the availability of information that directly aids enforcement officers in identifying violations; changes in information that helps enforcement officers to separate those individuals who are complying with the regulatory requirements from those who are not; and changes that alter the level of compliance by fishers.

At the present time there are 8 NMFS agents covering the Pacific Coast groundfish fishery. These officers and agents are responsible for enforcing all conservation regulations in the Pacific Coast groundfish fishery (e.g. size limits, trip limits, gear restrictions, etc). They are also responsible for monitoring all other fisheries in areas that are regulated by NMFS. In addition, there are state enforcement officers in California, Oregon, and for Washington that cover the groundfish fishery as well as other state fisheries. At this time, state enforcement resources (personnel and budgets) are extremely limited.

Implementing depth-based management measures over large geographic areas marked the transition to a much greater dependence upon at-sea enforcement. Maintaining the integrity of the conservation areas is largely dependent upon the ability to enforce such management measures. In the past, fishery management measures, such as landing limits, size limits, and species landing restrictions were largely enforced by the relatively easy and inexpensive method of dockside enforcement. Enforcing depth-based closed areas represents a more costly and difficult challenge, because effective enforcement requires frequent patrolling of the shoreward and seaward boundaries of the conservation areas. The single biggest factor that allows some operators to avoid compliance with closed area management measures, is that much of the fishing activity takes place out of view of anyone other than the vessel crew. Because VMS provides reliable and accurate information on the location of vessels and can be used to identify where fishing activity takes place with a reasonable degree of accuracy, VMS is a practical means of monitoring vessels activity in relation to area restrictions.

VMS will potentially show enforcement officers breaches of time/area restrictions. VMS can show officers those vessels that are following the rules as well those which are not. In doing so, it makes the activities of investigating officers much more cost effective because less time will be spent pursuing false trails and fishing operators who are following the rules.

Patrols by both sea and air will still be necessary for fully effective monitoring and management even with

an effective VMS program. A patrolling aircraft or vessel can spend considerable time and fuel investigating legitimate fishing vessels that will appear on their radar. Providing access to VMS data for patrol craft can minimize the effort spent confirming radar contacts of vessels fishing legitimately and thereby increase the efficiency of surveillance patrols. Further, identifying legitimate fishing vessels to patrol craft via VMS may help them choose particular contacts for more productive investigation when several contacts are made by radar.

In some cases, enforcement officers will have particular vessels or particular situations for which they may wish to conduct an at-sea or landing inspection without warning to the vessel operator. Without VMS, it is extremely difficult to determine where a vessel is located at-sea or where and at what time it might enter port. VMS provides a reliable means of achieving this with potential savings in time and other expense in moving officers and aircraft or patrol vessels to the correct location at the appropriate time.

Vessel position data and fishery declarations, which are other wise not available from this sector of the groundfish fleet, would be used to identify vessels fishing in the closed areas and to target landing and at-sea inspections. Accurate and timely position data is necessary to allow enforcement resources to be used efficiently to maintain the integrity of RCAs. In addition, the deterrent effect of VMS will likely reduce the number of closed area violations.

One of the major benefits of VMS is its deterrent effect. If fishing vessel operators know that they are being monitored and that a credible enforcement action will result from illegal activity, then the likelihood of that illegal activity occurring is significantly diminished. In this context, VMS is a preventive measure rather than a cure. To be effective as a deterrent, the VMS program must maintain its credibility in the eyes of the vessel operators and its use must be kept at the forefront of their minds if the deterrent effect is to be maintained. The credibility of the system can only be maintained if all operational issues are followed up, particularly those that affect a vessel, such as failure of the vessel to report on schedule. The presence of the VMS equipment on the vessel will be a reminder to operators of its monitoring operation.

The open access fleet consists of many smaller vessels with many being under 40 feet in length (Table 3.3.3.4). Smaller vessels are generally not able to withstand rough seas as well as larger vessels. Because much of the open access groundfish fleet is comprised of small vessels, much of the effort is thought to occur in waters near the seaward boundary of the nontrawl RCAs. It is presumed that fishers with smaller vessels (<40 ft) fishing seaward of the RCAs are more likely to encroach on the seaward boundary of the RCAs, because of the desire to fish nearer to shore for safety and to reduce fuel consumption and general wear and tear on the vessel. Table 4.3.1.1 shows the proportion of open access vessels by target fishery that are less than 40 feet in length. From this table, it can be seen that a large portion of the vessels that participate in the directed fisheries and who have a greater than 5 percent dependency on groundfish are small vessels. Many of the nearshore vessels: may fish exclusively in state waters.

Table 4.3.1.1. Percent of open access vessels less than 40 feet (ft) in length, November 2000 through October 2001.

More than 5% of annual revenue from groundfish	
Target species	Vessel less than 40 ft in length
Sablefish	72%
Nearshore Rockfish	91%
Shelf Rockfish	90%
Slope rockfish	82%
Less than 5% of annual revenue from groundfish	
Sablefish	32%
Nearshore Rockfish	78%
Shelf Rockfish	60%
Slope rockfish	51%
Halibut	65%
Shrimp/prawn	21%
Dungeness crab	56%
Salmon	72%
HMS	31%
CPS	29%
Source: EIS, for the Proposed Acceptable Biological Catch and Optimum Yield Specifications and Management 2005-2006	

Indirect impacts on enforcement from fishery management actions include change in the availability of information used for conducting further investigations or used with other sources of information to better understand compliance behavior.

VMS positions can be efficient in identifying possible illegal fishing activity and can provide a basis for further investigation by one or more of the traditional enforcement measures. VMS positions in themselves can also be used as the basis for an enforcement action. The positions may also be used to established "probable cause" before pursuing some types of investigations, for example, in obtaining a search warrant. While not being evidence of sufficient significance by itself, VMS position data could provide sufficient evidence to lead an officer to believe that an illegal act had occurred that warrants further investigation.

Expansion of the VMS program clearly supports an enforcement mission and may also have indirect benefits to Homeland Security activities. Increased border security correlates directly with increased risk within our EEZ and along our coast line for illegal entry. In March 2002, the "Citizen Corps" initiative was announced, which includes the expansion of "Neighborhood Watch" to include the participation of ordinary citizens in detecting and preventing terrorism. Under "Coastal Watch", the Coast Guard requests fishers to report suspicious activities for investigation and intelligence purposes. Critical decisions on the deployment of enforcement assets could be based on VMS position reports. Satellite communication

could also update essential information during a law enforcement response. Investigative methodologies could be enhanced via surveillance data maintained within VMS, such as easily identifying potential witnesses to incidents, locating U.S. vessels in areas of suspicious activity for assistance and support and increased intelligence gathering capabilities. By expanding the number of U.S. fishing vessels operating with VMS, NOAA and fishers are expanding the capability to detect and prevent terrorism and other criminal activity in the EEZ. VMS also supports the Coast Guard's "Coastal Watch" initiative, which was developed in response to their homeland defense activities.

Comparison of the Alternatives

VMS would not replace or eliminate traditional enforcement measures such as aerial surveillance, boarding at-sea via patrol boats, landing inspections and documentary investigation. Traditional enforcement measures may need to be activated in response to information received via the VMS. Because the level of VMS coverage in the open access fleet varies between the alternatives, the degree to which a VMS program would aid enforcement in identifying vessels that are legally operating in the conservation areas from those that are fishing illegally or benefit enforcement in conducting further investigations would depend on the proportion of vessels required to carry and use VMS as well as the amount of time the vessels engage in fisheries in areas where the RCA restrictions or other area restrictions (such as OA incidental target fisheries or habitat protection area) apply.

Alternative 1 requires exempted trawl vessels to provide declaration reports prior to leaving port on a trip in which fishing occurs in an RCA. The greatest difficulty in maintaining the integrity of closed areas and the least efficient use of limited state and federal enforcement resources occurs under status quo, Alternative 1. Alternative 2 maintains the provisions of status quo, but adds the VMS and declaration reporting requirements for approximately 165 longline vessels (131 directed groundfish, 31 Pacific halibut, 1 California halibut, and 2 HMS vessels) using longline gear to take and retain, possess or land groundfish. Of the alternatives that require VMS, Alternative 2 requires the smallest proportion of the open access fleet (only vessels using longline gear) to have and use VMS. In recent years, the directed halibut fishery south of Point Chehalis has occurred in 3-6 one day 10 hour long openings per year. Given the duration of the directed halibut fishery, requiring the Pacific halibut vessels that retain groundfish to have VMS would provide minimal additional position data for enforcement purposes. Some fishers, those who do not otherwise fish in the groundfish fishery and land less than $1,000 in incidentally caught groundfish caught during the primary halibut season, would likely choose to discard incidentally caught groundfish, rather than incur the cost of VMS and the burden of installation. Between 2000 and 2003 , an annual average of only 2 HMS longline vessels landed incidental groundfish. HMS longline gear is currently not permitted in the EEZ off the West Coast; therefore, no additional HMS vessels over those affected by status quo would be included as a result of Alternative 2. Because the fishery occurs outside the RCA, HMS longline vessels would transit through the RCA and therefore pose a minimal risk to the integrity of the RCAs. Monitoring HMS longline vessels in relation to the RCA requirements is a lower priority to enforcement.

Alternative 3 includes the same vessels as Alternative 2, but adds the VMS and declaration reporting requirements for vessels using pot gear that take and retain, possess or land OA groundfish. Approximately 293 vessels, those identified under Alternative 2 plus approximately 128 vessels using pot gear (30 directed, 45 Dungeness crab, 8 prawn, 8 CA sheephead, and 37 CA halibut) would be included under Alternative 3. A small proportion of the Dungeness crab vessels, less than 10 percent (45 vessels per year), actually land the groundfish incidentally taken during the Dungeness crab season. The Dungeness crab fishery primarily occurs in depths between 5-100 fathoms of water. When the nontrawl RCAs extend from shore to 100 fm, as they are proposed for 2005 in the area North of 46°16' N. lat, the Oregon-Washington border, any groundfish retained by a pot vessel fishing for Dungeness crab would be required to have been caught the groundfish seaward of the 100 fm line. In addition, regulations prohibit vessels from fishing both shoreward and seaward of the RCA on the same trip. VMS could be used to determine if all fishing on a trip in which groundfish was retained occurred seaward of the RCA, or if fishing actually occurred within the RCA. Because few if any vessels target Dungeness crab offshore of 100 fm, the proposed action is expected to affect few if any Dungeness crab vessels that only fish in

waters off the state of Washington. For the coast south of the Oregon-Washington border, the proposed open access nontrawl RCA areas are defined by a shoreward fm curve that is seaward of areas where Dungeness crab fishing occurs. VMS would aid enforcement in maintaining the integrity of the shoreward boundary.

The California nearshore fisheries includes vessels that use traps or pot gear to harvest species managed under the groundfish plan as well as non-groundfish such as California Sheephead and Scorpionfish. Of the 37 vessels per year that landed sheephead, all 37 vessels retained open access groundfish. Because the nearshore fishery primarily occurs in state waters, it is likely that many of the vessel that only fish in state waters and would not be subject to the VMS requirements proposed under Alternatives 3-7; therefore, no VMS position data would be available to enforcement from these vessels. The open access nontrawl RCA between 40°10 and 34°27 N. lat. has a seaward boundary of 150 fm year round and a shoreward boundary of 20 fm during the summer (May-August) and 30 fm for the remainder of the year. Similarly, the proposed open access nontrawl RCA south of 34°27 N. lat. has a seaward boundary of 150 fm year round and a shoreward boundary of 60 fm throughout the year. When the shoreward boundary is deeper than 20 fm, it is likely that some vessels will enter the EEZ to fish and be required to carry VMS for the remainder of the year. During the period when the fishery is constrained to 20 fm, there may be a greater incentive for some fishers to harvest nearshore species in deeper water. VMS would be an effective deterrent to illegal fishing in the RCA's. Traditional enforcement measures will likely continue to be the dominant enforcement tool used for monitoring the integrity of the RCA's shoreward line, particularly north of 34°27 N. lat. In the area south of 34°27 N. lat, there may be more incentive for vessels to fish in the EEZ because the shoreward boundary of the RCA extends further into the EEZ.

Alternative 4 includes the same vessels as Alternative 3, but adds the VMS and declaration reporting requirement for approximately 334 vessels, those identified under Alternatives 2 and 4 plus 18 ridgeback prawn, 6 sea cucumber and 17 California halibut vessels using exempted trawl gear (excludes pink shrimp vessels). During the period when the fishery south of 40°10 N. lat. is constrained to 75 fm there may be a greater incentive for some fishers to harvest in deeper water. Having VMS would be expected to be an effective deterrent and aid enforcement in maintaining the integrity of the shoreward line of the RCAs.

Alternative 5A includes the same vessels as Alternative 4, but adds the VMS and declaration reporting requirements for approximately 1,189 vessels, those identified under Alternatives 2,3,and 4 plus 738 directed groundfish, 105 California halibut, and 12 HMS vessels using line gear to take and retain, possess or land groundfish(excludes salmon troll vessels). During the period when the fishery is constrained to 20 fm there may be a greater incentive for some fishers to harvest in deeper water. VMS would be an effective deterrent to illegal fishing in the RCAs. As stated above, traditional enforcement measures will likely continue to be the dominant enforcement tool used for monitoring the integrity of the RCAs shoreward line, particularly north of 34°27 N. lat. In the area south of 34°27 N. lat, there may be more incentive for vessels to fish in the EEZ because the shoreward boundary of the RCA extends further into the EEZ.

The inclusion of line vessels more than triples the number of vessels that would be required to have and use VMS. Though this is a large increase in vessels, the system developed for limited entry vessels already has the capacity to process these position data. Including most vessels in the VMS program could be expected to result in time savings for officers in the field and allow them time to conduct more focused investigations than would otherwise possible. Alternative 5B, includes 1,307 vessels, which is slightly more vessels than 5A because 177 salmon troll vessels are added under this alternative, though 14 HMS and 45 Dungeness crab vessels would not be included.

In general, VMS is an efficient enforcement tool for monitoring if a fishing trip occurred entirely inside or outside and RCA. Using VMS in this way would allow enforcement to determine which cumulative trip limits applied to a particular vessel. However, for salmon troll vessels north of 40°10 N. lat., there has been an allowance to retain yellowtail rockfish only on a trip that occurred both inside and outside and

RCA. VMS would be most suited for monitoring cumulative trip limits of groundfish species other than yellowtail rockfish taken and retained by salmon troll vessels north of 40°10 N. lat.

Alternative 6, which applies to any vessel engaged in commercial fishing to which a RCA restriction applies, includes the largest number of open access vessels, 1,396 vessels. Therefore, Alternative 6 would provide the largest amount of data for enforcement purposes. Alternative 6B, affects approximately 43 fewer vessels annually than does Alternative 6A, 1,353 vessels. Alternative 7, is essentially the same as Alternative 6A, 1,374 vessels, because it applies to the same vessels except that vessels less than 12 feet in length would be excluded. Most if not all of the 22 vessels that are under 12 feet in length are unlikely to fish in Federal waters and would therefore not trigger the VMS requirement.

In summary, the availability of information needed by enforcement to efficiently maintain the integrity of conservation areas would be greatest under Alternatives 6A and 7, and would provide the most amount of information on fishing locations for the greatest number participants, followed by 6B and then 5B. Alternatives 5B-7 will allow enforcement resources to be used efficiently to maintain the integrity of RCAs and may also be available to support salmon fishery area management measures. Under Alternatives 2-7 data position data may also be available to support enforcement actions for time area management of various state fisheries.

SOCIO-ECONOMIC ENVIRONMENT - COMPARISON OF THE ALTERNATIVES	
FISHERY MANAGEMENT	Changes to how the fisheries are managed as a result of the collection of VMS position data
Alternative 1 Status quo	Direct impact The use of area management regulations may need to be simplified, or buffers around closed areas added so the integrity of closed areas can be maintained. The use of management regulations that limit the duration or number of trips are less likely to be considered without adequate monitoring mechanisms. Indirect impact Little position and effort data available from OA fisheries. Without adequate position and effort data, the use of observer and survey data for refining OA fishery total catch estimates for inseason management is very limited. Non-groundfish fisheries continue to occur in RCA, but incidental groundfish landings other than yellowtail rockfish north of 40°10' N. lat. cannot be retained or landed. Similarly, If a vessel fishes in the RCA on a trip, groundfish cannot be retained from areas outside the RCAs on the same trip. Some vessels: may misreport catch for areas other than where it was caught.
Alternative 2 Vessels using longline gear	Direct impact VMS would allow for greater flexibility in the use of management rules with geographical areas restrictions including: seasonal access, closed areas, depth restrictions, limited by duration, or number of trips for approximately 165 vessels (131 directed groundfish, 31 Pacific halibut, 1 CA halibut, and 2 HMS OA vessels) using longline gear to take and retain, possess or land OA groundfish. VMS is likely to deter the misreporting of catch taken with longline gear for areas other than where fish were caught and thereby helping to maintain the integrity of data used for groundfish management decisions and possibly Pacific halibut management. Indirect impact Increased OA longline position and effort data could be used along with declaration reports, observer data, survey information, and fish ticket data to better refine estimates of total fishing mortality and improve the ability to manage the fishery inseason to stay within the harvest guidelines and OYs. VMS may result in increased bycatch and lost landings data if incidental groundfish catch by Pacific halibut vessels is not retained. The added cost of VMS may result in Pacific halibut vessels choosing to not retain groundfish to avoid VMS requirements, particular 31 vessels with less than $1,000 of annual revenue from groundfish. HMS longline gear is currently prohibited in EEZ.
Alternative 3 Vessels using longline or pot gear	In addition to impacts identified under Alt. 2: Direct impact VMS would allow for greater flexibility in the use of management rules for approximately 128 vessels (30 directed, 45 Dungeness crab, 8 prawn, 8 CA sheephead, and 37 CA halibut vessels) using pot gear that take and retain, possess or land OA groundfish. Likely to deter misreporting of catch taken with pot and longline gear for areas other than where fish were caught and thereby help to maintain the integrity of data used for groundfish management decisions and possibly Dungeness crab, prawn, and CA nearshore species management. Indirect impact Increased longline and pot position and effort data could be used along with declaration reports, observer data, survey information, and fish ticket data to better refine estimates of total fishing mortality and improve the ability to manage the fishery inseason to stay within the harvest guidelines and OYs. The added cost of VMS may result in vessels choosing to not retain groundfish to avoid VMS requirements, particular those vessels in incidental fisheries that are averaging less than $1,000 of annual revenue from groundfish.

Alternative 4 Vessels using longline, pot or trawl gear, except pink shrimp trawl	In addition to impacts identified under Alt. 2 and 3: Direct impact VMS would allow for greater flexibility in the use of management rules for approximately 18 ridgeback prawn, 6 sea cucumber and 17 CA halibut OA vessels using exempted trawl gear take and retain, possess or land OA groundfish. Likely to deter misreporting of catch taken with pot and longline gear for areas other than where fish were caught and thereby help to maintain the integrity of data used for groundfish management decisions and possibly prawn, sea cucumber, and CA halibut management. Indirect impact Increased longline, pot and exempted trawl position and effort data could be used along with declaration reports, observer data, survey information, and fish ticket data to better refine estimates of total fishing mortality and improve the ability to manage the fishery inseason to stay within the harvest guidelines and OYs. The added cost of VMS may result in trawl vessels choosing to not retain groundfish to avoid VMS requirements, particular those vessels in incidental fisheries that are averaging less than $1,000 of annual revenue from groundfish.
Alternative 5A Vessels using longline, pot, trawl or line gear, except: pink shrimp trawl and salmon troll.	In addition to impacts identified under Alt. 2, 3, and 4: Direct impact VMS would allow for greater flexibility in the use of management rules for approximately 855 vessels (738 groundfish, 105 CA halibut , and 12 HMS vessels) using line gear to take and retain, possess or land OA groundfish. Likely to deter misreporting of catch taken with pot and longline gear for areas other than where fish were caught and thereby helping to maintain the integrity of data used for groundfish management decisions and possibly HMS and CA halibut management. Indirect impact Increased longline, pot and exempted trawl position and effort data could be used along with declaration reports, observer data, survey information, and fish ticket data to better refine estimates of total fishing mortality and improve the ability to manage the fishery inseason to stay within the harvest guidelines and OYs. The added cost of VMS may result in line vessels choosing to not retain groundfish to avoid VMS requirements, particular those vessels in incidental fisheries that are averaging less than $1,000 of annual revenue from groundfish.
Alternative 5B Vessels using longline, pot, trawl or line gear, except: pink shrimp trawl, HMS longline & line, and Dungeness crab pot gear.	Direct impact VMS would allow for greater flexibility in the use of management rules as identified under Alt. 2, 3 and 4, except Dungeness crab and HMS vessels would not be included, but approximately 177 salmon troll vessels that take and retain, possess or land OA groundfish would be included. VMS is likely to deter misreporting of groundfish catch for areas other than where fish were caught by vessels identified under Alt. 2, 3, 4, and 5A (excluding Dungeness crab pot gear, HMS line gear, HMS longline gear) plus salmon troll vessels, and thereby will help to maintain the integrity of data used for groundfish management and possibly salmon management. Indirect impact VMS data from vessels identified under Alt. 2, 3, 4, and 5A (excluding Dungeness crab and HMS vessels) plus approximately 241 salmon troll vessels could be used along with declaration reports, observer data, survey information, and fish ticket data to better refine estimates of total fishing mortality and improve the ability to manage the fishery inseason to stay within the harvest guidelines and OYs. The added cost of VMS may result in vessels choosing to not retain groundfish to avoid VMS requirements, particular vessels in incidental fisheries that are averaging less than $1,000 of annual revenue from groundfish.

Alternative 6A Vessels with RCA restrictions	Direct impact VMS would allow for greater flexibility in the use of management rules for: 214 vessels using longline gear as identified under Alt. 2 except that all 49 Pacific halibut vessels are included; 128 vessels using pot gear identified under Alt. 3; all vessels using trawl gear (approximately 32 ridgeback prawn, 14 Sea cucumber, and 34 California halibut vessels); 1,032 vessels using line gear as identified under Alt. 5B (includes salmon troll coastwide) to take and retain, possess or land OA groundfish; 3 vessels using net gear (approximately 3 CPS vessels); and 4 vessels using other OA gears. Likely to deter misreporting of groundfish catch for areas other than where fish were caught and thereby helping to maintain the integrity of data used for groundfish management and possibly salmon management. Indirect impact Increased position and effort data from: vessels using longline gear as identified under Alt. 2 except that all 49 Pacific halibut vessels are included; 128 vessels using pot gear identified under Alt. 3; all vessels using trawl gear (approximately 32 ridgeback prawn, 14 Sea cucumber, and 34 California halibut vessels); 1,032 vessels using line gear as identified under Alt. 5B (includes salmon troll coastwide) to take and retain, possess or land OA groundfish; vessels using net gear (approximately 3 CPS vessels); and 4 vessels using other OA gears. Data could be used along with declaration reports, observer data, survey information, and fish ticket data to better refine estimates of total fishing mortality and improve the ability to manage the fishery inseason to stay within the harvest guidelines and OYs. The added cost of VMS may result in vessels choosing to not retain groundfish to avoid VMS requirements, particular vessels in incidental fisheries that are averaging less than $1,000 of annual revenue from groundfish.
Alternative 6B Vessels with RCA restrictions except salmon troll north that retain only yellowtail rockfish	Direct impact VMS would allow for greater flexibility in the use of management rules for slightly fewer vessels than those identified under Alt. 6A, because salmon troll vessels fishing north of 40°10' N. lat. that only land yellowtail rockfish would be excluded. Deterrent effect for misreporting of catch for areas other than where fish were caught is slightly less than Alt.6A. Indirect impact VMS would decrease position and effort data for slightly fewer vessels than those identified under Alt. 6A, because salmon troll vessels fishing north of 40°10' N. lat. that only land yellowtail rockfish would be excluded. Fewer salmon vessels would be expected to discard groundfish to avoid VMS requirements.
Alternative 7 Vessel >12 ft with RCA restrictions	Direct impact VMS would allow for greater flexibility in the use of management rules for slightly less vessels than those identified under Alt. 6A. Approximately 22 vessels under 12 ft in length would be excluded. Deterrent effect for misreporting of catch for areas other than where fish were caught is slightly less than Alt. 6A. However, few if any of these vessels are expected to fish in Federal waters. Indirect impact Similar to those impacts identified under Alt.6A. because 22 vessels under 12 ft in length would be excluded. Few if any of these vessels are expected to fish in Federal waters.

4.3.2 Fishery Management

Direct impacts on fishery management actions includes changes in the availability of information that directly aids fishery managers in administering time/areas restrictions. These restrictions typically include: seasonal access restrictions to a resources, closed area management, depth restrictions, trip duration restrictions, or limits on the number trips. Deterring misreporting of catch for areas other than where fish were caught is also a direct effect on management because accurate information is needed to maintain the integrity of data used for management decisions made during the fishing season.

When there is a high degree of error or potential non-compliance associated with time/area restrictions, meeting management objectives is more difficult. Therefore, managers must be more conservative in order to meet harvest objectives. Having greater flexibility in the use of management rules with time/areas restrictions is advantageous because it allows managers to deal with harvest issues on a refined level, rather than having to be more conservative to buffer for greater error or potential non-compliance. If problems can be identified early, prompt action can be taken to minimize the impacts on the groundfish fleet or the stock. For example, if fishing effort by some or all sectors of the fishery shifts to areas where data indicates that higher bycatch are likely, preseason projections may be inaccurate. If managers can identify such shifts, they may be able to restrict access to areas of high bycatch to keep overall catch within the harvest specifications.

Some mis-reporting and transcription errors can be addressed using VMS. Misreporting of catch directly undermines efforts to manage fisheries properly and impedes progress toward the goal of sustainable fisheries. Deterring the misreporting of catch taken in areas other than where fish were caught helps to maintain the integrity of data used for management decisions.

When linked with a personal computer, lap top or data terminal, VMS systems with 2-way communications (currently 2-way systems are not required in the groundfish fishery) can provide commercial fishers with the opportunity to report catch information electronically to home offices and fisheries managers. Under VMS, detailed commercial catch data and details of specific areas fished (provided by GPS) could be recorded using on-board computers or a mobile terminal and transmitted directly to a central database. The central database could be programmed to analyze the aggregate data from all vessels as it is received, thereby enabling the performance of the fishery to be monitored in 'real time', allowing more effective and timely fisheries management strategies to be developed. Satellite technology has the potential to quickly transform fisheries management from being reactive, based on limited historical data, to a pro-active process involving decisions based on analysis of real time data about the fishery. Fisheries management strategies are underpinned by catch data supplied by fishers and processors. There is usually a substantial delay before fish tickets, the primary information source to assess fishing activities, is received, analyzed and available in a format suitable for use by fisheries managers.

Indirect impacts on fishery management include change is the availability of information used as a basis for making management recommendations and decision that are more distant in time. VMS position data along with data from other sources may be combined and analyzed to better understand the effectiveness of management actions at achieving the intended results and to make recommend for future measures.

Typically, fisheries management rules are designed to achieve sustainable and profitable fishing through a variety of methods. This usually includes some form of licensed vessel access to particular areas, restrictions on gear types, restrictions on fishing time, quotas on the amounts of particular species which may be caught, etc. Fishery management is most effective when catch in the fishery can be quantified and measured. This means measuring the quantity of fish being caught and identifying the place where the fish are caught. VMS does not provide information on the quantity of fish being caught nor does the system being proposed for the open access groundfish fishery require that the VMS system be used as a means of communicating catch information, though some VMS transceivers can be used as a communication tool. VMS does, however, clearly make it possible to improve the availability of data in relation to the location of fish catch.

Data gathered from commercial fisheries are needed to assess the effectiveness of management regulations. Logbooks, landing surveys, VMS, and observers are different fishery dependent methods used to collect data on harvest location. Interception at sea by an independent vessel can also be used to

obtain harvest location data. The cost of collecting data directly from fishery participants tends to be lower than collecting the data from an independent source. This is because it is a byproduct of the fishing activity. Some forms of fishery dependent data, particularly unverified logbooks and landing surveys, are more subject to bias than other methods and their collection and use in measuring the effectiveness of management measures requires added care such as verification procedures. Alternatives 2 -7 provide for expanded VMS coverage that has the potential of producing reliable and useful position data for assessing the effectiveness of open access fishery management measures relating to time and area management. At a minimum, the data can be used to efficiently monitor fishing location and to verify times and dates for the open access fleet where logbook data is generally not available. It can also be used to provide information on days at sea and effort by area. When combined with observer data, broader interpretations of position data may be possible.

Understanding where fishing effort is occurring in real time may provide insight into understanding information reported on fish tickets and be useful in understanding how management measures affect fishing behavior. Knowing where a vessel is fishing as compared to where the catch is being landed, may be valuable in assessing the effectiveness of trip limit management lines and differential trip limits. The data provided by VMS are cost effective and accurate over large geographical areas. Accurate and timely data on fishing locations are necessary to assess effectiveness of closed areas and the overall results of the management scheme.

VMS data can be combined with observer data to assess the effectiveness of management measures. However, the value in combining observer data with VMS data for non-enforcement purposes depends on the amount of observer data on catch and discards that is available from the different gears and fishing strategies. At this time, there is little data on the open access fisheries. In the long term, when observer data becomes available, VMS may provide information that results in a better understanding of fishery location and a spacial understanding of fish stocks.

As noted above, electronic logbooks have been developed that can be integrated with VMS transceivers with two-way communications. If electronic logbooks could be combined with a VMS system for all or a portion of the open access fisheries, there would be several indirect benefits to management and to the quality and availability of information on which management decisions are based. First, there is only a single data entry function and this can be performed very soon after each fishing operation is completed (at-sea or shoreside depending on the individual fishery). Paper logbooks must first be filled out by the fisher and then submitted to a government agency for data entry before logbook data can be used. In performing the data entry function, the fisher will interact directly with the editing checks for the data and a more complete and accurate data record can be required before the data record is accepted by the computer system. Having electronically recorded the data, the operator may produce a hard copy and also transmit the data to the fisheries agency or other recipients such as the fishing company, allowing that data to be easily incorporated into appropriate databases. As a result, improvements in timeliness, accuracy and reduced costs are possible. When the data is in the database and available to be analyzed, it can be used to improve the ability of managers to measure the effectiveness and economic impacts of management measures.

Comparison of the Alternatives

Alternative 1 requires exempted trawl vessels to provide declaration reports prior to leaving port on a trip in which fishing occurs in an RCA. Under Alternative 1, the least amount of data would be available to support a flexible management regime or to deter misreporting of catch. However, this is the alternative that is most likely to result in incidentally caught groundfish being retained because the added cost for retaining incidentally caught groundfish is minimal and may be used to offset the cost of the fishing trip for the target species. Alternative 2 maintains the provisions of status quo, but adds the VMS and declaration reporting requirements for approximately 131 directed groundfish, 31 Pacific halibut, 1 California halibut, and 2 HMS vessels using longline gear to take and retain, possess or land OA groundfish. Of the alternatives that require VMS, Alternative 2 requires the smallest proportion of the open access fleet (only 165 vessels using longline gear) to have and use VMS. On average between 2000 and 2003, the longline gears landed the greatest amount of gorundfish by weight of any of the OA sectors.

Alternative 3, includes the same vessels as Alternative 2, but adds the VMS and declaration reporting requirements for approximately 128 vessels (30 directed, 45 Dungeness crab, 8 prawn, 8 CA sheephead,

and 37 CA halibut vessels) using pot gear to take and retain, possess or land OA groundfish. Therefore, Alternative 3 would provide more data than Alternative 2; however, it would provide less data than Alternative 4. Alternative 4 includes the same vessels as Alternative 3, but adds the VMS and declaration reporting requirement for approximately 18 ridgeback prawn, 6 sea cucumber and 17 California halibut vessels using exempted trawl gear (excludes pink shrimp vessels) to take and retain, possess or land OA groundfish. Alternative 5A includes the same vessels as Alternative 4, but adds the VMS and declaration reporting requirements for approximately 738 vessels groundfish, 105 California halibut, and 12 HMS vessels using line gear to take and retain, possess or land groundfish(excludes salmon troll vessels). Alternative 5B, includes slightly more vessels than 5A because the number of salmon troll vessels that would be added under this alternative is greater than the number of HMS and Dungeness crab vessels that would not be included. Though Alternative 5B does not include vessels in fisheries that are projected to have minimal impacts on overfished species (12 HMS line and 2 longline, 45 Dungeness crab pot), it includes approximately 177 salmon troll vessels.

Alternative 6A, which applies to any vessel engaged in commercial fishing to which a RCA restriction applies, includes the largest number of open access vessels. Therefore Alternative 6 would provide the most VMS data and would support the most flexible management regime and would likely deter misreporting of catch location. The added cost of VMS is likely to result in most fishers not retaining groundfish so as to avoid the VMS requirements. Table 4.3.2.1 shows the proportion of vessels by gear group that averaged less than $1,000 in annual exvessel revenue from groundfish. These are fishers that could be expected to avoid the VMS requirement. However, it must be noted that these values are based on averages. For any given vessel, the catch may be higher or lower than the average. Annual exvessel revenue for all species revenue for many of the incidental fisheries was substantially higher for most fisheries (Table 4.3.3.5). Some fishers making less than $1,000 may speculate that others will leave the fishery and trip limits will increase, so they will pay for VMS and continue to retain groundfish. It must be noted that some unknown number of fishers with annual exvessel revenue of groundfish that is greater than $1,000 will also likely drop out of the fishery, much of the decision will be based on their expected catch of groundfish and the added cost of catching that groundfish. Alternative 6B, affects approximately <134 vessels annually than does Alternative 6A, all of whom use salmon troll gear north of 40°10' N. lat. and retain only yelloweye rockfish. Alternative 7, is almost the same as Alternative 6A because it applies to the same vessels except that vessels less than 12 feet in length would be excluded. Most if not all vessels under 12 feet in length are not expected to fish in Federal waters and would therefore not trigger the VMS requirement.

Table 4.3.2.1 Open Access incidental fisheries, proportion of vessels by gear with average annual exvessel values of catch less than $1,000, 2000-2003

Gear	Proportion of vessels with less than $1,000 annual exvessel revenue from groundfish
Longline	
Pacific Halibut	68%
California Halibut	100%
Pot	
Dungeness crab	62%
Prawn	75%
California Sheephead	88%
Trawl	
Ridgeback prawn	72%
Sea cucumber	100%
California halibut	76%
Line	
HMS	83%
Salmon troll (coastwide)	99%
California halibut	99%
Net	
CPS	100%
Other gears	
Mixed	100%

SOCIO-ECONOMIC ENVIRONMENT - COMPARISON OF THE ALTERNATIVES	
HARVESTERS & PROCESSORS	Changes in fishery participation costs and groundfish revenue as a result of the requirement to carry and use VMS.
Alternative 1 Status quo	Direct impacts No change in fishery participation costs for harvesters. If the use of area management regulations is simplified, or buffers around closed areas added; so the integrity of closed areas can be maintained, fishers will likely encounter increased costs from fishing in areas where catch rates are lower. Because enforcement has less ability to target enforcement activities, vessels without VMS or declaration reports may be the subject of more investigations and boardings than vessels with VMS or those providing declaration reports. Indirect impacts Potential future groundfish catch levels may be reduced and stability in the fishery may be decreased if non-compliance with depth-based management measures results in higher than projected of overfished species catch.
Alternative 2 Vessels using longline gear	Direct impacts: Per vessel costs for a transceiver unit with installation are $1,200-$2,700 in Year 1, and $250-$625 in subsequent years. Annual operating cost to harvesters include: maintenance $60-$160 and transmission fees $192-$730. Fishers who land groundfish taken incidentally in non-groundfish fisheries and fishers who are less dependent on groundfish may choose to exit the fishery by not retaining groundfish or by not targeting groundfish. Approximately 131 directed groundfish, 31 Pacific halibut, 1 CA halibut, and 2 HMS vessels using open access longline gear that make less than $1,000 in annual revenue from groundfish would likely leave the open access groundfish fishery. An unknown portion of directed groundfish vessels using longline gear to take and retain, possess or land groundfish may choose to change gears to pot or line gear avoid VMS requirements. Estimated purchase cost of VMS services to the fishing industry if all vessels remain in the fishery is $249,150-$756,690 year 1, $51,150 - $129,690 in subsequent years. Greater flexibility in the use of management rules with geographical areas restrictions allows greater access to healthy stocks than would otherwise be allowed. Indirect impacts: Potential for future increases in groundfish catch levels could offset short-term economic loss associated with VMS if increased stability in the fishery results because the integrity of RCAs is maintained. Benefits of fishery stability would likely be greatest for fishers with high degrees of dependency on groundfish. If less dependent vessels leave the fishery groundfish, landings limits for healthy stocks could potentially increase for fishers remaining in the fishery. Vessels that purchase VMS units with 2-way communications could choose to use email communications to market catch that would otherwise be discarded at sea. If this were to occur, it could lead to greater efficiencies in seafood marketing and reduced discards for approximately 131 directed groundfish, 31 Pacific halibut, 1 CA halibut, and 2 HMS vessels using open access longline gear. If a large portion of the fishery chose to use 2-way communications to contact a broader range of buyers and coordinate deliveries or to negociate purchase prices, it could result in shift in the processing sector. Processors buying low volumes of groundfish from a large number of fishers who each land small amounts, such as occurs in the live-fish fisheries, may have difficulty obtaining groundfish if the number of fishers who choose to exit the fishery is substantial in a given port.

Alternative 3 Vessels using longline or pot gear	Direct impact: Per vessel costs are the same as Alt. 2. In addition to Alt. 2, approximately 128 vessels (30 directed, 45 Dungeness crab, 8 prawn, 8 CA sheephead, and 37 CA halibut vessels) using pot gear that make less than $1,000 in annual revenue from groundfish would likely leave the open access groundfish fishery. An unknown portion of directed groundfish vessels using pot gear may choose to change to line gear to avoid VMS requirements. Estimated purchase cost of VMS services to the fishing industry if all vessels remain in the fishery is $442,430 - 1,343,699 in year 1, and $90,830-$230,298 in subsequent years. Greater flexibility in the use of management rules with geographical areas - slightly greater benefit than Alt. 2 because both longline and pot vessels that take and retain, possess or land groundfish are included. Indirect impact: Potential for future increases in groundfish catch levels slightly increased over Alt. 2., because likelihood of RCA integrity being maintained is increased when both longline and pot vessels that take and retain, possess or land groundfish are included. Benefits of fishery stability would be greatest for fishers with high degree of dependency on groundfish. Potential benefits of marketing efficiencies and potential shift in processing sector is as identified under Alt. 2 plus approximately 128 vessels using pot gear could choose to use VMS communications as marketing tool. Risk to low volume processors, slightly greater than Alt. 2
Alternative 4 Vessels using longline, pot or trawl gear (except pink shrimp)	Direct impact: Per vessel costs are the same as Alt.2. In addition to Alt. 2 and 3, approximately 18 ridgeback prawn, 6 sea cucumber and 17 CA halibut vessels using exempted trawl gear that make less than $1,000 in annual revenue from groundfish would likely leave the open access groundfish fishery. Estimated purchase cost of VMS services to the fishing industry if all vessels remain in the fishery is $504,340 -$1,531,724 in year 1, and $103,540 -$262,524 in subsequent years. Greater flexibility in the use of management rules with geographical areas - slightly greater benefit than Alt. 3 because longline, pot, and exempted trawl (excluding pink shrimp) vessels that take and retain, possess or land groundfish are included. Indirect impact: Potential for future increases in groundfish catch levels slightly increased over Alt. 3., because likelihood of RCA integrity being maintained is increased when longline, pot, and exempted trawl (excluding pink shrimp) vessels are included. Benefits of fishery stability would be greatest for fishers with high degree of dependency on groundfish. Potential benefits of marketing efficiencies and potential shift in processing sector is as identified under Alt. 2 and 3 plus approximately 41 vessels using exempted trawl gear could choose to use VMS communications as marketing tool. Risk to low volume processors, slightly greater than Alt. 3

Alternative 5A Vessels using longline, pot, trawl or line gear, except: pink shrimp trawl and salmon troll.	Direct impact: Per vessel costs are the same as Alt.2. In addition to Alt. 2, 3, and 4, approximately 855 vessels (738 groundfish, 105 CA halibut, and 12 HMS vessels) using line gear to take and retain, possess or land groundfish that make less than $1,000 in annual revenue from groundfish would likely leave the fishery. Estimated purchase cost of VMS services to the fishing industry if all vessels remain in the fishery is $1,795,390 - 5,452,754 in year 1, and $368,590 - $934,554 in subsequent years. Greater flexibility in the use of management rules with geographical areas - slight greater benefit than Alt. 4 because longline, pot, exempted trawl (excluding pink shrimp), and line vessel (excluding salmon troll) that take and retain, possess or land groundfish are included. Indirect impact: Potential for future increases in groundfish catch levels slightly increased over Alt. 4., because likelihood of RCA integrity being maintained is increased when longline, pot, exempted trawl (excluding pink shrimp), and line vessel (excluding salmon troll) that take and retain, possess or land groundfish are included. Benefits of fishery stability would be greatest for fishers with high degree of dependency on groundfish. Potential benefits of marketing efficiencies and potential shift in processing sector as identified under Alt. 2, 3 and 4 except that approximately 738 groundfish, 105 California halibut, and 12 HMS vessels using line gear to take and retain, possess or land groundfish could also receive potential benefits of marketing efficiencies and stability in the groundfish fishery. Risk to low volume processors, slightly greater than Alt. 4
Alternative 5B Vessels using longline, pot, trawl or line gear, except: pink shrimp trawl, HMS longline & line, and Dungeness crab pot gear.	Direct impact: Per vessel costs are the same as Alt.2. Vessels that make less than $1,000 in annual revenue from groundfish would likely leave the fishery. Estimated purchase cost of VMS services to the fishing industry if all vessels remain in the fishery is $1,973,570 - $5,993,902 in year 1, and $405,170 - $1,027,302 in subsequent years. Greater flexibility in the use of management rules with geographical areas - slight greater than Alt. 5A because longline, pot, exempted trawl (excluding pink shrimp), and line vessels that take and retain, possess or land groundfish are included. HMS and Dungeness crab vessels are not projected to have overfished species catch in 2005; therefore excluding them would likely result in minimal if any changes to overfished species management flexibility. Indirect impact: Potential for future increases in groundfish catch levels slightly increased over Alt. 5A., because likelihood of RCA integrity being maintained is increased when longline, pot, exempted trawl (excluding pink shrimp), and line vessels that take and retain, possess or land groundfish are included. Salmon troll vessels have a greater potential of taking constraining overfished species than do the Dungeness crab and HMS vessels that would be excluded under this alternative. Benefits of fishery stability would be greatest for fishers with high degree of dependency on groundfish. Potential benefits from marketing efficiencies and stability in the groundfish fishery as identified Alt. 2, 3, 4 and 5A, except Dungeness crab and HMS vessels, but for an additional 241 salmon troll vessels. Risk to low volume processors, slightly greater than Alt. 5A because salmon troll vessels are included

Alternative 6A Vessels with RCA restrictions	Direct impact: Per vessel costs are the same as Alt.2. Vessels making less than $1,000 in annual revenue from groundfish would likely leave the fishery. Estimated purchase cost of VMS services to the fishing industry if all vessels remain in the fishery is $2,148,730-$6,525,878 in years 1 $441,130 - $1,118,478 in subsequent years. Greatest flexibility in the use of management rules with geographical areas because all longline, pot, exempted trawl (excluding pink shrimp), and line vessel that have RCA restrictions would be included. Unlike 5B, all exempted trawl vessels would be included rather than only those that take and retain, possess or land groundfish. Indirect impact: Potential for future increases in groundfish catch levels is greatest under this alternative, because likelihood of RCA integrity being maintained in increased when all vessels that have RCA restrictions are included. Benefits of fishery stability would be greatest for fishers with high degree of dependency on groundfish. Potential benefits from marketing efficiencies and stability in the groundfish fishery as identified under Alt. 2, 3, 4, & 5A and all Pacific halibut directed fishery vessels, vessels using salmon troll gear to take and retain, possess or land groundfish, and all vessels using exempted trawl gear. Risk to low volume processors similar to 5B
Alternative 6B Vessels with RCA restrictions except salmon troll north that retain only yellowtail rockfish	Direct impact: Per vessel costs are the same as Alt.2. Vessels that are likely to leave the fishery is the same as Alt. 6A except that the number of salmon trollers that are likely to leave the fishery is slightly less than under Alt. 6A because vessels fishing north of 40°10' N. lat. that only land yellowtail rockfish would not be required to have VMS. The estimated purchase cost of VMS services to the fishing industry if all vessels remain in the fishery is $399,590-$1,013,154 in years 1, and $1,946,390 -$5,911,354 in subsequent years. Greater flexibility in the use of management rules with geographical areas (slightly less than 6A) because all longline, pot, exempted trawl (excluding pink shrimp), and line vessels (excluding salmon troll north of 40°10' N. lat. that only land yellowtail rockfish) that have RCA restrictions would be included. Unlike Alt.5B, all exempted trawl vessels would be included rather than only those that take and retain, possess or land groundfish. Indirect impact: Potential for future increases in groundfish catch levels is slightly less than to those identified under Alt. 6A; salmon troll vessels fishing north of 40°10' N. lat. that only land yellowtail rockfish would be excluded. Potential benefits from marketing efficiencies as identified under Alt. 6A, because salmon troll vessels fishing north of 40°10' N. lat. that only land yellowtail rockfish would be excluded. Risk to low volume processors greatest, but similar to 5B

Alternative 7 Vessel >12 ft with RCA restrictions	Direct impact: Per vessel costs are the same as Alt. 2. Vessels that are likely to leave the fishery is same as Alt. 6A plus than vessels less than 12 ft in length that make less than $1,000 in annual revenue from groundfish would likely leave the fishery. Estimated purchase cost of VMS services to the fishing industry if all vessels remain in the fishery is $2,115,510 - $6,424,986 in year 1, and $434,310 - $1,101,186 in subsequent years. Greater flexibility in the use of management rules with geographical areas because all longline, pot, exempted trawl (excluding pink shrimp), and line vessels >12 ft in length that have RCA restrictions would be included. Unlike Alt.5B, all exempted trawl vessels would be included rather than only those that take and retain, possess or land groundfish. Basically, same as 6A because it is unlikely that many, if any, of the 22 vessels that are < 12 ft in length fish in Federal waters. Indirect impact: Potential for future increases in groundfish catch levels is similar to those identified under Alt.6A because 22 vessels under 12 ft in length would be excluded. Few if any of these vessels are likely to fish in Federal waters. Potential benefits from marketing efficiencies similar to those identified under Alt.6A because 22 vessels under 12 ft in length would be excluded. Few if any of these vessels are expected to fish in Federal waters. Risk to low volume processors similar to 5B

4.3.3 Harvesters

Direct Impacts**:** While the primary focus of VMS, from a resource management perspective, is with the collection of position data to monitor compliance with depth-based area management, there are very clear benefits to industry from VMS. The most evident direct benefit to industry resulting from the availability of VMS information is the flexibility in fishery management, such as the use of depth-based management.

To allow for a more liberal depth-based management regime, as has been in place since 2003, it was necessary for the Council and NMFS to take action to establish a monitoring program to ensure the integrity of these large irregularly shaped depth-based conservation areas. With the 2003 Annual Specifications and Management Measures, the Council recommended along with depth-based management strategy, that NMFS include implementation of a VMS monitoring system to track movement of vessels through and within the RCAs. Without a depth-based management strategy, the fishery would be managed under more seriously constrained limits on healthy stocks that co-occur with overfished species. Geographically defined areas would likely revert to those that were in place before September 2002. These areas tended to be nearshore or defined by a simple latitude lines.

A more liberal depth-based management regime is only possible if the integrity of the depth-based conservation areas can be ensured. Maintaining the integrity of the conservation areas largely depends upon the ability to enforce such management measures. Without the ability to ensure the integrity of the conservation areas, it is most likely that the depth-based management strategy will be discontinued. If this were the case, the management structure for those fisheries without VMS could well revert back to more restrictive limits or no limits on healthy stocks in order to protect overfished species.

When linked with a personal computer, lap top or data terminal, VMS systems with 2-way communications (currently 2-way systems are not required in groundfish fishery). Two-way systems can provide commercial fishers with the opportunity obtain information from processors or home offices and to report catch information electronically to home offices and fisheries managers. Under VMS, detailed commercial catch data and details of specific areas fished (provided by GPS) could be recorded using on-board computers or mobile terminals and transmitted directly to a central database. The central database could be programmed to analyze the aggregate data from all vessels as it is received, thereby enabling the performance of the fishery to be monitored in 'real time', allowing more effective and timely fisheries management strategies to be developed. This provides potential cost savings for fishermen, particularly if fishery management transforms from being reactive to being a pro-active process involving decisions based on analysis of real time data about the fishery. Fisheries management strategies are underpinned by catch data supplied by commercial and recreational fishers. There is usually a substantial delay before this information is received, analyzed and available in a format suitable for use by fisheries managers and industry. Some mis-reporting and transcription errors can be addressed using VMS.

Cost burden: The cost burden of VMS includes the costs for installation, VMS transceiver unit, annual maintenance, replacement cost, cost to transmit hourly positions and declaration reports. Table 4.3.4.1 shows the estimated cost burden per vessel for VMS.

Table 4.3.3.1. Estimated burden, per vessel, for the VMS monitoring systems

	Alternative 1 Status quo	Alternatives 2-7 Cost per vessel for VMS and declaration reports
Installation - start up cost	$0	Minimal - not to exceed 4 hours or $200 Most are do-it yourself installation, manufacturer install approximately $200 do-it-yourself $120 5 min to complete installation report, $3 to send fax to NMFS
VMS transceiver/transponder unit - start up cost	$0	$1,000 - $2,500 ($3,800 if computer is added for 2-way communications including email)
Annual maintenance * Self * Professional	$0	2 hours or $60 per year 2 hours or $160 per year
Annual replacement costs (unit cost/years of service)	$0	$250-$625 per year (estimate based on 4 years of service)
Annual cost to transmit 24 hourly position reports	$0	$192-$730 ($15.99/mo-$2/day)
Annual cost to transmit exemption reports (4 min/rpt 2 per year)	$0	$0 (toll free call)
Annual cost to transmit declaration report (4 min/rpt- 12 time per year)	$0	$0 (toll free call)

Installation - The time burden for installation of the units is estimated at 4 hours per vessel, or $120. Personnel costs are estimated to be $30 per hour (Table 4.3.3.4.). The actual installation time for a VMS unit is estimated to be less than two hours, but a higher estimate of 4 hours/vessel is based on a worst case scenario where the power source (such as a 12 volt DC outlet) is not convenient to a location where the VMS unit can be installed. Most of the systems are do-it-yourself installations.

The installation of the Inmarsat-C Thrane units are do-it-yourself. The installation of software and attachment of a personal computer or lap top to an Inmarsat-C unit may also require dealer assistance. Satamatics and Orbcomm units can be self installed. However, vendor experience indicates that professional installations provide the best results for optimal unit performance.

Installation/Activation Report - Given that the VMS hardware and satellite communications services are provided by third parties as approved by NMFS, there is a need for NMFS to collect information on the individual vessel's installation in order to ensure that automated position reports will be received. This information collection would not increase the time burden for installation of VMS, but does require that a certification and checklist be returned to NMFS prior to using the VMS transceiver to meet regulatory requirements.

The checklist indicates the procedures to be followed by the installers. The VMS installer completes the NMFS issued checklist and signs the certification before returning it to NMFS. Signing the completed checklist shows that the installation was done according to the instructions and provides the Office of Law Enforcement with information about the hardware installed and the communication service provider that will be used by the vessel operator. Specific information that links a permitted vessel with a certain transmitting unit and communications service is necessary to ensure that automatic position reports will be received properly by NMFS. In the event that there are problems, NMFS will have ready access to a database that links owner information with installation information. NMFS can then apply troubleshooting techniques to contact the vessel operator and discern whether the problem is associated with the transmitting hardware or the service provider.

The time and cost burden of preparing and submitting installation information to NMFS is minor. Submission of a checklist would be required only for the initial installation or when the hardware or communications service provider changes. NMFS estimates a time burden of 5 minutes ($2.50 at $30 per hour) for completing the checklist and additional $3 for mailing/faxing to NMFS, for a total of $5.50 per occurrence (Table 4.3.3.4).

The ability for NMFS to ensure proper operation of the VMS unit prior to the vessel's departure will save time and money. The installation checklist and activation report are available over the internet website. These reports would be faxed or mailed to NMFS.

VMS transceiver unit On September 23, 1993, NMFS published proposed VMS standards at 58 FR 49285. On March 31, 1994, NMFS published final VMS standards at 59 FR 15180. These notices stated that NMFS endorses the use of VMS and defined specifications and criteria for VMS use. On September 8, 1998, NOAA published a request for information (RFI) in the Commerce Business Daily in which it stated the minimum VMS specifications necessary for NOAA's approval. The information was used as the basis for approving the mobile transceiver units and communications service providers for the Pacific coast groundfish fishery.

Units currently type approved for the Pacific Coast Groundfish Fishery are shown in (Table 4.3.3.2.) And include: Thrane and Thrane TT 3022D and 3026, Satamatics SAT101, and Stellar ST2500G. NMFS Type approved units are tested and approved by NMFS OLE. A list of VMS mobile transponder units and communications service providers approved by NOAA for the Pacific Coast groundfish fishery were published in the Federal Register on November 17, 2003 (68 FR 64860). Each time the list is revised, it will be published in the Federal Register. The cost of the transceivers currently type approved for the Pacific Coast groundfish fishery are shown in Table 4.3.3.2.

The North American Collection and Location by Satellite, Inc. (NACLS) is the sole service provider of the ArgoNet systems. The Argos Mar-GE and MAR-YX mobile transponder units costs $2,000. The ArgoNet MAR GE uses NOAA polar-orbiting satellites, and, as such, it is considered a NOAA Data Collection and Location System. The use of any NOAA Data Collection and Location System is governed by 15 CFR part 911. Under these regulations, the use of a NOAA Data Collection and Location System can be authorized only if it is determined that there are no commercial services available that are adequate. In addition, special provisions have been made because of cost effectiveness to the Government, resulting in a temporary approval (3 year approval was granted for the Atlantic pelagic longline fishery).

On June 10, 2002, 50 CFR 679.7(a)(18), required all vessels fishing in the Bering sea and Gulf of Alaska using pot, hook-and-line or trawl gear that are permitted to directly fish for Pacific cod, Atka mackerel or pollock to have an operable VMS transceiver. Vessels that also participate in the WOC fisheries (primarily limited entry vessels) qualified for reimbursements to the Argos MAR-GE as a result of their participation in the Alaska groundfish fishery. Allowing the use of Argos MAR-GE by WOC operating vessels that have purchased these units for participation in the Alaska groundfish fisheries would eliminate the cost of purchasing, installing and maintaining a second unit for these vessels. As of April 15, 2004(69 FR 19985) new provisions for the Alaska fisheries prohibit the installation of new Argos units. Replacement units will need to be compatible with the requirements of both fisheries or vessels will need to purchase separate units. Similarly, allowing vessels to use units they have already purchased for other business purposes, providing they are a type-approved model with the required software and hardware, would also eliminate

the cost of purchasing, installing and maintaining a second unit for these vessels. The number of open access vessels that currently have VMS transceivers is unknown.

Most of the VMS transceiver units can be operated for extended periods from the same DC power source used to run other on board electronic equipment and so should increase power consumption only marginally.

Maintenance of transponder unit Once a vessel is used for fishing in the open access fishery in Federal waters, the vessel operator is required to operate the VMS unit continuously for the remainder of the year. This means that the vessel operator will need to maintain the transponder unit, antennas, and the electrical sources that power the system themselves or have it serviced by a professionally.

When an operator is aware that transmission of automatic position reports has been interrupted, or when notified by NMFS that automatic position reports are not being received, they must contact NMFS and follow the instructions provided. Such instructions may include, but are not limited to, manually communicating to a location designated by NMFS the vessel's position or returning to port until the VMS is operable. There is a reporting burden associated with this requirement, but it is not expected to be substantial. The annual burden of these communications and the time required to maintain the antennas and electrical systems on the vessel operator is estimated to be approximately 2 hours per year or $60 if done by the vessels personnel, or $160 if professionally serviced (Table 4.3.3.4). In addition, some systems may require software to be updated. Many of the transponders can have their set of features upgraded by being reloaded/flashed with updated versions.

If a unit needs to be repaired, there may be fishing opportunity lost unless the unit can be quickly replaced.

Replacement cost (purchase price/years of service) The various VMS transceivers have similar life spans of about 4- 5 years before the units need to be replaced. Because of advancements in VMS systems or service providers that may no longer provide services, some models may become obsolete in less than 5 years. The purchase of these units may be considered as a tax deductible business expense during the first year of use. For depreciation purposes, VMS devices using satellite technology may qualify as “five-year property”, although devices using cell phone technology probably will be treated similar to other cell phone equipment, as “seven-year property.” For the purposes of this analysis, 4 years was used to estimate unit replacement costs. Table 4.3.3.4. shows the range of replacement costs.

Cost to transmit hourly positions The primary costs after purchase and installation of a VMS is the charge for the messages that communicate the vessel's position. Once installed and activated, position reports are transmitted automatically to NMFS via satellite. Once a vessel is used for fishing in the open access fishery in Federal waters, the vessel operator is required to operate the VMS unit continuously for the remainder of the year. The total costs for these messages depend on the system chosen for operation and the number of fishing days for units with a sleep function. Many of the systems have a sleep function. Position transmissions are automatically reduced when the vessel is in port. This allows for port stays without significant power drain or power shutdown. When the unit restarts, normal position transmissions automatically resume before the vessel goes to sea.

The estimated time per response varies with type of equipment and requirement. Upon installation, vessel monitoring or transponder systems automatically transmit data, which takes about 5 seconds, except when issued a VMS exemption or when the vessel is inactive in port and the VMS goes into sleep mode. Transmission costs vary between units, with some having daily rates or monthly rates. The daily rate for the Inmarsat D+ , Inmarsat C, and Orbcom units is $2, while providers have begun providing packages as low as $15.99/mo for fishers who spend much of the month tied to the dock, resulting in reduced position reports (Table 4.3.3.4).

Table 4.3.3.2. VMS Equipment Currently in Type-approved for use in the Pacific Coast Groundfish Fisheries

Communication Service	Orbcomm	Inmarsat D+	Argos a/	Inmarsat-C
Transceiver/transponder name	**SST2500G-NMFS**	**Satamatics SAT101**	**MAR GE**	**Thrane and Thrane TT3022D, TT3026D**
Number of boats using				
Geographic coverage, when in line of sight of satellite or cell	Global	Global	Global	Global to 78°N/S
Communication between ship – shore	Two-way	Two-way	One-way, (ship-to-shore)	Two-way
Satellite type	Low earth orbit, Orbcomm Network	Geo-stationary, INMARSAT	Polar-orbiting, 5 NOAA meteorological	Geo-Stationary, INMARSAT
Time between the vessel position fix and receipt at NMFS	Within 5-10 minutes	Within 5-10 minutes	Varies per latitude, Alaska – 10-30min. avg. wait. HMS – 60-90min. wait	Within 5-10 minutes
Ability to poll/query the transceiver	Yes	Yes	No	Yes
Interval between position reports	Configurabel	Configurabel	30 - 60 minutes depending upon latitudes	Configurable for 5 minutes to 24 hours
Ability to change the interval between position reports	Remote from OLE	Remote from OLE	Factory reprogramming	Remotely from OLE
Position calculation (accuracy)	Integrated GPS (20 m)	Integrated GPS (20 m)	Integrated GPS (20m), reverts to Doppler when GPS blocked (350 or 1000m)	Integrated GPS (20m)
Automatic anti-tampering and unit status messages	Yes	Yes	Yes	Yes
Distress signal	Yes	Yes	Yes	Yes
Reduces power when stationary	Yes	Yes	Yes	Yes
Installation	Do-it-yourself	Do-it-yourself	Do-it-yourself	Dealer or electrician (costs not included), or do-it-yourself
Internal battery back-up	Yes	Yes	Yes, 48-hour	No
Log or memory buffer storing positions / number of positions	Yes	Yes	Yes, must download manually/?	Yes, auto, remote or manual download/ Trimble – 5000 Thrane – 100
Can send logbook/catch report data	Yes	Yes, limited	Yes, with computer	Yes, with computer
Transceiver/transponder cost	$1,200	$1,200	$2000 ($400 keypad optional)	Thrane TT3022D $2,500, TT3026M $1,550; additional $1,300 if optional computer for email is included
Daily communications cost for hourly positions	$2	$2	$5	$2

a/ The Argos MAR GE is only allowed for vessels that have been required to have this model for other fisheries such as the Alaska groundfish fishery

Exemption reports Exemption Reports would be sent by the vessel owner or operator whenever their vessel qualified for being excused from the requirement to operate the mobile transceiver unit continuously 24 hours a day throughout the calendar year (e.g. when the vessel will be operating outside of the EEZ for more than 7 consecutive days or the vessel will be continuously out of the water for more than 7 consecutive days). A vessel may be exempted from the requirement to operate the mobile transceiver unit continuously 24 hours a day throughout the calendar year if a valid exemption report, is received by NMFS OLE and the vessel is in compliance with all conditions and requirements of the exemption. An exemption report would be valid until a second report was sent canceling the exemption.

Improved technology would be used to reduce the reporting burden on NMFS and the fishery participants. Vessels will call in exemption reports to a toll free number. With this system, vessels can call quickly and easily submit their report 24 hours a day.

Aside from the cost in time to summarize and call in an IVR report, there will be no additional cost burden for respondents. All respondents are assumed to have access to a telephone. The telephone call will be placed through a toll-free number, so the respondent will not pay for the call. Two exemption reports are estimated to be submitted per vessel annually. Each report would require approximately 4 minutes to submit, for an average cost of $4 per vessel per year (at $30 per hour) .

Declaration reports
Declaration reports are used to assist enforcement in identifying vessels that are legally fishing in conservation areas. Each declaration report is valid until cancelled or revised by the vessel operator. After a declaration report has been sent, the vessel cannot engage in any activity with gear that is inconsistent with that which can be used in the conservation area unless another declaration report is sent to cancel or change the previous declaration. Declaration reports are sent to NMFS and vessel operators receive confirmation that could be used to verify that the reporting requirement was met. It is necessary for a vessel owner, operator or representative to submit these reports because only they can make statements about where they intend to fish.

Vessels will call in declaration reports by dialing a toll-free, so the respondent will not pay for the call. The system allows vessels to quickly and easily submit their report 24 hours a day. Aside from the cost in time to summarize and call in an IVR report, there will be no additional cost burden for respondents. All respondents are assumed to have access to a telephone.

Table 4.3.3.3 Range of VMS of projected costs to the fleet, by fishery and gear

		Cost to the fleet for VMS		
Open access gear group	Average annual no. of vessels landing groundfish, 2000-2003	Year 1, range of cost for purchase and installation of VMS units - Per vessel cost - $1,200 -$2,500 ($3,800 with PC)	Subsequent years, range of costs for maintenance and replacement of VMS units Per vessel cost $310 - $785	Range of annual Transmission cost Per vessel cost $192 - $730
Longline - groundfish directed a/	**131**	**157,200 - 353,700 (497,800)**	**40,610 - 102,966**	**25,152 - 95-630**
Longline - Pacific Halibut directed b/	**31**	**37,200 -83,700 (117,800)**	**9,610 - 24,366**	**5,952 - 22,630**
Longline - CA Halibut c/	**1**	**1,200 - 2,700 (3,800)**	**310 - 786**	**192 -730**
Pot - groundfish directed	**30**	**36,000 -81,000 (114,000)**	**9,300 - 23,580**	**5,760 - 21,900**
Pot - Dungeness crab d/	**45**	**54,000 - 121,500 (171,000)**	**13,950 - 35,370**	**8,640 - 32,850**
Pot - prawn/shrimp e/	**8**	**9,600 - 21,600 (30,400)**	**2,480 - 6,288**	**1,536 -5,840**
Pot - sheephead g/	**8**	**9,600 - 21,600 (30,400)**	**2,480 - 6,288**	**1,536 -5,840**
Pot - CA Halibut	**37**	**44,400 -99,900 (140,600)**	**11,470 - 29,082**	**7,104 - 27,010**
Trawl - spot prawn f/	**6**	**7,200 - 16,200 (22,800)**	**1,860 - 4,716**	**1,152 - 4,380**
Trawl - CA Halibut g/	**17**	**20,400 - 45,900 (64,600)**	**5,270 - 13,362**	**3,264 - 12,410**
Trawl - Sea Cucumber h/	**6**	**7,200 - 16,200 (22,800)**	**1,860 - 4,716**	**1,152 - 4,380**
Trawl - Ridgeback Prawn i/	**18**	**21,600 - 48,600 (68,400)**	**5,580 - 14,148**	**3,456 - 13,140**
Line gear - groundfish directed j/	**738**	**885,600 -1,992,600 (2,804,400)**	**228,780 - 580,068**	**141,696 - 538,740**
Line gear - CA halibut directed k/	**105**	**126,000 - 283,500 (399,000)**	**32,550 - 82,530**	**20,160 - 76,650**
Line gear - HMS l/	**12**	**14,400 - 32,400 (45,600)**	**3,720 - 9,432**	**2,304 - 8,760**
Line gear - Salmon troll (coastwide) m/	**177**	**212,400 - 477,900 (672,600)**	**54,870 - 139,122**	**33,984 - 129,210**
Line gear - Salmon troll (north only)	**134**	**160,800 - 361,800 (509,200)**	**41,540 - 105,324**	**25,728 - 97,820**
Net gear - CPS	**3**	**3,600 - 8,100 (11,400)**	**930 - 2,358**	**576 - 2,190**
Other gears	**4**	**4,800 - 10,800 (15,200)**	**1,240 - 3,144**	**768 - 2,920**

a/ Open access longline groundfish vessels were defined as vessels without a federal LE permit that have greater than 30% of their longline revenues from groundfish.
b/ Longline Pacific Halibut OA directed vessels were defined as vessels where more than 50% of their longline revenue was from Pacific Halibut
c/ California halibut longline vessels are defined as vessels where greater than 80% of their longline revenues were derived from cal. halibut.
d/ Dungeness crab vessels are defined as vessels where greater than 15% of their pot revenue is derived from D crab
e/ Pot Prawn vessels are defined as vessels that make more that 5% of their pot revenue from pot prawns
f/ Spot prawn trawl vessels are defined as vessels that make more than 20% of their shrimp trawl revenue from spot prawns
g/ CA Halibut trawl vessels are defined as vessels that make more than 30% of trawl revenues from California Halibut
h/ Sea cucumber trawl vessels are defined as vessels that make more than 40% of trawl revenues from sea cucumbers
i/ Ridgeback prawn trawl vessels are defined as vessels that make more than 30% of their shrimp trawl revenues from ridgeback prawns
j/ OA hook and line (non longline) directed groundfish vessels are defined as vessels which made more than 30% of their line revenues from groundfish
k/ CA halibut non-longline line vessels are defined as vessels that make more than 20% of non-longline line revenues from CA halibut
l/ HMS non-longline line vessels are defined as vessels that make more than 25% of non-longline line revenues from HMS
m/ Salmon troll vessels are defined as vessels where greater than 20% of their troll revenues are from salmon

Table 4.3.3.4. Estimated burden, per vessel, for the VMS monitoring systems

	Alternative 1 Status quo	Alternatives 2-7 Cost per vessel for VMS and declaration reports
Installation - start up cost	$0	Minimal - not to exceed 4 hours or $200 Most are do-it yourself installation, manufacturer install approximately $200 5 min to complete installation report, $3 to send fax to NMFS
VMS transceiver/transponder unit - start up cost	$0	$1,000 - $2,500 ($3,800 if computer is added for 2-way communications including email)
Annual maintenance * Self * Professional	$0	 2 hours or $60 per year 2 hours or $160 per year
Annual replacement costs (unit cost/years of service)	$0	$250-$625 per year (estimate based on 4 years of service)
Annual cost to transmit 24 hourly position reports	$0	$192-$730 ($15.99/mo-$2/day)
Annual cost to transmit exemption reports (4 min/rpt 2 per year)	$0	$0 (toll free call)
Annual cost to transmit declaration report (4 min/rpt- 12 time per year)	$0	$0 (toll free call)

Fishers who land groundfish taken incidentally in non-groundfish fisheries operating in areas outside the RCAs, and fishers who are less dependent on groundfish may choose to exit the fishery by not retaining groundfish or by not targeting groundfish. Though it is difficult to know all of the reasons why any one individual fisher would make a particular decision, is assumed that vessels making less than $1,000 of groundfish revenue per year will likely exit the groundfish fishery and not incur the costs associated with VMS.

Tables 4.3.3.5 show by target fishery and gear, the number of fishers by revenue category. The open access groundfish fishery consists of vessels that do not necessarily depend on revenue from the fishery as a major source of income and predominately fish for other species where they inadvertently catch and land groundfish. Understanding the level of dependency that participants in this fishery have on groundfish should be considered in light of their overall fisheries revenues.

Table 4.3.3.6. shows the number of open access vessels by gross income levels of dependency for all West Coast landings. Between November 2000 and October 2001, 1,287 vessels landed groundfish in the open access sector of the groundfish fishery. Of these, 58 percent of the vessels (200) with a greater than 95 percent dependency on groundfish had less than $5,000 of gross income from West Coast landings. These vessels would be the vessels most affected by VMS requirements. A greater proportion of vessels

with lower levels of dependency on groundfish fell within income categories greater than $5,000. However, this table does not represent landings for years when the RCA requirements or state nearshore limited entry programs were in place. Increases in higher valued groundfish catch in 2003, primarily sablefish, which may reduce the proportion of open access vessels in the lowest (<$5,000) income category, are not included in this table. Table 4.3.3.7 shows the annual fishing revenue for vessels landing groundfish in various open access target fisheries and with the different gears.

Table 4.3.3.5. Open access groundfish landings by gear group, 2000 - 2003 (based on 8/24/04 PacFin data)

Open access gear group	Number of vessels landing groundfish	Exvessel revenue of groundfish ($)	Per vessel Exvessel revenue of groundfish ($)	Exvessel revenue all fish taken with specific gear per vessel ($)
Longline - groundfish directed				
2000	126	796,056	6,318	6,744
2001	140	713,893	5,099	5,696
2002	122	726,839	5,958	6,395
2003	137	1,087,142	7,935	8,725
4-year average	131	830,983	6,331	6,900
Longline - Pacifc Halibut				
2000	32	14,011	438	3,763
2001	29	20,454	705	5,390
2002	33	18,305	555	6,640
2003	29	45,559	1,571	8,241
4-year average	31	24,582	799	5,974
Longline - CA Halibut				
2000	3	548	183	3,884
2001	1	71	71	2,212
2002	1	45	45	2,450
2003	0	0	0	0
4-year average	1	166	133	3,263
Pot - groundfish directed c\	42	316,932	7,546	8,807
2000	35	258,778	7,394	7,796
2001	33	190,771	5,781	6,163
2002	38	297,687	7,938	8,341
2003	30	264,282	8,809	9,584
4-year average				
Pot - Dungeness crab				
2000	43	134,047	3,117	48,797
2001	46	89,499	1,946	49,862
2002	43	94,502	2,198	51,666
2003	48	141,892	2,956	140,750
4-year average	45	114,985	2,555	74,275
Pot - prawn/shrimp				
2000	11	3,957	360	130,147
2001	6	11,785	1,964	118,416
2002	6	8,851	1,475	141,840
2003	7	25,635	3,662	176,648
4-year average	8	12,557	1,674	140,990
Pot - sheephead				
2000	9	18.717	2,080	65,146
2001	10	18,962	1,896	43,483
2002	11	12,271	1,116	36,194
2003	2	735	368	48,076
4-year average	8	12,671	1,584	47,357
Trawl - sea cucumber				
2000	2	29	15	5,773
2001	8	492	62	18,824
2002	7	2,204	315	24,094
2003	5	646	129	20,704
4-year average	6	843	153	19,742

Open access gear group	Number of vessels landing groundfish	Landed weight of groundfish (mt)	Exvessel revenue of groundfish ($)	Exvessel revenue per vessel ($)
Trawl - CA halibut				
2000	19	20.967	1,104	8,790
2001	23	11,933	519	9,063
2002	16	11,801	738	20,635
2003	10	4,867	487	11,373
4-year average	17	12,392	729	12,050
Trawl -Ridgeback Prawn				
2000	28	28,010	1,000	59,625
2001	16	13,994	875	27,965
2002	13	6,935	533	36,974
2003	15	4,347	290	27,227
4-year average	18	13,322	740	41,750
Line gear - all groundfish a/	922	1,981,665	2,149	2,177
2000	883	2,091,194	2,368	2,405
2001	683	2,135,914	3,129	3,218
2002	465	1,582,541	3,404	3,458
2003	738	1,947,829	2,639	2,688
4-year average				
Line gear - CA halibut				
2000	106	16,653	158	182,303
2001	125	40,615	325	245,723
2002	87	29,442	339	147,702
2003	104	8,233	80	161,740
4-year average	105	23,736	225	184,367
Line gear - HMS				
2000	16	3,014	188	6,020
2001	11	5,772	525	4,567
2002	13	35,035	2,695	6,559
2003	8	2,697	337	2,999
4-year average	12	11,630	969	5,330
Line gear - Salmon troll (coastwide)				
2000	227	41,432	183	29,808
2001	187	29,672	159	29,295
2002	150	26,042	174	37,764
2003	143	24,816	174	46,385
4-year average	177	30,491	173	34,713
Line gear - Salmon troll (north only)				
2000	139	30,748	221	20,719
2001	158	23,591	149	27,120
2002	122	19,236	158	32,830
2003	116	20,621	178	38,614
4-year average	134	23,549	176	29,251
Net gear - CPS				
2000	5	1,535	307	58,267
2001	2	555	278	40,669
2002	2	25	13	63,034
2003	4	2,541	635	93,151
4-year average	3	1,164	358	67,026
Other gears				
2000	8	1,183	148	41,078
2001	2	224	122	471
2002	2	258	129	1,902
2003	3	21	7	45,079
4-year average	4	427	114	31,240

a/ Open access longline groundfish vessels were defined as vessels without a federal LE permit that have greater than 30% of their longline revenues from groundfish.
b/ Longline Pacific Halibut OA directed vessels were defined as vessels where more than 50% of their longline revenue was from Pacific Halibut
c/ California halibut longline vessels are defined as vessels where greater than 80% of their longline revenues were derived from cal. halibut.
d/ Dungeness crab vessels are defined as vessels where greater than 15% of their pot revenue is derived from D crab
e/ Pot Prawn vessels are defined as vessels that make more that 5% of their pot revenue from pot prawns
f/ Spot prawn trawl vessels are defined as vessels that make more than 20% of their shrimp trawl revenue from spot prawns
g/ CA Halibut trawl vessels are defined as vessels that make more than 30% of trawl revenues from California Halibut
h/ Sea cucumber trawl vessels are defined as vessels that make more than 40% of trawl revenues from sea cucumbers
i/ Ridgeback prawn trawl vessels are defined as vessels that make more than 30% of their shrimp trawl revenues from ridgeback prawns
j/ OA hook and line (non longline) directed groundfish vessels are defined as vessels which made more than 30% of their line revenues from groundfish
k/ CA halibut non-longline line vessels are defined as vessels that make more than 20% of non-longline line revenues from CA halibut
l/ HMS non-longline line vessels are defined as vessels that make more than 25% of non-longline line revenues from HMS
m/ Salmon troll vessels are defined as vessels where greater than 20% of their troll revenues are from salmon

Table 3.3.3.6 Number of open access vessels by gross income levels of dependency for all West Coast landings (based on data from November 2000 - October 2001) a/

	Exvessel revenue from West Coast landings				
	<5,000	$5,000-$50,000	$50,000-$200,000	>$200,000	Total
<5%	45	268	169	34	516
>5% &<35%	52	101	44	0	197
>35% &<65%	47	50	8	0	105
>65% &<95%	63	55	6	0	124
>95% &<100%	200	138	7	0	345
Total	407	612	234	34	1,287

Extracted from table 6-17a DEIS, Proposed Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2005-2006 Pacific Coast Groundfish fishery
a/ open access vessels with more than half of their total landings value coming from groundfish are considered to be in the directed fishery

Table 4.3.3.6. Number of open access vessels groundfish by exvessel group, 2000 - 2003 (based on 8/24/04 PacFin data)

Open access gear group	Number of open access vessels by groundfish exvessel revenue group					
	0-500	500-1000	1000-2000	2000-3000	3000-5000	>5000
Longline - groundfish directed						
2000	18	11	14	14	18	51
2001	27	13	23	15	11	51
2002	16	17	14	16	8	51
2003	17	11	24	8	21	61
4-year average	20	13	18	13	15	54
Longline - Pacifc Halibut						
2000	21	4	7	0	0	0
2001	19	2	5	1	2	0
2002	22	5	4	2	0	0
2003	11	2	8	4	3	1
4-year average	18	3	6	2	1	0
Longline - CA Halibut						
2000	2	1	0	0	0	0
2001	1	0	0	0	0	0
2002	1	0	0	0	0	0
2003	0	0	0	0	0	0
4-year average	1	0	0	0	0	0
Pot - groundfish directed c\						
2000	5	4	2	4	5	16
2001	11	2	6	3	4	15
2002	5	2	4	2	8	12
2003	5	4	5	5	2	15
4-year average	7	3	4	4	5	15
Pot - Dungeness crab						
2000	29	3	2	0	1	8
2001	24	6	6	1	3	6
2002	21	5	2	3	4	8
2003	21	2	8	4	3	10
4-year average	24	4	5	2	3	8
Pot - prawn/shrimp						
2000	9	0	2	0	0	0
2001	3	2	0	0	0	1
2002	3	1	1	0	0	1
2003	3	2	0	0	0	2
4-year average	5	1	1	0	0	1
Pot - sheephead						
2000	6	2	0	0	0	0
2001	7	1	1	0	0	1
2002	7	1	2	0	0	1
2003	2	0	0	0	0	2
4-year average	6	1	1	0	0	1
Trawl - sea cucumber						
2000	2	0	0	0	0	0
2001	8	0	0	0	0	0
2002	5	2	0	0	0	0
2003	5	0	0	0	0	0
4-year average	5	1	0	0	0	0

Open access gear group	Number of open access vessels by groundfish exvessel revenue group					
	0-500	500-1000	1000-2000	2000-3000	3000-5000	>5000
Trawl - CA halibut						
2000	8	5	4	0	1	1
2001	16	3	3	1	0	0
2002	9	3	3	0	0	1
2003	7	2	0	0	1	0
4-year average	10	3	3	0	1	1
Trawl -Ridgeback Prawn						
2000	14	4	6	3	0	1
2001	12	0	2	1	1	0
2002	9	0	4	0	0	0
2003	13	1	1	0	0	0
4-year average	12	1	4	1	0	0
Line gear - all groundfish a/						
2000	534	84	106	56	62	79
2001	385	120	113	100	66	100
2002	267	91	136	40	57	91
2003	173	59	63	42	34	93
4-year average	340	89	105	59	55	91
Line gear - CA halibut						
2000	104	0	2	0	0	0
2001	121	2	0	0	2	0
2002	85	0	0	0	2	0
2003	99	4	0	0	0	0
4-year average	102	2	0	0	1	0
Line gear - HMS						
2000	15	1	0	0	0	0
2001	9	0	0	2	0	0
2002	7	2	1	0	0	3
2003	6	1	1	0	0	0
4-year average	9	1	1	1	0	1
Line gear - Salmon troll (coastwide)						
2000	218	8	0	0	0	0
2001	182	4	0	0	0	0
2002	145	3	1	0	0	0
2003	141	1	0	0	0	0
4-year average	172	4	0	0	0	0
Line gear - Salmon troll (north only)						
2000	131	7	0	0	0	0
2001	153	4	0	0	0	0
2002	121	0	0	0	0	0
2003	115	0	0	0	0	0
4-year average	131	3	0	0	0	0
Net gear - CPS						
2000	4	1	0	0	0	0
2001	1	1	0	0	0	0
2002	2	0	0	0	0	0
2003	3	0	0	0	0	0
4-year average	3	1	0	0	0	0

Open access gear group	Number of open access vessels by groundfish exvessel revenue group					
	0-500	500-1000	1000-2000	2000-3000	3000-5000	>5000
Other gears						
2000	7	1	0	0	0	0
2001	2	0	0	0	0	0
2002	2	0	0	0	0	0
2003	3	0	0	0	0	0
4-year average	4	0	0	0	0	0

a/ Open access longline groundfish vessels were defined as vessels without a federal LE permit that have greater than 30% of their longline revenues from groundfish.
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Indirect impacts are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect impacts on harvesters and processors include, long-term changes in fishing opportunity, catch availability, and catch value that could result from the VMS requirement and collection of position data.

Short-term economic losses should be offset by future increases in catch levels if increased stability in the fishery results because the integrity of RCAs is maintained. The ability to know the precise location of vessels provides for speedy identification of suspicious or illegal fishing activity in relation to closed areas. Rather than spending significant resources on routine surveillance, enforcement resources can be directed to vessels operating in an unusual manner in the RCAs. Improved enforcement is in the interest of all fishers. Fishers and processors will be the ultimate beneficiaries when the fisheries regulations, developed for conservation and management are properly implemented and enforced. Maintaining the integrity of closed areas that are designed to protect overfished stocks, will aid in the recovery of the stocks and help to guaranteed the future of the industry.

With VMS, the law-abiding skipper can be satisfied that there will be less likelihood of the enforcement officers inspecting vessels that comply with the closed area regulations and a greater probability that inspection will focus on vessels that are suspected of violating the regulations. At times, the commercial fishing industry is subjected to criticism from members of the public and from other stakeholder groups regarding its responsibility to the environment in terms of complying with closure regulations intended to protect vulnerable species. While there may be some irresponsible operators, it is generally believed that the majority of commercial operators abide by closed area restrictions. VMS offers the commercial industry a mechanism to demonstrate its compliance with such regulations and hence honor its responsibility to the long-term sustainability of fisheries resources.

Electronic marketing is growing in importance in many industries, and could be developed for the fishing industry. If a sufficient number of vessels participating in the West Coast fisheries have 2-way communications through VMS and a computer, opportunities to market seafood through e-commerce services (electronic marketing systems) could become more readily available to the West Coast fishing industry. The ability to access the internet via Inmarsat makes likely that electronic marketing of seafood will become established as individual companies set up their own systems.

Electronic marketing system could become a component used to match the supply of fish from a number of

scattered producers with the demand from a variety of markets. An advantage of an electronic marketing systems is that the trading function is separate from the physical transfer of catch between sellers and buyers, which could allow prices to be formed centrally without the costly process of assembling buyers and sellers at a single location. As fishermen are made more aware of electronic market potential, they may choose to alter fishing practices to avoid gluts, avoid catching lower value species, or retain incidentally caught species because they find a buyer while still at sea. The overall result could be a more competitive market and improvement in the use of mixed catches, including the sale of fish that would otherwise have been discarded at sea. While electronic marketing of seafood has been technically possible for some years, extensive and high quality ship-to-shore communications were required to enable fishermen to communicate catch information to a shore-based computer linked into the system. Recent advancements in satellite technology, such as those made by Inmarsat makes it possible to bypass this impediment, allowing electronic marketing in the fishing industry much more feasible for small businesses, such as those found in the West Coast.

Comparison of the Alternatives

Alternative 1, is the least expensive alternative in the short-term since it only requires exempted trawl vessels to provide declaration reports prior to leaving port on a trip in which fishing occurs in an RCA. The greatest difficulty in maintaining the integrity of closed areas to ensure recovery of the overfished stocks occurs under status quo. In the long- term, if unmonitored incursions into the RCA affect the recovery of overfished stocks, fishing opportunity may be further reduced.

Alternatives 2-7 contain VMS requirements, for different gear groups within the open access fleet**.** The per vessel costs for a transceiver unit with installation is the same under all of the alternative: $1,200-$2,700 in Year 1, and $250-$625 in subsequent years. Annual operating cost to harvesters include: maintenance, $60-$160, and transmission fees, $192-$730. Fishers who land groundfish taken incidentally in non-groundfish fisheries and fishers who are less dependent on groundfish may choose to exit the fishery by not retaining groundfish or by not targeting groundfish**.** Under each of the Alternatives 2-7, Vessels that make less than $1,000 in annual groundfish exvessel revenue and would likely leave the fishery

Alternative 2 maintains the provisions of status quo, but adds the VMS and declaration reporting requirements for approximately 131 directed groundfish, 31 Pacific halibut, 1 California halibut, and 2 HMS vessels using longline gear that take and retain, possess or land groundfish. Of the alternatives that require VMS, Alternative 2 requires the smallest proportion of the open access fleet (only 165 vessels using longline gear) to have and use VMS. The total cost of Alternative 2 to industry ranges between $249,150 - $756,690 for year 1, and $51,150 - $129,690 in subsequent years. An unknown portion of directed groundfish vessels using longline gear to take and retain, possess or land groundfish may choose to change gears to pot or line gear avoid VMS requirements.

Alternative 3 includes the same vessels as Alternative 2, but adds the VMS and declaration reporting requirements for approximately 128 vessels using pot gear. The estimated purchase cost of VMS services to the fishing industry if all vessels remain in the fishery is $442,430 - 1,343,699 in year 1, and $90,830-$230,298 in subsequent years. An unknown portion of directed groundfish vessels using pot gear may choose to change to line gear to avoid VMS requirements.

Alternative 4 includes the same vessels as Alternative 3, but adds the VMS and declaration reporting requirement for approximately 18 ridgeback prawn, 6 sea cucumber and 17 California halibut vessels using exempted trawl gear (excludes pink shrimp vessels). Estimated purchase cost of VMS services to the fishing industry if all vessels remain in the fishery is $442,430 - 1,343,699 in year 1, and $90,830-$230,298 in subsequent years. Vessels using exempted trawl gear that make less than $1,000 in annual revenue from groundfish would likely leave the open access groundfish fishery.

Alternative 5A includes the same vessels as Alternative 4, but adds the VMS and declaration reporting requirements for approximately 738 vessels groundfish, 105 California halibut, and 12 HMS vessels using line gear to take and retain, possess or land groundfish(excludes salmon troll vessels). The estimated purchase cost of VMS services to the fishing industry if all vessels remain in the fishery is $1,795,390 - 5,452,754 in year 1, and $368,590 - $934,554 in subsequent years.

Alternative 5B, includes slightly more vessels than 5A because the number of salmon troll vessels that would be added under this alternative is greater than the number of HMS and Dungeness crab vessels that would not be included. Though alternative 5B does not include vessels in fisheries that are projected to have minimal impacts on overfished species (12 HMS line and 2 longline, 45 Dungeness crab pot), it includes approximately 241 salmon troll vessels. The estimated purchase cost of VMS services to the fishing industry if all vessels remain in the fishery is $1,973,570 - $5,993,902 in year 1, and $405,170 - $1,027,302 in subsequent years.

Alternative 6A, which applies to any vessel engaged in commercial fishing to which a RCA restriction applies, includes the largest number of open access vessels. The estimated purchase cost of VMS services to the fishing industry if all vessels remain in the fishery is $2,148,730-$6,525,878 in years 1, and $441,130 - $1,118,478 in subsequent years. Vessels making less than $1,000 in annual revenue from groundfish. Unlike 5B, all exempted trawl vessels would be included rather than only those that take and retain, possess or land groundfish. Therefore, Alternative 6A would provide coverage for the largest number of vessels, which supports the greatest flexibility in the use of management rules with geographical areas.

Alternative 6B, affects approximately 79 fewer vessels annually than does Alternative 6A, all of which use salmon troll gear. The estimated purchase cost of VMS services to the fishing industry if all vessels remain in the fishery is $399,590-$1,013,154 in years 1, and $1,946,390 -$5,911,354 in subsequent years. Under 6B, the vessels that are likely to leave the fishery is the same as Alt. 6A , except that the number of salmon trollers that are likely to leave the fishery is slightly less because vessels fishing north of 40°10' N. lat. that only land yellowtail rockfish would not be required to have VMS. Alternative 7, is essentially the same as Alternative 6A because it applies to the same vessels except that vessels less than 12 feet in length would be excluded. Most, if not, all vessels under 12 feet in length are not expected to fish in Federal waters and would therefore not trigger the VMS requirement.

SOCIO-ECONOMIC ENVIRONMENT	
SAFETY	Changes in search and rescue capability resulting from the requirement to carry and use VMS
Alternative 1 Status quo	Direct impact EPIRBS are the primary devise used to identify a vessel's location in an emergency situation. VHF radios are also used.
Alternative 2 Vessels using longline gear	Direct impact May provide position information that can be used to aid in search and rescue efficiency for 165 OA longline vessels. If VMS transceiver unit has distress signal, it may further reduce response time in an emergency. Indirect impacts If VMS results in those fishers who are less dependent on groundfish revenue leaving the fishery, higher catch limits may result for those vessels that remain in the fishery. If fishing opportunity improves and profits to the individual vessel increase there may be fewer of these marginal vessels that tend to display more risk prone behavior including, the tendency to not adequately maintain equipment and vessels.
Alternative 3 Vessels using longline or pot gear	Direct impact & Indirect Impacts Same as Alt.2, but adds 30 directed, 45 Dungeness crab, 8 prawn, and 37 California halibut vessels using pot gear
Alternative 4 Vessels using longline, pot or trawl gear, except pink shrimptrawl	Direct impact & Indirect Impacts Same as Alt. 2 and 3, but adds approximately 41 vessels (18 ridgeback prawn, 6 sea cucumber and 17 California halibut vessels) using exempted trawl gear (excludes pink shrimp vessels) that take and retain, possess or land groundfish.
Alternative 5A Vessels using longline, pot, trawl or line gear, except: pink shrimp trawl and salmon troll	Direct impact & Indirect Impacts Same as Alt. 2, 3 and 4, plus 855vessels (738 vessels groundfish, 105 California halibut, and 12 HMS vessels) using line gear to take and retain, possess or land groundfish(excludes salmon troll vessels).
Alternative 5B Vessels using longline, pot, trawl or line gear, except: pink shrimp trawl, HMS longline & line, and Dungeness crab pot gear.	Direct impact & Indirect Impacts Same as Alt. 2, 3, 4 and 5A, except 12 HMS line and 2 longline, 45 Dungeness crab pot are not included, but an additional 177 salmon troll vessels are included. 1,307 vessels total.
Alternative 6A Vessels with RCA restrictions	Direct impact & Indirect Impacts In addition to benefits identified under Alt. 2, 3, 4, & 5A, increases data on fishing effort and fishing location relative to areas where overfished species are distributed from approximately 177 vessels using salmon troll gear, 39 vessels using exempted trawl gear, and an additional 18 Pacific Halibut vessels. 1,423 vessels total.

Alternative 6B Vessels with RCA restrictions except salmon troll north that retain only yellowtail rockfish	Direct impact & Indirect Impacts Same as Alt. 6A, but affects approximately <134 fewer vessels annually than does 6A because salmon troll vessel fishing north of 40°10' N. lat. that only land yellowtail rockfish would be excluded.
Alternative 7 Vessel >12 ft with RCA restrictions	Direct impact & Indirect Impacts Same as Alt. 6A, but benefits are slightly reduced from those identified under Alt. 6A because approximately 22 vessels/yr (6 longline, 2 pot, and 14 line gear) each less than 12 feet in length, would not be carrying VMS transceivers.

4.3.4 Safety of Human life

Direct Impacts on the safety of human life at sea primarily consists of changes in search and rescue capability.

Response time to any incident at sea requires clear communications about the problem and the needs of the vessel's crew, an ability to quickly identify the location of the vessel, and the capability to either provide adequate information or to reach the vessel for an at seas rescue. An EPIRB is an emergency notification devise that is automatically released when a vessel sinks. After the EPIRB is released, it floats to the surface and automatically begins sending out an emergency distress signal that identifies the vessel location. Unfortunately, these devices do not always work as intended and a certain proportion of the units fail to work at all.

Though VMS transceivers are not replacements for EPIRBS, they can aid the USCG in search and rescue efforts when other sources of emergency information are not available. If an EPIRB or other safety system fails to transmit a vessel's last location, or if the vessel's last location is in question, VMS could be used to identify the vessel's last known position. Similarly, if a vessel's position reports fail to be received over a period of time, it may be used to alert processing center staff to a potential problem that can be forwarded to the USCG for further investigation. Though VMS shows where a vessel is located it becomes ineffective should the power be lost or a vessel sinks. Unlike EPIRBS which have their own power source, VMS is dependent on the vessel for power. Most VMS systems have distress buttons and some allow for two-way communications. Having the 2-way communication can aid in obtaining information about vessel safety and medical issues.

Indirect impacts on safety as a result of VMS would result if VMS altered risk prone behavior. When fishing opportunity is reduced and profits are marginal, vessels may display more risk prone behavior and may not adequately maintain equipment and vessels. If VMS results in those fishers who are less dependent on groundfish revenue leaving the fishery, higher catch limits may result for those vessels that remain in the fishery. Though farther removed in time, increases in groundfish revenue from increased trip limits could result in vessels being better maintained. Similarly, if the integrity of the RCA can be maintained, the potential for recovery of overfished stocks is more likely and future harvest rates are more likely to increase

There is a certain degree of danger associated with groundfish fishing, however, little is known about the connection between fisheries management measures and incident, injury, or fatality rates in the fishery. Moreover, little is known about risk aversion among fishers or the values placed on increases or decreases in different risks.

There are safety concerns when small vessels are encouraged to fish in deeper waters and farther from assistance. Extended transits will result in longer exposure to harsh weather conditions, especially during winter months. This problem is compounded by the relatively small size and slow speed of many open access fishing vessels which will make it difficult for them to run from weather or return to port before sea conditions become hazardous. Small vessels are not able to withstand rough seas as well as larger vessels. The VMS provisions currently in regulation set a standard that prohibits groundfish directed vessels from drifting in the RCAs. This provision would apply to the open access fisheries as well.

Comparison of the Alternatives

Safety is expected to vary with the alternatives because of the difference in vessel coverage and the VMS information that may be available in an emergency situation. No information regarding a vessel's fishing location is provided under Alternative 1, status quo. Alternative 2 maintains the provisions of status quo, but adds the VMS requirements for approximately 131 directed groundfish, 31 Pacific halibut, 1 California halibut, and 2 HMS vessels using longline gear. Of the alternatives that require VMS, Alternative 2 requires the smallest proportion of the open access fleet (only 165 vessels using longline gear) to have and use VMS and would therefore provide the least safety benefit of the VMS alternatives. Alternative 3, includes

the same vessels as Alternative 2, but adds the VMS and declaration reporting requirements for approximately 128 vessels (30 directed, 45 Dungeness crab, 8 prawn, 8 California sheephead, and 37 California halibut vessels) using pot gear. Therefore, Alternative 3 would more vessels would have VMS units that Alternative 2, however there would less vessels than under Alternative 4 and therefore less of a safety benefit than Alternative 4. Alternative 4 includes the same vessels as Alternative 3, but adds the VMS and declaration reporting requirement for approximately 18 ridgeback prawn, 6 sea cucumber and 17 California halibut vessels using exempted trawl gear (excludes pink shrimp vessels). Alternative 5A includes the same vessels as Alternative 4, but adds the VMS and declaration reporting requirements for approximately 738 vessels groundfish, 105 California halibut, and 12 HMS vessels using line gear to take and retain, possess or land groundfish(excludes salmon troll vessels). Alternative 5B includes slightly more vessels than 5A because the number of salmon troll vessels that would be added under this alternative is greater than the number of HMS and Dungeness crab vessels that would not be included. Though alternative 5B does not include vessels in fisheries that are projected to have minimal impacts on overfished species (12 HMS line and 2 longline, 45 Dungeness crab pot), it includes approximately 241 salmon troll vessels. Alternative 6, which applies to any vessel engaged in commercial fishing to which a RCA restriction applies, includes the largest number of open access vessels. Therefore, Alternative 6A would have the greatest safety benefits because the greatest number of vessels will be required to carry VMS transceivers. Alternative 6B, affects approximately 79 fewer vessels annually than does Alternative 6A, all of which use salmon troll gear. Alternative 7, is almost the same as Alternative 6A because it applies to the same vessels except that vessels less than 12 feet in length would be excluded. Most, if not, all vessels under 12 feet in length are not expected to fish in Federal waters and would therefore not trigger the VMS requirement.

4.3.5 Communities

Fishing communities, as defined in the MSA, include not only the people who catch the fish, but also those who share a common dependency on directly related fisheries-dependent services and industries. Commercial fishing communities may include boatyards, fish handlers, processors, and ice suppliers. People employed in fishery management and enforcement make up another component of fishing communities. Community patterns of fishery participation vary coastwide and seasonally, based on species availability, the regulatory environment, and oceanographic and weather conditions. Communities are characterized by the mix of fishery operations, fishing areas, habitat types, seasonal patterns, and target species. Although unique, communities share many similarities. For example, all face danger, safety issues, dwindling resources, and a multitude of state and federal regulations.

Since 2003 , the Council has used a depth-based management strategy to would allow fishing to continue in areas and with gear that can harvest healthy stocks with little incidental catch of low abundance species (overfished species). Stock assessments for four overfished species, bocaccio, yelloweye, canary and darkblotched rockfish indicated that little surplus production is available for harvest. Therefore, measures must be taken to protect these stocks and rebuild them to sustainable biomass levels.

Regulations that lower fishing quotas have historically reduced the income generated by the fishing fleet. When fishing income is reduced, the coastal communities typically suffer in the short- term. Constraints on the groundfish fishery resulting from the need to rebuild overfished species could cause and economic instability of fishery participants and associated fishing communities. However, recovery of fish stocks will help coastal communities and the industry, in the long term. In the long-term, Alternatives 2-7 provide a means to ensure the integrity of the depth-based management areas and thereby mitigate undesirable or greater economic impacts associated with overfished species management. If the RCAs cannot be maintained, it is likely that management measures will need to revert back to simple closed areas and very restrictive limits, which have a greater effect on fishing communities in the short-term.

In the short-term, if the added cost results in large numbers of incidental OA groundfish vessels and vessel that have a low level of dependency on groundfish leaving the fishery, the necessary fishing supplies that would otherwise be purchased by them may result in less sales for supporting businesses. However, since

these are primarily incidental OA groundfish vessels, it would be assumed that the gear and supplies they normally purchase for the target fishery would remain unchanged.

There is a risk to low volume processors (addressed in the previous section) if a substantial number of incidental OA groundfish and less dependent fishers exit the fishery to avoid the added cost of VMS. This may particularly be a problem under Alternatives 5A-7, in which most incidental fisheries are included. If fewer incidentally caught groundfish are available, prices to processors and buyers may increase, these increases would then be passed on to the businesses that purchase the fish and the consumer. Such increases may have a negative affect on business in coastal communities that depend on groundfish products for their business.

The level of fleet coverage, that portion of the overall open access fishing fleet that would be required to have VMS and provide declaration reports, is the only difference between the alternatives. The ability to maintain the integrity of the RCAs is directly related to the level of VMS coverage for open access vessels. In general, the higher the coverage level for vessels that interact with overfished species, the more likely that it is that the integrity of the RCAs can be maintained.

4.4 Cumulative Impacts

Cumulative effects must be considered when evaluating the alternatives to the issues considered in the EA. Cumulative impacts are those combined effects on quality of human environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what federal or non-federal agency undertake such actions (40 CFR 1508.7, 1508.25 (a), and 1508.25 (c))

[Section to be completed]

5.0 CONSISTENCY WITH THE FMP AND OTHER APPLICABLE LAWS

5.1 Consistency with the FMP

The socio-economic framework in the Pacific Coast Groundfish FMP requires that proposed management measures and viable alternatives be reviewed and consideration given to 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; c) biological impacts; d) and economic impacts, particularly the cost to the fishing industry; and e) accomplishment of one of a list of factors.

GOALS AND OBJECTIVES OF THE FMP

The Council is committed to developing long-range plans for managing the Pacific Coast groundfish fisheries that prevent overfishing and loss of habitat, yet provide the maximum net value of the resource, and achieve maximum biological yield. Alternatives 2- 7 are consistent with FMP goal 1-objective 1, and goal 3-objective 10.

> Goal 1- 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.
>
> Goal 3- Utilization: Objective 10 -- strive to reduce the economic incentives and regulatory measures that lead to wastage of fish. Also, 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. In addition, promote and support monitoring programs to improve estimates of total fishing-related mortality and bycatch, as well as those to improve information necessary to determine the extent to which it is practicable to reduce bycatch and bycatch

mortality.

ACCOMPLISHMENT OF ONE OF THE FACTORS LISTED IN FMP SECTION 6.2.3.

Under the socio-economic framework, the proposed action must accomplish at least 1 of the criteria defined in Section 6.2.3 of the FMP. Alternatives 2-7 are likely to accomplish objective 2 by providing information to avoid exceeding a quota, harvest guideline or allocation, and objective 13 by maintaining a data collection and means for verification.

5.2 Magnuson-Stevens Conservation and Management Act

The Magnuson-Stevens Act provides parameters and guidance for federal fisheries management, requiring that the Councils and NMFS adhere to a broad array of policy ideals. Overarching principles for fisheries management are found in the Act's National Standards. In crafting fisheries management regimes, the Councils and NMFS must balance their recommendations to meet these different national standards.

National Standard 1 requires that conservation and management measures shall prevent overfishing while achieving on a continuing basis, the optimum yield from each fishery for the United States fishing industry. The proposed action is to expand a monitoring program to monitor the integrity of closed areas that were established to protect overfished species. Information provided under Alternatives 2- 7 reduce the risk of overfishing because they would provide information that could be used to reduce the likelihood of overfishing while allowing for the harvests of healthy stocks. Because Alternative 6A and 7 provides the most information, they would have the least risk, while Alternative 1 has the greatest risk.

National Standard 2 requires the use of the best available scientific information. The proposed action is to expand a VMS program to monitor the integrity of closed areas that were established to protect overfished species. Data collected under Alternatives 2-7 would be used to understand the level of fishing effort and how it was distributed. When combined with data from the existing federal observer program, it could be used to more accurately estimate total catch.

National Standard 3 requires, to the extent practicable, that an individual stock of fish be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination. This standard is not affected by the proposed action to expand a monitoring program to monitor the integrity of closed areas.

National Standard 4 requires that conservation and management measures not discriminate between residents of different States. None of the alternatives would discriminate between residents of different States.

National Standard 5 is not affected by the proposed actions because it does not affect efficiency in the utilization of fishery resources.

National Standard 6 requires that conservation and management measures take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches." All alternatives meet this standard.

National Standard 7 requires that conservation and management measures minimize costs and avoid unnecessary duplication. Measures were taken to minimize the costs of a monitoring program by reducing the time burden and cost of declaration reports - they would only be required when vessel changes gears rather than on every trip.

National Standard 8 provides protection to fishing communities by requiring that conservation and management measures be consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities. The proposed alternatives are consistent with this standard.

National Standard 9 requires that conservation and management measures minimize bycatch and minimize the mortality of bycatch. NMFS is required to "promote and support monitoring programs to improve estimates of total fishing-related mortality and bycatch, as well as those to improve information necessary to determine the extent to which it is practicable to reduce bycatch and bycatch mortality. The proposed action is consistent with this standard.

National Standard 10 Conservation and Management measures shall, to the extent practicable, promote the safety of human life at sea. Alternatives 2-7 have safety benefits. Thought VMS is not an emergency response system it has been used in search an rescue to determine a vessels last known position and the VMS systems provides for a distress signal that may also reduce response time in an emergency. Alternatives 6A and 7 have the greatest safety benefits because requires VMS for the largest portion of the open access fleet, followed by 5B and then 6B.

Essential Fish Habitat This action will affect fishing in areas designated as essential fish habitat (EFH). The proposed action is to expand a program to monitor the integrity of closed areas that were established to protect overfished species. The potential effects of the proposed actions are not expected to have either no adverse effect on EFH, to have a positive effect resulting from reduced fishing effort in critical areas, or to have a positive effect if used to support regulations to restrict fishing in areas to protect habitat. No EFH consultation is warranted for this action.

5.3 Endangered Species Act

NMFS issued Biological Opinions (B.O.) under the ESA on August 10, 1990, November 26, 1991, August 28, 1992, September 27, 1993, May 14, 1996, and December 15, 1999 pertaining to the effects of the groundfish fishery on chinook salmon (Puget Sound, Snake River spring/summer, Snake River fall, upper Columbia River spring, lower Columbia River, upper Willamette River, Sacramento River winter, Central Valley spring, California coastal), coho salmon (Central California coastal, southern Oregon/northern California coastal), chum salmon (Hood Canal summer, Columbia River), sockeye salmon (Snake River, Ozette Lake), and steelhead (upper, middle and lower Columbia River, Snake River Basin, upper Willamette River, central California coast, California Central Valley, south-central California, northern California, southern California). During the 2000 Pacific whiting season, the whiting fisheries exceeded the 11,000 fish chinook bycatch amount specified in the Pacific whiting fishery B.O. (December 19, 1999) incidental take statement, by approximately 500 fish. In the 2001 whiting season, however, the whiting fishery's chinook bycatch was about 7,000 fish, which approximates the long-term average. After reviewing data from, and management of, the 2000 and 2001 whiting fisheries (including industry bycatch minimization measures), the status of the affected listed chinook, environmental baseline information, and the incidental take statement from the 1999 whiting B.O., NMFS determined that a re-initiation of the 1999 whiting BO was not required. NMFS has concluded that implementation of the FMP for the Pacific Coast groundfish fishery is not expected to jeopardize the continued existence of any endangered or threatened species under the jurisdiction of NMFS, or result in the destruction or adverse modification of critical habitat. This proposed rule implements a data collection program and is within the scope of these consultations. Because the impacts of this action fall within the scope of the impacts considered in these B.O.s, additional consultations on these species are not required for this action.

5.4 Marine Mammal Protection Act

Under the MMPA, marine mammals whose abundance falls below the optimum sustainable population level (usually regarded as 60% of carrying capacity or maximum population size) can be listed as "depleted". Populations listed as threatened or endangered under the ESA are automatically depleted under the terms of the MMPA. Currently, the Stellar sea lion population off the West Coast is listed as threatened under the ESA and the fur seal population is listed as depleted under the MMPA. Incidental takes of these species in the Pacific Coast fisheries are well under their annual PBRs. None of the proposed management alternatives are likely to affect the incidental mortality levels of species protected under the MMPA. The West Coast groundfish fisheries are considered Category III fisheries, where the annual mortality and serious injury of a stock by the fishery is less than or equal to 1% of the PBR level. Implementation of Alternatives 2-7 are expected to benefit MMPA species because they would allow observer data and data from other sources to be joined to the VMS data to better understand the extent of potential fishing related impacts on various marine mammal species.

5.5 Coastal Zone Management Act

The proposed alternatives would be implemented in a manner that is consistent to the maximum extent practicable with the enforceable policies of the approved coastal zone management programs of Washington, Oregon, and California. This determination has been submitted to the responsible state agencies for review under Section 307(c)(1) of the Coastal Zone Management Act (CZMA). The relationship of the groundfish FMP with the CZMA is discussed in Section 11.7.3 of the groundfish FMP. The groundfish FMP has been found to be consistent with the Washington, Oregon, and California coastal zone management programs. The recommended action is consistent and within the scope of the actions contemplated under the framework FMP. Under the CZMA, each state develops its own coastal zone management program which is then submitted for federal approval. This has resulted in programs that vary widely from one state to the next.

5.6 Paperwork Reduction Act

[Section to be completed]

5.7 Executive Order 12866

This action is not significant under E.O. 12866. This action will not have a cumulative effect on the economy of $100 million or more, nor will it result in a major increase in costs to consumers, industries, government agencies, or geographical regions. No significant adverse impacts are anticipated on competition, employment, investments, productivity, innovation, or competitiveness of U.S.-based enterprises.

5.8 Executive Order 13175

Executive Order 13175 is intended to ensure regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications, to strengthen the United States government-to-government relationships with Indian tribes, and to reduce the imposition of unfunded mandates upon Indian tribes.

The Secretary of Commerce recognizes the sovereign status and co-manager role of Indian tribes over shared Federal and tribal fishery resources. At Section 302(b)(5), the Magnuson-Stevens Act reserves a seat on the Council for a representative of an Indian tribe with Federally recognized fishing rights from California, Oregon, Washington, or Idaho.

The U.S. government formally recognizes that the four Washington Coastal Tribes (Makah, Quileute, Hoh, and Quinault) have treaty rights to fish for groundfish. In general terms, the quantification of those rights is 50% of the harvestable surplus of groundfish available in the tribes' usual and accustomed (U and A) fishing areas (described at 50 CFR 660.324). Each of the treaty tribes has the discretion to administer their fisheries and to establish their own policies to achieve program objectives. The proposed action is being developed in consultation with the affected tribe(s) and, insofar as possible, with tribal consensus.

5.9 Migratory Bird Treaty Act and Executive Order 13186

The Migratory Bird Treaty Act of 1918 was designed to end the commercial trade of migratory birds and their feathers that, by the early years of the 20th century, had diminished populations of many native bird species. The Act states that it is unlawful to take, kill, or possess migratory birds and their parts (including eggs, nests, and feathers) and is a shared agreement between the United States, Canada, Japan, Mexico, and Russia to protect a common migratory bird resource. The Migratory Bird Treaty Act prohibits the directed take of seabirds, but the incidental take of seabirds does occur. None of the proposed management alternatives, or the Council recommended action are likely to affect the incidental take of seabirds protected by the Migratory Bird Treaty Act. Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds) is intended to ensure that each Federal agency taking actions that have, or are likely to have, a measurable negative effect on migratory bird populations develops and implements a Memorandum of Understanding (MOU) with the U.S. Fish and Wildlife Service that shall

promote the conservation of migratory bird populations. Currently, NMFS is developing an MOU with the U.S. Fish and Wildlife Service. None of the proposed management alternatives are likely to have a measurable effect on migratory bird populations.

5.10 Executive Order 12898 (Environmental Justice) and 13132 (Federalism)

There is no specific guidance on application of EO 12898 to fishery management actions. The EO states that environmental justice should be part of an agency's mission "by identifying and addressing disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority or low-income populations." These recommendations would not have federalism implications subject to E.O. 13132. State representatives on the Council have been fully consulted in the development of this policy recommendation.

6.0 REGULATORY IMPACT REVIEW AND REGULATORY FLEXIBILITY ANALYSIS

The RIR and IRFA analyses have many aspects in common with each other and with EAs. Much of the information required for the RIR and IRFA analysis has been provided above in the EA. Table 6.0.1 identifies where previous discussions relevant to the EA and IRFA can be found in this document. In addition to the information provided in the EA, above, a basic economic profile of the fishery is provided annually in the Council's SAFE document.

Table 6.0 1 Regulatory Impact Review and Regulatory Flexibility Analysis

RIR Elements of Analysis	Corresponding Sections in EA	IRFA Elements of Analysis	Corresponding Sections in EA
Description of management objectives		Description of why actions are being considered	
Description of the Fishery		Statement of the objectives of, and legal basis for actions	
Statement of the Problem		Description of projected reporting, recordkeeping and other compliance requirements of the proposed action	
Description of each selected alternative		Identification of all relevant Federal rules	
An economic analysis of the expected effects of each selected alternative relative to status quo			

[Section to be completed]

6.1 Regulatory Impact Review

[Section to be completed]

The RIR is designed to determine whether the proposed action could be considered a "significant regulatory actions" according to E.O. 12866. E.O. 12866 test requirements used to assess whether or not an action would be a "significant regulatory action", and identifies the expected outcomes of the proposed management alternatives. 1) Have a annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities;2) Create a serious inconsistency or otherwise interfere with action taken or planned by another agency; 3) Materially alter the budgetary impact of entitlement, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or 4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this executive Order. Based on results of the economic analysis contained in Section 4.3, this action is not expected to be significant under E.O. 12866.

Requirements of an IRFA

The Regulatory Flexibility Act (5 U.S.C. 603) states that:
(b) Each initial regulatory flexibility analysis required under this section shall contain--

(1) a description of the reasons why action by the agency is being considered:
(2) a succinct statement of the objectives of, and legal basis for, the proposed rule;
(3) a description of and, where feasible, and estimate of the number of small entities to which the proposed rule will apply;
(4) a description of the projected reporting, recordkeeping and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirement and the type of professional skills necessary for preparation of the report or record;
(5) an identification, to the extent practicable, of all relevant Federal rules which may duplicate, overlap, or conflict with the proposed rule.

(c) Each initial regulatory flexibility analysis shall also contain a description of any significant alternatives to the prosed rule which accomplish the stated objectives of applicable statutes and which minimize any significant economic impact of the proposed rule on small entities. Consistent with the stated objectives of applicable statutes, the analysis shall discuss significant alternatives such as--

(1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities;
(2) the clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities;
(3) the use of performance rather than design standards; and
(4) an exemption from coverage of the rule, or any part thereof, for such small entities.

6.2 Initial Regulatory Flexibility Analysis

When an agency proposes regulations, the RFA requires the agency to prepare and make available for public comment an Initial Regulatory Flexibility Analysis (IRFA) that describes the impact on small businesses, non-profit enterprises, local governments, and other small entities. The IRFA is to aid the agency in considering all reasonable regulatory alternatives that would minimize the economic impact on affected small entities (attachment 1). To ensure a broad consideration of impacts on small entities, NMFS has prepared this IRFA without first making the threshold determination whether this proposed action could be certified as not having a significant economic impact on a substantial number of small entities. NMFS, must determine such certification to be appropriate if established by information received in the public comment period.

1) A description of the reasons why the action by the agency is being considered.

2) A succinct statement of the objectives of, and legal basis for, the proposed rule.

3) A description of and, where feasible, and estimate of the number of small entities to which the proposed

rule will apply;

4) A description of the projected reporting, recordkeeping and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirement and the type of professional skills necessary for preparation of the report or record.

5) An identification, to the extent practicable, of all relevant Federal rules which may duplicate, overlap, or conflict with the proposed rule.

6) A summary of economic impacts.

7) A description of any alternatives to the proposed rule which accomplish the stated objectives of applicable statutes and which minimizes and significant economic impacts of the proposed rule on small entities.

7.0 List of Preparers

This document was prepared by the Northwest Regional Office of the NMFS. 8.0 References

[Section to be completed]

8.0 References

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DRAFT SUMMARY MINUTES

Ad Hoc Vessel Monitoring System Committee

The Benson Hotel
309 SW Broadway
Portland, Oregon
97205
503-228-2000
October 7, 2004

Members Present:

Mr. Joseph Albert, National Marine Fisheries Service, Law Enforcement
LT Gregg Casad, Enforcement Consultants, United States Coast Guard
Mr. Mark Cedergreen, Pacific Fishery Management Council, Washington Charter Boat Operator
CAPT Mike Cenci, Enforcement Consultants, Washington Department of Fish and Wildlife
Ms. Kathy Fosmark, Groundfish Advisory Subpanel, Southern Open Access Representative
Mr. Tom Ghio, Groundfish Advisory Subpanel, Fixed Gear Representative
Mr. Don Hansen, Chair, Pacific Fishery Management Council, California Charter Boat Operator
Mr. Dayna Mathews, Vice Chair, Enforcement Consultants, National Marine Fisheries Service
Mr. Ray Monroe, Alternate for Mr. Kenyon Hensel, Northern Open Access Representative
Mr. Rod Moore, Chair, Groundfish Advisory Subpanel
Mr. Brad Pettinger, Alternate for Mr. Marion Larkin, Trawl Representative
Ms. Becky Renko, National Marine Fisheries Service, Northwest Region

Others present:

Mr. Mike Burner, Staff Officer, Pacific Fishery Management Council
Mr. Joel Kawahara, Washington Trollers Association
Dr. Don McIsaac, Executive Director, Pacific Fishery Management Council
Mr. Don Stevens, Chair, Salmon Advisory Subpanel

THURSDAY, OCTOBER 7, 2004 - 8:30 A.M.

A. Call to Order and Administrative Matters

Chair Hansen welcomed the group, reviewed the agenda, and announced that public comment would be heard throughout the agenda at the discretion of the Chair. The Ad Hoc Vessel Monitoring System Committee (Committee) approved the agenda.

B. *Update on the Existing Monitoring Program*

National Marine Fisheries Service (NMFS) provided a written summary of the current VMS program and highlighted the following issues and information.

1. Vessel Monitoring System (VMS)

Mr. Albert reported the system is tracking over 280 vessels out of a potential pool of 360 platforms and has recorded over 1.6 million position reports.

2. Declaration System

To date, over 900 declarations are on file with NMFS and Mr. Albert reported the toll-free telephone system has been working well with minimal difficulties for users. The system can be expanded to accommodate additional declarations as needed under expansion of the VMS program.

3. Review of Available Equipment and Costs

Mr. Dayna Matthews reviewed the VMS units that are currently type approved by NMFS for use on the West Coast. Mr. Matthews highlighted the most common units in use, all of which include some two-way communication capability:

- Orbcomm - This unit represents the majority of units in use in the current VMS program. Satellite communication service is provided by Skymate Wireless.
- Argos - Argos provides the units and the satellite service for these units. Unlike other satellite provider, the Argos system relies on polar orbiting satellites designed for use in Alaska. These units essentially have been grandfathered into the West Coast program to accommodate vessels which also fish in Alaska and have already purchased Argos units.
- Thrane & Thrane - Relatively expensive units that utilize the Inmarsat satellite service. However, the Thrane & Thrane units provide sophisticated two-way communication capabilities, including email.
- Satamatics D+ - A rugged unit that is conducive to use on smaller vessels such as dories. There are concerns about the future availability of this service because as satellite traffic increases and bandwidth restrictions become constraining, the D+ service may become one of the first to be limited. The Committee recommended that NMFS work to ensure the availability of D+ service into the future before continuing to approve these units for use on the West Coast.

The majority of reported problems with existing VMS equipment were determined to be due to errors made during self-installations. The second most common problem associated with equipment function were related to the placement of the VMS antenna on the vessel as many units require a minimum distance between the VMS antenna and any other antenna onboard.

The costs associated with VMS units and satellite communication service has been dropping. In New England fisheries as VMS was first becoming available, vessel operators bought into $6,000 units as a means of preserving access to the scallop fishery and unit prices have now dropped to $1,000 including air time for the first year. Currently on the West Coast, VMS systems are averaging $1,200 to $1,800 with the expectation that costs will continue to drop as more vendors enter the market. A company called Iridium is expected to release a unit that functions as both a VMS unit and a satellite telephone.

The Committee reiterated its support for federal funding of VMS systems on the West Coast. It was noted that Dr. Bill Hogarth, Director of National Marine Fisheries Service, has made comments in the past in support of federal VMS funding.

4. Enforcement Improvements

Mr. Matthews reviewed the 24 VMS enforcement cases that have been investigated to date. Apparent violations of closed areas are investigated on a case-by-case basis and many were dismissed as vessels operators and enforcement personnel adjust to the new system. For example, many cases were investigated for improper or missing declaration reports rather than illegal fishing activities in closed areas.

The Committee discussed ways to improve both enforcement and usability of the VMS system. Allowing at-sea declaration reports would require VMS units with two way email capabilities but would allow the vessel to pursue two strategies on one trip, saving time and fuel. Industry representatives were also interested in exploring the possibility of delivering landings from areas with higher limits into areas with lower limits if VMS can verify where the fishing occurred.

NMFS reported that the current VMS system has been very valuable in the enforcement of existing Rockfish Conservation Areas (RCAs) and noted that the system can easily be reprogrammed in response to changing regulations and alternate RCA configurations.

5. Safety Issues

The Committee discussed cases in 2004 where vessels equipped with VMS units where involved in accidents at sea. In at least one case, the accident reportedly involved the collision of two vessels and the loss of lives. There were concerns about the availability of VMS data for the determination of the cause of accidents and the ability of VMS to prevent further loss of life at sea. Industry representatives felt that VMS was introduced to the West Coast groundfish fleets as both a means of accessing fishing opportunity in open areas and as a tool to enhance vessel safety.

Enforcement representatives stated that VMS is primarily an enforcement tool and that any benefits to vessel safety are secondary. Accurate and timely vessel location information could be useful in the event of an emergency, but the system is not designed nor intended to monitor and react to accidents at sea.

Questions were raised about the loss of a VMS signal and the NMFS response. Mr. Albert replied that all VMS issues are treated on a case-by-case basis but that as a rule, a loss of signal does not necessarily initiate an immediate response. Signal loss is not uncommon and is often due to equipment malfunction, loss of power, or temporary breaks in satellite access byt ehe VMS unit. When this occurs, 'event codes' are generated and are transmitted to NMFS when the unit is back online. Industry representatives asked if NMFS could report on the number of times a loss of signal event occurs. Estimates were not available at this meeting but NMFS will look into including summary figures in future VMS reports.

The Committee discussed the amount of NMFS monitoring of VMS signals. Mr. Albert reported that a VMS technician and a computer technician monitor the system during normal business hours. Outside this time frame, Mr. Albert and staff can view system alerts remotely. It was also noted that all NMFS enforcement agents with internet service can access the system. Additionally, all USCG stations on the coast have access as well. LT Casad reported that the USCG considers NMFS the primary agency in charge of VMS enforcement. Although the USCG does use VMS as a tool, a VMS signal does not initiate or require and immediate response. CAPT Cenci reminded the Committee that state law enforcement personnel do not have access to VMS information. The Committee discussed the value of additionally monitoring and improved fishery enforcement that state enforcement personnel could provide.

The Committee discussed increasing the monitoring of the VMS system to 24 hours a day, seven days a week. NMFS reported that additional coverage would not be required to maintain the enforcement capabilities of VMS if the program was expanded to more vessels.

E. Expansion of the Monitoring Program

1. Review of the Draft Range of Alternatives

Mr. Matthews reported that NMFS, under the expansion alternatives, does not intend to require VMS on vessels that do not retain groundfish or that only operate in state waters. NMFS does not have regulatory authority over commercial vessels that do not hold a federal groundfish permit and operate in state waters. State regulations implementing comparable VMS requirements would need to be passed to impose VMS requirements on such vessels.

Ms. Becky Renko presented Table 2.0.1 from the latest draft on an Environmental Assessment summarizing the range of alternatives approved by the Council for public review in September 2004 (the table included in these minutes has been edited by the Committee). The Committee reviewed all of the alternatives and had a focused discussion about an alternative recommended by the Groundfish Advisory Subpanel (GAP) in September, Alternative 6. This alternative requires all vessels that fish in federal waters for which there is an RCA requirement to carry and use a VMS transceiver unit. Declaration reports for these vessels are required from the time the vessel leaves port on a trip in which groundfish are to be taken and retained, possessed or landed, until the end of the calendar year. VMS requirements remain until the end of the calendar year regardless of whether the vessel is operated in state or federal waters off the West Coast. If an RCA requirement is discontinued during the year, mandatory VMS coverage will be discontinued for the affected vessels.

This alternative does not include open access groundfish directed vessels that fish only in state waters, or non-groundfish directed vessels that do not land groundfish as stated above. This alternative also excludes Dungeness crab vessels as they are not subject to RCAs and have very low incidence of groundfish take; salmon troll vessels that do not take and retain groundfish; salmon troll vessels operating in waters north of 40°10' N latitude that only retain yellowtail rockfish as yellowtail rockfish may be retained as an incidental take while salmon fishing within the RCA; and pink shrimp vessels.

It will be a challenge to analyze this alternative as fisherman will likely have decisions to make as to whether or not additional opportunity to land groundfish is worth the added costs of VMS. Open access vessels can avoid VMS coverage by choosing to not land groundfish or by choosing to only fish in state water. A threshold will likely need to be determined where the economic benefits of open access groundfish fishing outweighs the cost of VMS operation.

G. Vessels Drifting within RCAs

Although it is outside the scope of the currently proposed action to expand the program, the Committee reviewed the issue of vessels drifting within an RCA. There are currently no provisions which allow vessels to drift in closed areas when fishing. Industry representatives have long argued that forcing vessels to drift at night in areas deeper than the RCA is a safety issue and has requested that NMFS explore ways to use VMS technology to distinguish fishing activity from drifting. NMFS is not confident that this goal can be accomplished at this time given the current level of expertise with the system and the complexity of the West Coast groundfish and VMS regulations. It was suggested that increased signaling frequency may improve the quality of the track line and make it easier for NMFS monitors to determine if a vessel is actively fishing or drifting. Mr. Albert reminded the group that increasing the signaling rate from the current standard of one report per hour would increase costs to the vessel. NMFS will investigate potential benefits of increased signaling.

Several Committee members asked about VMS programs in Hawaii, Alaska, and Australia. NMFS reported that many of these programs have been implemented for a longer time and involve fewer vessels and smaller closed areas than the West Coast. Additionally, The West Coast is the only area where certain fishing activity is allowed within a closed area. Industry representatives argued that fishery enforcement requirements should not compromise safety. LT Casad stated that the USCG has been consistent in their concerns about vessel safety relative to RCA and vessels being forced to fish in deeper and more distant locations.

H. Committee Recommendations

Mr. Moore moved and the Committee approved the following four recommendations to the Council.

1. Adopt Alternative 6 as the Committee preferred alternative for expansion of the VMS program. Second by Mr. Ghio. Unanimous approval.

2. Request that the Council continue to pursue federal funding of all VMS requirements. Second by Chair Hansen. All in favor with four abstentions (Mr. Albert, LT Casad, Mr. Matthews, Ms. Renko).

3. Request that the Council make it a priority when contacting NMFS on VMS matters to formally recommend access to VMS information for state law enforcement personnel. Second by Mr. Cedergreen. Unanimous approval.

4. Endorse the following GAP statement on drifting within an RCA from the November 2003 Council meeting. Second by Ms. Fosmark. Eight "Yes" votes, three "No" votes (Mr. Matthews, Mr. Albert, Ms. Renko), one abstention (LT Casad).

Excerpt from Exhibit C.10.c, Supplemental GAP Report, September 2004.

Drifting - the GAP continues to believe that drifting in the RCA should be allowed for safety reasons. This is even more urgent as we extend the VMS requirement to smaller vessels, some of which fish seaward of the RCA. NMFS should reconsider its opposition to a drifting allowance.

The Committee noted NMFS plans to hold pubic informational meetings in all three West Coast states over the winter. The Committee did not anticipate the need to meet again prior to Council final action on expansion of the VMS program in the spring of 2005.

ADJOURN

Table 2.0.1 Revised Draft Summary of the Alternative Management Actions for Expanding Coverage of the Monitoring System for Time-area Closures in the Pacific Coast Groundfish Fishery for the Open Access Fisheries (Page 1 of 3)**.**

VMS COVERAGE ALTERNATIVES	AFFECTED VESSELS a/ b/	RCA RESTRICTIONS	OVERFISHED SPECIES IMPACTS
Alternative 1 -- Status quo Continue to require declaration reports from OA vessels using exempted trawl gear in Groundfish Conservation Areas (GCAs).	OA exempted trawl continues to send declaration reports**.**		
Alternative 2 -- longline vessels In addition to status quo, require all vessels using longline gear in Federal waters fishing pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery to provide declaration reports and to activate and use a VMS transceiver from the time the vessel leaves port on a trip in which groundfish are taken and retained until the end of the calendar year, regardless of whether the vessel is operated in state or federal waters off the West Coast.	c/ Directed longline - 114 vessels/yr used longline gear. Pacific halibut - 275 halibut permits/yr (includes both OA and LE) an average of 10 vessels/yr fished for halibut south of Point Chehalis (the direct commercial fishery) and did not also land directed OA groundfish with a exvessel value > $2,500. HMS - 47 vessels/yr in 2000 & 2001, of these, 2 vessels/yr landed groundfish.	Directed longline - non-trawl gear RCA applies Pacific halibut - non-trawl RCA restrictions adopted under halibut regulations HMS - non-trawl RCA restrictions apply when vessel takes and retains groundfish	Directed longline - overfished species include bocaccio, canary, cowcod, darkblotched, lingcod, pop and yelloweye. Gear specific projections are not available. Pacific halibut - yelloweye 0.5 mt projected for 2005. HMS -no overfished species catch projected for 2005.
Alternative 3 -- longline or pot vessels In addition to Alternative 2, require all vessels using longline or pot gear in Federal waters fishing pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery to provide declaration reports and to activate and use a VMS transceiver from the time the vessel leaves port on a trip in which groundfish are taken and retained until the end of the calendar year, regardless of whether the vessel is operated in state or federal waters off the West Coast.	Longline - Same as Alt. 2 d/ Directed pot - 35 vessels/yr used groundfish pot gear. Dungeness crab - 733 vessels/yr, of these, 65 vessels/yr landed OA groundfish. Prawn - 40 vessels/yr, of these, 9 vessels/yr landed OA groundfish. California sheephead- 37 vessels/ yr, all 37 landed OA groundfish. California halibut pot ???	Longline - Same as Alt. 2 Directed pot - fixed gear RCA applies Dungeness crab, prawn, & California sheephead - non-trawl RCA restrictions apply when vessel takes and retains groundfish	Longline - Same as Alt. 2 Directed pot - Overfished species include bocaccio, canary, cowcod, darkblotched, lingcod, pop and yelloweye. Gear specific projections are not available. Dungeness crab, spot prawn & California sheephead - no overfished species catch projected for 2005**.** Ridgeback prawn vessels - bocaccio 0.1 mt projected for 2005.

Table 2.0.1 Revised Draft Summary of the Alternative Management Actions for Expanding Coverage of the Monitoring System for Time-area Closures in the Pacific Coast Groundfish Fishery for the Open Access Fisheries (Page 2 of 3)**.**

VMS COVERAGE ALTERNATIVES	AFFECTED VESSELS a/ b/	RCA RESTRICTIONS	OVERFISHED SPECIES IMPACTS
Alternative 4 -- longline, pot or trawl vessels, excluding pink shrimp trawl vessels In addition to Alternatives 2 and 3, require all vessels using longline, pot or trawl gear, excluding pink shrimp trawl gear in Federal waters fishing pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery to provide declaration reports and to activate and use a VMS transceiver from the time the vessel leaves port on a trip in which groundfish are taken and retained until the end of the calendar year, regardless of whether the vessel is operated in state or federal waters off the West Coast.	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Spot prawn- 26 vessels, none have landed groundfish with prawn trawl gear since 2000. Ridgeback prawn ??? Sea cucumber - 14 vessels/yr, of these, 7 vessels/yr landed OA groundfish. California halibut trawl - 34 vessels/yr, of these, 23 vessels/yr landed OA groundfish.	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Ridgeback Prawn - exempted trawl RCA south of Cape Mendocino (40°10' N. lat.) Sea cucumber, and California halibut - exempted trawl RCA south of Point Arena (38°57'30" N. lat.)	Longline gear - Same as Alt. 2 Pot gear- Same as Alt. 3 Ridgeback prawn - bocaccio 0.1 mt projected for 2005. Spot prawn - no activity Sea cucumber - no overfished species catch projected for 2005. California halibut - 0.1 mt bocaccio, and 2.0 mt lingcod. gear specific overfished species catch projections are not available.
Alternative 5 e/ -- longline, pot, trawl or line gear vessels, excluding pink shrimp trawl and salmon troll vessels In addition to Alternatives 2 - 4, require all vessels using longline, pot, trawl, or line gear; excluding pink shrimp trawl and salmon troll gear, in Federal waters fishing pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery to provide declaration reports and to activate and use a VMS transceiver from the time the vessel leaves port on a trip in which groundfish are taken and retained until the end of the calendar year, regardless of whether the vessel is operated in state or federal waters off the West Coast.	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4 Directed line gear - 969 vessels/yr**.** California halibut line - 71 vessels/yr, all landed groundfish. HMS - Between 2000 & 2001, 221 vessels/yr used line gear, of these, 21 vessels/yr landed groundfish**.**	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4 Directed line gear - non-trawl gear RCA applies California halibut & HMS - non-trawl RCA restrictions apply when vessel takes and retains groundfish	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4 Directed line gear excluding salmon troll - overfished species taken in the fishery include bocaccio, canary, cowcod, darkblotched, lingcod, pop and yelloweye. Gear specific overfished species catch projections were not available. California halibut - 0.1 mt bocaccio, and 2.0 mt lingcod. Gear specific catch projections not available. HMS - no overfished species catch projected for 2005.

Table 2.0.1 Revised Draft Summary of the Alternative Management Actions for Expanding Coverage of the Monitoring System for Time-area Closures in the Pacific Coast Groundfish Fishery for the Open Access Fisheries (Page 3 of 3)**.**

VMS COVERAGE ALTERNATIVES	AFFECTED VESSELS a/ b/	RCA RESTRICTIONS	OVERFISHED SPECIES IMPACTS
Alternative 6 – Any vessel engaged in commercial fishing to which a RCA restriction applies Require all vessels that fish in federal waters for which there is an RCA requirement to carry and use a VMS transceiver unit and to provide declaration reports from the time the vessel leaves port on a trip in which groundfish are taken and retained, possessed or landed, until the end of the calendar year. Once a vessel is required to carry and use VMS, the requirement will stay in effect until the end of the calendar year regardless of whether the vessel is operated in state or federal waters off the West Coast. If an RCA requirement is discontinued during the year, mandatory VMS coverage will be discontinued for the affected vessels. This alternative does not include: Dungeness crab and salmon troll vessels that do not take and retain groundfish; salmon troll vessels operating in waters north of 40°10' N lat. that only retain yellowtail rockfish; and pink shrimp vessels.	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4**,** but includes all prawn trawl vessels, all sea cucumber vessels, all California halibut vessels not just those that take and retain groundfish. Also includes pink shrimp trawl vessels that take and retain groundfish. Ridgeback Prawn- 26 vessels, none have landed groundfish with prawn trawl gear since 2000. Sea cucumber - 14 vessels/yr, of these, 7 vessels/yr land OA groundfish. California halibut - 34 vessels/yr, of these, 23 vessels/yr land OA groundfish. Pink shrimp -, 69 pink vessels/yr, of these, 59 vessels/yr landed OA groundfish. Line gear - Same as Alt. 5, plus salmon troll vessels that take and retain groundfish**.** On average, 1,089 vessels/yr fished between 2000-2001, of these, 267 vessels/yr landed OA groundfish**.**	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4. No RCA pink shrimp exempted trawl vessels are not subject to RCAs. Line gear - Same as Alt. 5, plus RCA non-trawl requirements for salmon troll vessels taking and retaining groundfish. North of 40°10' yellowtail rockfish only may be retained inside RCA .	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4, plus pink shrimp bocaccio -0.1 mt, canary 0.5 mt, lingcod 0.5 mt, widow 0.1, and yelloweye 0.1 mt. Line gear -Same as Alt. 5, plus salmon troll- bocaccio - 0.2 mt, canary 1.5 mt, lingcod 0.3 mt and yelloweye 0.2 mt.
Alternative 7 – Any vessel engaged in commercial fishing to which a RCA restriction applies, except vessels less than 12 feet in overall length Same as Alternative 6 except this alternative does not include: Dungeness crab and salmon troll vessels that do not take and retain groundfish; pink shrimp vessels; and vessel less than 12 feet in length	Same as Alt. 6 except that approximately 22 vessels/yr, each less than 12 feet in length, would be excluded. This is an average of 6 longline, 2 pot, and 14 line gear vessels/yr.	Same as Alt. 6	Same as Alt. 6

a/ unless other wise noted, the number of vessels is the average number of participants for the years 2000-2003**.**
b/ The number vessels represents those that operated in both state and/or federal waters. The does not allow vessels that only fished in federal waters to be identified.
c/ for longline gear, directed was defined as a vessel with an exvessel value of groundfish greater than $2,500
d/ Directed groundfish pot was defined as having an exvessel value greater than 20% of all other West Coast vessel revenue
e/ Per Council request, Alternative 5 will eventually have two options, one including salmon troll vessels in the VMS requirements and another which excludes salmon troll vessels.

SUMMARY OF WRITTEN PUBLIC COMMENT

The Council office received over 150 written public comments concerning the proposed implementation of an expanded Vessel Monitoring System (VMS).

The first three letters in this summary are written in opposition to expansion of VMS to salmon troll vessels and represent example letters from a stack of 141 copies signed by 168 individuals. The majority of the letters were signed by commercial fisherman in the port of Charleston, Oregon. Other signers include, recreational fisherman and local business owners. Contact Mr. Mike Burner of the Council staff for an electronic copy of all 141 letters.

Thirteen additional letters in opposition to VMS expansion in general or for specific fisheries are included in their entirety.

Example letter from Charleston, Oregon. One of 141 copies representing 168 individuals.

To: Mike Burner
Groundfish Staff Officer
Pacific Fisheries Management
7700 NE Ambassador Place Suite 200
Portland OR 97220-1384

From: Oregon Salmon Trollers and Others

Subj: Vessel Monitoring Systems (VMS) for Salmon Trollers

As Oregon salmon trollers we want to express our strong opposition to the proposed requirement that trollers have VMS for the following reasons:

- Salmon trollers can legally fish in the Open Access (OA) Rockfish Conservation Area (RCA), resulting in zero enforcement value. What good does it do to know that we are legally fishing in RCA.
- Trollers cannot retain, except a small amount of yellowtail rockfish on a ratio with salmon, any groundfish we might catch in the RCA.
- There is a strong economic incentive to avoid groundfish. With the four spread rule, a groundfish (zero value) on the gear leaves one less hook available for a Chinook salmon worth $40 or more.
- Trollers are concerned about the downturn of some rockfish stocks and we are making a concerted effort to avoid them. Unlike some gears we just need to move the gear up in the water column to get above most groundfish.
- Finally with extremely limited enforcement and safety value spending two million dollars to equip the three state fleet, at our expense, doesn't make sense. Two million dollars would go a long way to improve safety equipment and maintenance.

Thank you for your consideration.

2-28-05
Jeanette L McDonald F/V Ida B
Charlie L Mayfield F/V HALO
Joe Pepper F/V Dusky
Cheri Pepper F/V Dusky

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- There is a strong economic incentive to avoid groundfish. With the four spread rule, a groundfish (zero value) on the gear leaves one less hook available for a Chinook salmon worth $40 or more.
- Trollers are concerned about the downturn of some rockfish stocks and we are making a concerted effort to avoid them. Unlike some gears we just need to move the gear up in the water column to get above most groundfish.
- Finally with extremely limited enforcement and safety value spending two million dollars to equip the three state fleet, at our expense, doesn't make sense. Two million dollars would go a long way to improve safety equipment and maintenance.

Thank you for your consideration.

Fred Smith
2-25-05
Bonanza, Ore.
Sports Fisherman

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Pacific Fisheries Management
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- Trollers cannot retain, except a small amount of yellowtail rockfish on a ratio with salmon, any groundfish we might catch in the RCA.

- There is a strong economic incentive to avoid groundfish. With the four spread rule, a groundfish (zero value) on the gear leaves one less hook available for a Chinook salmon worth $40 or more.

- Trollers are concerned about the downturn of some rockfish stocks and we are making a concerted effort to avoid them. Unlike some gears we just need to move the gear up in the water column to get above most groundfish.

- Finally with extremely limited enforcement and safety value spending two million dollars to equip the three state fleet, at our expense, doesn't make sense. Two million dollars would go a long way to improve safety equipment and maintenance.

Thank you for your consideration.

Next Page

Example letter from Charleston, Oregon. One of 141 copies representing 168 individuals.

Janice K. McCauley 2/16/05

Mary Ann Stark 2-16-05

Charla Weatherford - California 2-16-05

Rebecca ann Hearn 2-16-05

Debbie Lear 2-16-05

Richard F. Wellman 2-22-05

R. Gordon Clapp 2-22-05

Roy T. Wright 2-23-05

Mark Bayne 2-23-05

Chris Coone 2-23-05

Steve Stivers 2-23-05

Cynthia Fishbaugh 2-23-05

Cheryl Karr 2/23/05

Marcella Lowe 2-23-05

[illegible] 2-23-05

Nancy Paragon 2-23-05

Janet Forsman 2-23-05

Richard L. Brumblett 2-23-05

Morro Bay Commercial Fishermen's Organization Inc.

P.O. BOX 450, MORRO BAY, CALIFORNIA 93443
(805) 772-4893 • FAX (805) 772-4893 • fish@fix.net

January 6, 2005

The Morro Bay Commercial Fishermen's Organization opposes any attempt at mandatory surveillance of our lives and that of our vessels. We the men and women of the MBCFO, and the men and women of the commercial fishing industry are small business owners, taxpayers, veterans of many wars, and lastly although not least we are American citizens. This vessel-monitoring concept is unnecessary, if not, unconstitutional as it should be. It is an Orwellian idea that has no base or reason, as there is no history of flagrant or otherwise violations from our industry. If there is no existing problem there is no reason to implement this costly form of enforcement. The taxpayer will be paying for this surveillance for an indeterminate period of time with absolutely nothing to show but wasted tax dollars. The Coast Guard and the Department of Fish and Game patrol these areas regularly. They have not logged violations from our industry, and the fines and penalties invoked for violation are large enough to discourage even the thought of infraction, but the bottom line is that we are no different than those of you sitting in front of us. We are honest and hardworking people and resent this obvious insinuation that we are so untrustworthy as to require constant monitoring. It is a disgraceful way to treat any American citizen.

Adamantly yours,

Jeremiah O'Brien
President of MBCFO

Morro Bay Commercial Fishermen's Organization Inc.

P.O. BOX 450, MORRO BAY, CALIFORNIA 93443
(805) 772-4893 • FAX (805) 772-4893 • fish@fix.net

RECEIVED
FEB - 9 2005
PFMC

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Adamantly yours,

Jeremiah O'Brien
President of MBCFO

Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, OR 97220-1384

Bernard Bjork
Darb Fishing, Inc.
F/V New Dawn
36293 Bartoldus Loop
Astoria, OR 97103

Feb. 11, 2005

Dear Pacific Fishery Management Council;

I am against expansion of the VMS system for the following reasons:

A) The VMS system is far to intrusive. The general public would never put up with such a system in there day to day affairs.

B) Other alternatives exist, or could be devised, instead of VMS.

1) Gear alterations. Local Warrenton draggers came up with the Pineapple drag net that reduced by catch of rock fish. Turtle excluders have worked in other fisheries. New hook designs have been shown to help.
2) Artificial reefs. Sink old ships, cars, buildings, dredge spoils, etc., in designated areas. Makes hospitable areas for rock fish, but would wreak havoc on dragnets and longline gear.

There has to be a better way. Fishermen are being asked to do the impossible. From observers, to VMS, to very possible Marine Reserves. Just trying to get to your boat in East End Mooring Basin in Astoria through the huge sea lions on the docks. Then once you get to your boat knowing that you can't even paint your boat in the water any more because you might just get a paint chip in the water. Extension of the VMS system is the wrong way to go. There are far less intrusive alternatives.

Sincerely;

Bernard Bjork
F/V New Dawn

TABLE VMS (B-5)

The Pacific City Dory Fleet are Oregon Salmon fishermen that also target Black Rockfish and Lingcod to maintain our small family operations. Our open boats are 22 to 26 feet in length that must be launched into the surf to reach the fishing grounds. We target Black Rockfish and lingcod inside of 3 miles on the only reef we have. Then when are meager quotas of 1000 pounds of Black Rock every two months and 300 pounds of lingcod are attained and delivered, we venture off to fish Salmon.

The Oregon Salmon Fleet has taken the lead in gear restrictions (the 4 spread rule) that keep our impacts on OCN'S (Oregon Coast Naturals) low. The rule also reduces our impacts on specific rockfish in the RCA. This allows a salmon fishery with the retention of Yellow tail for the Salmon Fleet inside the RCA. Just like the Shrimp Trawl fleet has demonstrated its ability with Excluders to fish inside the RCA without VMS.

With the impending cutbacks in the Salmon fishery and a further reduction for Black Rockfish for 2006 most of our fishing vessels will be at the dock. VMS expansion at this time would virtually track nothing.

The West coast Salmon Fleet and the near shore Ground fishery have little or no negative impacts on the rebuilding of specific stocks. The near shore ground fishery harvest stocks that are healthy, highly regulated and inside of state waters.

The salmon vessels in the state of Oregon have been reduced from a high near 4,700 to only 1,200. Through attrition and regulation requiring a significant financial investment that number has nearly wiped out vessel between 22 and 30 feet. I believe there are only 120 left.

Please Council members vote no on the expansion of VMS to our Salmon and near shore Ground fisheries.

Thank you for your Consideration,

Ray Monroe
Oregon Salmon Commissioner/Pacific City Doryman
Box 98
Pacific City, Oregon 97135

Oregon Coast Sportfishing Association
409 NW 57th St.
Newport, OR 97365

PFMC
Attn: Michael Burner
7700 NE Ambassador Place Ste. 200
Portland, OR 97220-1384

03/07/05

Michael Burner,

We are writing you this letter in regards to our associations concern of the probability of charter boats being required eventually to have Vessel Monitoring System (VMS) installed on their boats. We know they are required on draggers already, which is understandable, with there being specific off limit fishing areas and the known fact draggers don't seem to want to follow the rules.. We are understanding that your next target is the salmon trawlers, this we do not understand, and we are very afraid that if you succeed to have the VMS installed on the salmon trawlers, charter boats are your next target.

Our concerns are the cost factor of installation, monitoring monthly fees, and maintenance expenses. The biggest thing is always being under a watchful eye, a sign of being controlled at all times, not believing in the human race in following rules. Is there really a need to become like the communist, having one in total control of everything. The VMS would be the same as being under lock and key. Please really look at all aspects of this decision and how it makes us all feel and the expense to every one, since charter fishing has become so restricted as it is, costing us a loss in revenue already, why add another expense.

We feel as an association when asked to pool together to help in keeping sports fishing a live, we always have come through and try to even do better than asked. To us this is a real slap in the face as if we were children and do not understand the consequences of wrong choices. We are all adults running a business wanting the best for all and to be able to continue to make a living at we do best and enjoy doing. Please treat us as responsible adults. No to the eye in the sky.

Sincerely,

Lisa J. Plaster
Secretary/Treasurer OCSA

Website: www.ocsa1.com

Al Ritter
2190 SE. Jessa Way
Waldport Ore 97394

March 2-05

P.F.M.C

I'm writing concerning the proposed Vessell monitoring system, Big Brother wants us to have on our Boats. (Salmon trollers)

This is much more about civil liberties than it is about fish. This is done to criminals and convicts, not hard working honest fisherman!

I see this as further erosion of our civil rights that has been going on since the bush administration took over.

Also it is an additional hardship on a struggling environmentally friendly sustainable fishery.

It will cost each salmon troller $ 1,000 a year minimum, not to mention the safety issue and time running to drift outside 100 fathoms.

Also it is crystal clear it will not have hardly any impact on Rockfish. The facts are out there on our Rockfish impact and they are very minimal compared to these Draconian measures.

There has got to be a better approach!

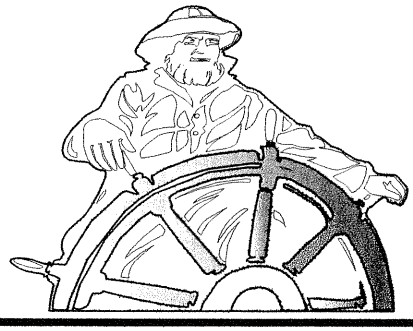
Vms Stinks of Facism!

Sincerely

Al Ritter
F/V Mickey

CRAB BOAT OWNERS ASSOCIATION, INC.

2907 JONES STREET
SAN FRANCISCO, CALIFORNIA 94133-1115
415-885-1180



March 5, 2005

RECEIVED
MAR 14 2005
PFMC

Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, OR 97220-1384

Dear Sirs:

The Crab Boat Owners Association represents 30 central coast crabbers and salmon trollers and this letter our comment on the proposed expansion of the Vessel Monitoring System. We support Alternative 1-Status Quo.

Our reasons include:

1. We don't target groundfish when we are fishing salmon and crab.
2. Even if our incidental take added up to our Open Access quota the dollar value of that catch would not justify the expenditure for the VMS equipment
3. The council is responsible for mismanaging the groundfish. Now you want us to pay the price for your mistakes.
4. We think you are using the VMS to re-allocate open-access quota to the trawl fleet.
5. This excessive monitoring of our movements in un-American.
6. By not allowing vessels with this system to drift in the RCA makes an already dangerous job more so.

The equipment manufacturers couldn't ask for a better salesmen than the PFMC. This whole plan is badly crafted, further eroding our belief in the fairness of the Council process.

Thank You,

Larry Collins
Vice-President, Crab Boat Owners of SF
535 Ramsell St
SF CA 94132

Oregon Trollers Association Inc.
P.O. Box 5846
Charleston, Oregon 97420-0647
541-888-6612

March, 6, 2005

In Opposition of the (VMS)
Vessel monitoring system

The Oregon Trollers Association Inc. (OTA) is opposing the mandatory government tracking device. VMS, is it an ankle bracelet or Federal House Arrest or both? The VMS on Salmon or Albacore fishing vessels has no Law Enforcement or Safety benefits.

Salmon and Albacore Fishermen can fish legally in side all Rockfish Conservation Area's (RCA). Most troller's do not impact rock fish except for a very small retention as by-catch which can only amount to 300-350 lbs. per month of rock fish at 50-75 cents per pound and only 4-spreads per wire, catching rock fish in a waist of a spread, a ridiculous trade for a very expensive electronic watch dog, VMS. Money spent on the VMS could be best spent on upkeep of US Coast Guard Safety Requirements and Vessel Haul Outs

The Salmon Troll Fleet in the 2005 season is now facing the possibility of a much LARGER in season closure because of the short fall of naturally spawning Chinook Salmon in the Klamath River System. Another failed Federal government management program for our benefit.

The Klamath Management Zone (KMZ) management system has cost Northern California and Southern Oregon Communities approximately 125 million to 250 million dollars in economic impacts each year, for 20 years

The VMS system on 6.5 to 8 knot fishing vessels would certainly not fall under Homeland Security, but would answer the question of where some of the 18,000. (Eighteen thousand) VMS units made were going to go.

Under the 5th amendment of the United States Constitution,(Self Incrimination) Isn't it still a U.S.A. Citizens Right to abstain from participating in any such action or program made specifically for Self Incrimination?

Date March 8 2005

F/V [illegible] - 410

Owner [illegible]

Signature [illegible]

Home Port Charleston Oregon

President of the Oregon Trollers assn.

J.D. Evans

F/V seacrest

V.P. Oregon trollers ass.

Charleston Or.

Lester Weatherly
4929 SE Hawthorne
Apt. #212
Portland, OR 97215
(503) 235-1388

March 5, 2005

Mr. Micheal Burner
PFMC
7700 NE Ambassador Place
Suite 200
Portland, OR 97341

Dear Mr. Burner,

I am writing to you and the council regarding the Vessel Monitoring System being considered for the commercial salmon troll boats.

As a part owner of a commercial/charter vessel I think that this monitoring system is unnecessary and cost prohibitive. Rising costs, too many regulations and inaccurate modeling of fish numbers already make it near impossible to fish. The VMS is just another way to impede on our way of life.

You and the council need to turn this proposal down!

Sincerely,

Lester Weatherly

Lloyd Brown
110 SE Douglas
Depoe Bay, OR 97341
(541) 765-2935

March 6, 2005

PFMC
Mr. Micheal Burner
7700 NE Ambassador Place
Suite #200
Portland, OR 97341

Dear Sir:

I am writing to you about the issue of the VMS. Even though I am a retired commercial salmon fisherman, I think that this potential monitoring system is a crock!

The salmon fishermen need the opportunity to fish and don't need to be monitored to do so. They are already regulated enough!

I am asking that you and the PFMC turn this down. Thank you for your consideration.

Sincerely,

Lloyd D Brown

Lloyd Brown

From the Desk Of:
Capt. Corie McGranahan
PO Box 492
Depoe Bay, OR 97341
(541) 574-9527

March 6, 2005

Attn: Mr. Micheal Burner
PFMC
7700 NE Ambassador Place
Suite 200
Portland, OR 97341

Dear Mr. Burner,

I'm writing to you about the Vessel Monitoring System that is being considered for Salmon Troll boats.

I am vehemently opposed to this. As a small commercial boat I find that this would be cost prohibitive. I'm also concerned about the "big brother" aspects of the VMS. We don't need or want to be monitored.

I am asking that you and the PFMC reconsider this proposal and turn it down!

Thank you,

Capt. Corie McGranahan

January 30, 2005

Dear Pacific Fishery Management Council
Board Members
C/O Mike Burner
VMS Contact
7700 NE Ambassador Place, Suite 200
Portland Oregon, 97220-1384

I am a commercial fisherman in the Open Access license bracket off the Washington State Coast. I used to fish near shore for black bass and ling cod in my 21 foot boat. Due to political reasons this area was restricted from me and I was forced to go farther off shore to continue fishing. I have another job but like many people in America that are not government workers, I have to cover my medical insurance and uninsured costs for my family and therefore this is my second job of which I use much of my limited vacation time and weekends each year to accomplish.

I attended the information session at Westport Washington in January, although few attended, as from the description of the meeting notice it appears we were just to be told how it would work. We were also told that the cost of the units would come down after the Tech man's talk of working out a deal for reduced rates as they got all of the open access also buying these units. Nice way of telling us we this has been decided but at a lower price to make us feel better.

The only fishing left for me in Washington State is for Black Cod for which I must travel out about 30 miles each day the weather permits and fish in over 100 fathoms of water. Unlike limited entry boats that have black cod endorsements and also fish the open access quotas, I am only able to fish the open access quota. With the increase in fuel costs and the Coast Guard required safety equipment to be that far off shore, the addition of this expensive monitoring equipment appears designed to make sure that I do not fish at all.

The major problems I see with this for the jigger boats are:
1. The cost of the unit and a place to install it on an already crowded and over taxed electrical system on a 21 foot boat, as well as the requirement to call in when not commercial fishing, but rather fishing for food for the family under a required Washington State sport license. Cell phone service from that area is very limited and we do not obviously have computers on our boats.
2. The problem that as the sole fisherman on the boat and a requirement for the fish to be headed and gutted to sell, means we must float around in the ocean while we clean the fish and the current normally takes us towards shore which to you observing us would mean that we were fishing in closed waters. In deteriating weather we must also head closer to shore so that the water is calm enough to sit and gut the fish without cutting ourselves as the cannery does not let us clean fish at the fish house and the Coast Guard will not let us clean the fish in the Harbor due to environmental rules.

3. We have 10 inch letters on our boats and the Coast Guard does board us to check us out and the helicopters often check our position as due to fuel costs and amounts we can carry we are directly 30 miles or more off shore from LaPush which is a heavily monitored area which should provide adequate monitoring for Fisheries. I understand that California and Oregon do present more of an issue due to additional small boats fishing but a size limit due to the limited amount of quota we are able to access should be considered instead of lumping us in with all the large boats.
4. The cost of financially recovering for this unit is not economically feasible under the price of fish structure and the limited Open Access quotas. I realize that enforcement dollars are few but please try to remember that I also pay for those enforcement actions with my taxes from my other job and then to be put out of business or required to pay a large part of my fish income for this additional equipment so that enforcement can save additional dollars does not seem to be right, although it may be the way government agencies feel benefits them the most. The small boat catch is insignificant in relationship to limited entry boats which also fish Open Access quotas and as such this requirement presents more of an economic hardship to the few remaining jigger fisherman than it benefits the overall monitoring desires of Fisheries and as such a variance should be allowed or this expansion to Open Access not implemented.

Thanks for at least reading what the economic impact on a working person is like as you place VMS into the federal registry.

Robert P. Kraig
131-19 Brim Rd
Onalaska, WA. 98570
360-978-4049
bkraig@myhome.net

1-509-326-40 MICHAEL SALERNO
5207 N. ELGIN
SPOKANE WA 9920

NOAA

I come to this meeting tonight in hopes that the people who are representing marine fisheries tonight are here in all, fairness with an open mind. Not just holding a required meeting before implementing this decision. If this is just a formality, why can't you just be up front and tell use instead of the run around. I remember going to a meeting of the federal utilities commission on a Electric Company asking for an increase in electric rates in eastern Washington and there was over 500 people there in Spokane that were heard till the wee hours of the morning. All saying not to give an increase since they have gotten one every year in last three years in eastern Washington and the power rates have gone up over 35%. A few days later in the newspaper, the commission gave the raise to them any way, only now to find out latter that major corporations were illegally manipulated it.

First I feel that with this V. M. S. that I am being incarcerated as a criminal and that I am under house arrest and being monitored for a crime for which I have not done and that we have to pay for this system and a monthly fee just as a criminal under house arrest would have to do. It is the same as having one put on every automobile in America and if you are speeding they will send you a ticket. In the beginning it was designed to monitor big factory ships and large fleets of boats, limited entree that harvests millions of pounds of fish. I do not know if all foreign fishing vessels operating in our waters have this now?

I fish from a 21 foot boat and used to fish for black bass and ling cod and was told years ago that there was a shortage of black and blue bass here in Washington State

because very little of the fish was being delivered. I said (DUH), why fish for a fish that was only paying 30 cents a pound when you can catch a fish that pay's 75 cents a pound such as lingcod and you did not hear us at all. We told you people that there was no shortage in these fisheries and you told use that the fish buyers are not buying very many of these fish. You said that are research boats went out and there was no fish to speak of. At any one given day you can go out and not catch a fish and the next day limit out, in just a few hours.

With a little manipulation the next thing you know the coast was closed buy some environmental specialist to three miles. Then it was the same old story .Now there is a shortage of lingcod. I said (DUH) that there is lots of lingcod and again I was told that there is no fish being bought and again we told you, why fish for a fish that only pays 60 cents a pound, when you can fish for a fish that pays $2.00 and up to $3.50 a pound. I told the federal agent at Lupush, (that I will not name) to meet me at my boat and I will take him out, show him that there is no shortage and he said that he would meet me at my boat at 4:30 am and never showed up. I asked at the fish house what happened to him. They said that he was done and went back last night. The next year there was a 100-fathom line in place. That was the end of fishing for Lingcod.

This is what I can't under stand about you people, I was asked if I would like to have an observer on my boat 2 times, once in the fall and once in the winter of 2003 when I was on the phone to Seattle. I told them yes. I would like too. I would like to show to you that you have to be on a

working fishing boat to see .Not a research boat. You have to go every day for a couple weeks or more, not just a couple of days. I am also concerned that this V. M. S. is not required of the Indians who are also allowed to fish within the 100 fathom line, inside closed areas for the same fish we fish for. As they don't have to follow any laws, about where too fish either. At the fish house in2004 you were around asking about us jiggers and could not be leave that we were fishing Blackcod. The Fish house said that it sounded like you were accusing us of even stealing fish.

I fish a 21-foot boat and fish with 2 fishing poles an electric jigger. There are now less than two dozen of us jiggers left in the State of Washington, where there used to be a couple of hundred. How do we continue to do this you ask? By going out on nice days that are fare in our small boats.

Without the new expensive fishing lines, and electric reels we could not fish the deep water. We only are able to fish a max of five months of the year again, only on very nice weather days. When this was first proposed it was only too be 26 foot and bigger, limited entrée boats. With what little fish we can catch you can't compare us to the big boys. This is why I am not for the V.M.S. It is an expense that we cannot recover.

Agenda Item B.6
Situation Summary
April 2005

STATUS OF 2005 GROUNDFISH FISHERIES AND INITIAL CONSIDERATION OF INSEASON ADJUSTMENTS

The Council set optimum yield (OY) levels and various management measures for the 2005 groundfish management season with the understanding these management measures will likely need to be adjusted periodically through the year with the goal of attaining, but not exceeding, the OYs.

The Groundfish Management Team (GMT) and the Groundfish Advisory Subpanel (GAP) will meet on Monday and Tuesday (see Ancillary A and Ancillary B agendas) to discuss and recommend inseason adjustments to ongoing 2005 groundfish fisheries. Under this Agenda Item, the Council is to consider this advice and public comment on the status of ongoing fisheries and recommended inseason adjustments prior to adopting final changes as necessary. The Council may want to provide guidance to the GMT and GAP prior to making final inseason adjustments under Agenda Item B.7 on Friday or make final inseason adjustments under this Agenda Item and confirm or clarify the Council decision under Agenda Item B.7.

Council Action:

1. **Consider information on the status of ongoing fisheries.**
2. **Consider and adopt inseason adjustments as necessary.**

Reference Materials:

1. Agenda Item B.6.d, Public Comment.

Agenda Order:

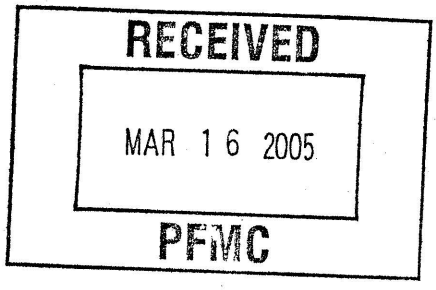
a.	Agenda Item Overview	John DeVore
b.	Report of the Groundfish Management Team	Susan Ashcraft
c.	Reports and Comments of Advisory Bodies	
d.	Public Comment	
e.	**Council Action:** Initial Consideration of Inseason Adjustments in the 2005 Groundfish Fishery	

PFMC
03/18/05

THE CRESCENT CITY
CHAMBER of COMMERCE
Chris Howard
1001 Front Street
Crescent City, CA 95531

GREEN DIAMOND RESOURCES
Chris Howard
Orick, California

March 14,2005



Re: Sport fishery cut-back and the economic disaster to Crescent City and Del Norte County.

Chris,

Just to bring you up to speed on what's going on. In 2003 the Federal Pacific Fishery Management Council in Portland, Oregon. Came up with an un-scientific study called estimating, according to their figures there were 432 metric tones of black rock fish caught in the northen California District that year, the California Department of Fish and Game lead the public to believe they did a scientific study, not so. The Federal Pacific Fishery Management Council then ordered the California Department of Fish and Game to start shorting the fishing seasons. We are a rural county here on the edge of the wilderness in Northen California, we have no problems with the numbers of rock fish in our area, It's time we all stood up to the Federal Government to get our constitutional and civil rights back.

In 2004 the Department of Fish and Game cut our fishing season to (7) months, with this shortened season Crescent City and Del Norte County suffered some tourism and revenue losses that year.

In 2005 the Department of fish and Game cut our season to just (4) months, the season this year runs from July 1st through October 31st, with the off shore weather we have here at Crescent city in the summer, the season will be less than a (4) month fishing season this year. Every one I know that fish the ocean waters are taking their business to Oregon this year because of the open fishing season. According to the Pacific Fishery Management Council, they plan on having another (4) month season in 2006. This is pure and simple, economic damage caused by the Federal Government to our small community. This County can not afford to let this continue.

We presently have a petition circulating in several cities in Northen and Central California and parts of Oregon, we started this petition drive on March 7, 2005, in this first week we collected approximately 1500 signatures, the originals copies were sent out by over-night mail on March 14, 2005 to the California Fish and Game Commission, they will be holding a meeting in Oakland CA. On March 18, 2005 to address this issue of the fishery cut-back, I will be mailing copies of these petitions to the Pacific Legal Foundation in Bellevue, Washington. We will continue to keep our petitions in circulation to collect more signatures until this issue is resolved. I would like to see the entire State of California get involved in this fight.

I attended a Crescent City Council meeting on March 7, 2005 and read a letter addressed to the City Council, Mayor Dennis Burns assured me the city will be involved in this issue. On March 10, 2005 I had a meeting with Chuck Blackburn of the Del Norte County Board of Supervisors, Chuck has put this issue on the agenda to be heard on March 22, 2005. At the next supervisors meeting.

On March 10,2005 I took a copy of my letter to the editor to our local radio station KPOD, their news department has been running news segments all week long on our petition drive and the damage the State and Federal Government are doing to our community because of this fishery cut-back.

Inclosed you will find a copy of my letter to the Editor dated March 10, 2005, this article should appear in the news paper in the next couple of days. While I was in the office of the Daily Triplicate news room on March 14, 2005 the Editor Mike Schmeltzer ask me to speak to a reporter on the issue of the Sport Fishery cut-back and economic damage to Del Norte County.

Chris, I hope this information will give you some insight as to the kind of problems this fishery cut-back are causing in Del Norte County, if you have any other questions on issue please feel free to give me a call.

Harold Frazier
200 Sorrel Ridge Road
Crescent City, CA.95531
Phone, (707) 465-4901
Fax, (707) 464-2586

Letter To The Editor
The Daily Triplicate
Mike Schmeltzer

March 10, 2005

Re: Sport fishery cut-back and the economic disaster to Crescent City and Del Norte County.

I'm a concerned resident and sport fisherman of this county, we have a very real problem facing Del Norte county, that started last year when the California Department of Fish and Game decided to cut our near shore or ground fishing season in 2004 by (5) five months, all of our businesses in Del Norte county suffered some revenue losses that year.

Now here we are in 2005 and the Department of Fish and Game is back at it again, instead of a (5) month closure, this year they will be cutting our ocean fishing season (8) eight months, the Department of Fish and Game charged the public $33.35 for a fishing licenses to fish for twelve months, then they turned around and cut our fishing season to (4) four months, I personally think the Department of Fish and Game is way out of line on this one, I have a lot of friends here in Crescent City that fish the ocean waters, this year they are all taking their business to Brookings Oregon. As you know, tourism is the largest part of Del Norte counties revenue, this county can not afford to let this continue, Crescent City use to be a destination point, not so these days, every business in Crescent City will lose more revenue this year than they did last year, it will be the same in 2006 with another (4) four month fishing season if their not stopped, the Government will keep on taking until they run this county into the ground.

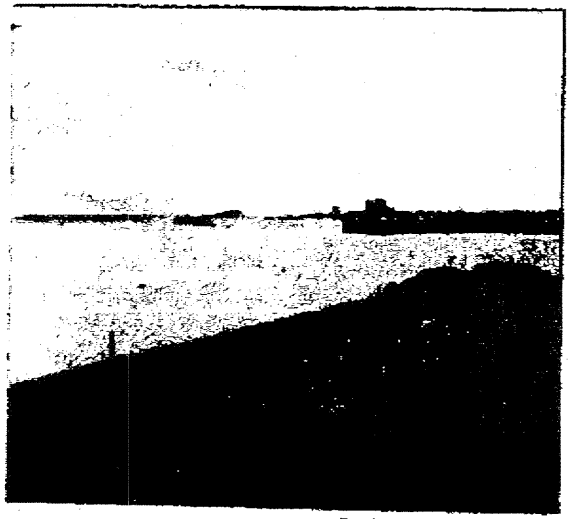
I am a sport fisherman and I fish 2 or 3 times a week and I can tell you, we have no problems with the numbers of bottom fish in our area, the Pacific Fishery Management Council lied to the public about doing a scientific study off the northen coast of California, they never did a scientific study, they just pulled the numbers out of thin air, in the last twenty years of fishing out of Crescent City I had one student from the University of California take a look at my rock fish catch, that was about ten years ago, know one from the Department of Fish and Game has ever counted or weighed my bottom fish catch in the twenty years I've fished here.

What I'm asking of the public is to write letters addressed to the Pacific Fishery Management Council in Portland, OR. and the Department of Fish and Game in Sacramento and Eureka, CA. explaining your feelings over the loss of tourism and revenue to Del Norte County because of this ground fishery cut-back over the last two years, we presently have a petition circulating in our area to help fight this action by the Department of Fish and Game in court if necessary, everyone in Crescent City should get out and sign these petition, they can be found at businesses around town. **You do not have to be a California resident to sign this petition.** I will be sending copies of these signed petitions to the Office of the Pacific Legal Foundation in Bellevue, Washington, the Pacific Legal Foundation is an origination that helps the public fight these government agencies. Im inclosing a copy of the agency address list for your conveniences.

For more information, contact;
Harold Frazier
200 Sorrel Ridge Road
Crescent City, CA 95531
Phone, (707) 465-4901, Fax,(707) 464-2586

2/15/05

Harbor Commission to take up issue of recreational boat slips



The Daily Triplicate/Alyssa Wolfe

This area is where recreational boat slip are put in during Crescent City Harbor's summer season

By Katherine Kerlin

Triplicate staff writer

A year-round recreational groundfish season reduced to four months for 2005 and a dubious salmon season are expected to continue a trend of fewer recreational boaters using the slips in Crescent City Harbor's outer basin.

During tonight's meeting, the Harbor Commission will discuss how many slips to install for the coming summer season, which extends from May through October. The 41 slips recommended may be the fewest ever at the harbor.

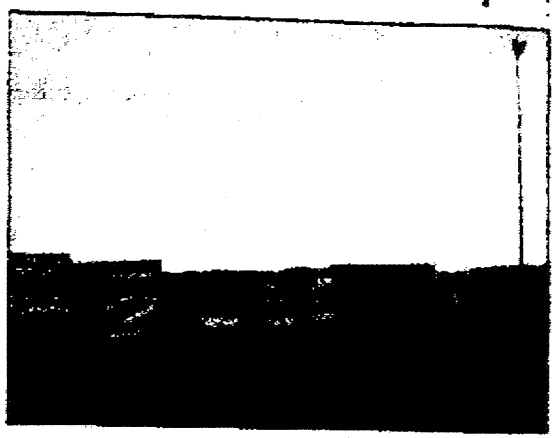
"We're trying to take an analytical look of how many slips we should put in," said Harbormaster Richard Young. "We can't afford to waste any money. If we don't need the slips, we don't want to put them in."

Of the 103 slips installed in 2004, only 69 were used during the peak season in July. The season average number of recreational boats moored at Crescent City Harbor fell from 77 in 1998 to just 31 in 2004.

A subcommittee is recommending to the Harbor Commission that 41 slips be installed this season.

Because the slips are more exposed to weather conditions, the harbor district removes docks and mooring slips in the outer basin every fall and re-installs them in the spring.

(See *Harbor*, Page A10)



The Daily Triplicate/Alyssa Wolfe

The recreational slips are stacked up at the harbor awaiting use.

2/15/05

1 of 2

2/15/05

Harbor: Outer basin floats cost $30,000-plus last year

(Continued from Page A1)

The cash-strapped harbor district spent more than $30,000 installing, maintaining and removing outer basin floats during the 2004 season.

Dropping revenue for the harbor district has accompanied the declining recreational slip rentals. Outer basin revenue fell by 70 percent between 1998 and 2004 — from $74,000 to $22,000, with earnings in 2004 only half of those garnered in 2003.

A Harbor Commission report said the number of slips rented tends to increase with the opening of sport salmon season. That season will not be set by the Pacific Fishery Management Council until April. But concern about the rate of return from the 2002 Klamath River fish-kill is expected to keep strict regulations in place.

IF YOU GO
What: Harbor Commission meeting
When: 6:30 p.m. today
Where: Harbor District office, 101 Citizens Dock Road

Last year, some sport fishermen went to Brookings because of fewer salmon restrictions in Oregon than those in California.

This year's shortened groundfish season in California is expected to send even more sport fishermen north from Crescent City to Brookings.

Brookings Harbormaster Mike Blank said the Brookings harbor, with 750 commercial and recreational slips, is mostly booked for the season, but there may be some room for boats 24 feet and smaller.

The groundfish season reduction was deemed necessary by the Pacific Fisheries Management Council to keep black rockfish harvests within catch limits.

The shortened season is based primarily on the recreational catch of black rockfish, which had a dramatic estimated one-year increase, from 200,618 pounds in 2002 to 952,387 pounds in 2003. The estimated figure is determined by a telephone survey, and some fishermen and harbor commissioners think it is incorrect.

Kenyon Hensel, a fishermen who has attended PFMC meetings, is expected to give a brief presentation tonight about the sport limit and possible ways to extend the season.

"Fish and Game has restricted the sport season out of erroneous information," said Hensel. "I don't like the fact people are unable to fish when there's no good reason for it. They go over the line to Brookings, where the stock of fish is the same."

Given the impact of the shortened season on the harbor, the commission may ask the California Department of Fish and Game to re-examine the decision, with the hope of extending the season.

The Harbor Commission said it is possible all recreational vessels could be accommodated in the inner basin, where commercial boats are moored.

However, it would be a longer walk for boat owners to reach their vessels than in the inner basin. This could be difficult for the elderly and those whose medical conditions make walking a task.

Another issue is sea lions, who congregate on the outer edge of the outer basin and often damage electrical wirings and water lines there.

To respond to these issues, the subcommittee is recommending running services only halfway along each dock and installing an additional sea lion dock that would be visible, but not accessible, to the public.

The subcommittee also recommends installing 41 slips in the outer basin rather than the 105 installed last year. Any overflow from recreational boaters may be accommodated in the inner basin.

The Harbor Commission has not yet agreed to the recommendations.

"Some people come back to the same slip year after year, and now we're talking about changing them," said Young. "That will not be popular with some folks. But we have to do something. When the world is changing around you, you've got to react to it. I hope people are patient and that people will adjust with us."

2/15/05
2 of 2

2/17/65 Editorial

Sport fishery cutback not justified by science

For as long as anyone can remember, sport anglers were allowed to go after groundfish out of Crescent City Harbor any time of the year. But this year, the California Department of Fish and Game is shortening the season to just four months.

There are certainly scenarios under which we would willingly accept a cutback, even one this drastic. If there was real scientific evidence that the fishery was endangered and in need of protection, we would endorse the shortening of the season. Preserving this important resource for the long term is reason enough to conserve today.

But the decision to cut short our groundfish season was based on data that nearly everyone views as highly suspect.

According to the federal Pacific Fisheries Management Council, the recreational catch of black rockfish in this district was up from 200,618 pounds in 2002 to 952,387 pounds in 2003.

That's a whopper of a one-year increase and, seen as part of a larger trend, legitimately might raise the specter of overfishing. Trouble is, these aren't actual catch numbers.

Instead, they're estimates based on telephone surveys that didn't even target licensed sport fishermen. The poundage numbers simply were extrapolated from a very small number of survey respondents who reported catching rockfish between Cape Mendocino and the California-Oregon state line.

We don't think this is reliable science — and we certainly don't think it ought to be the basis for highly restrictive regulations that could harm the local economy and have potentially devastating effects on Crescent City Harbor's role as a sport fishing port. We hear sport fishermen are heading in droves to Oregon this year and taking their dollars with them.

We urge the Department of Fish and Game to take a hard look at the catch estimates that led to this drastic cutback.

We hope the Harbor Commission will aggressively pursue the matter with both Fish and Game and the Pacific Fisheries Management Council.

And we suggest that local anglers, boat owners, business people and anyone else with a stake in the future of Crescent City's sport fishing industry also let their concerns be heard.

Together, we must demand regulations that reflect real science.

— *The Daily Triplicate*

2/17/05

2/19/05

Ocean sport fishing season cutback is too extreme

The new ocean fishing closure until July 1 ("Sport fishery cutback not justified by science," Editorial, Feb. 17) is a little extreme in my opinion.

I just bought a new boat a year ago last November. Now it's going to sit in the garage for eight months out of the year?

I live in Crescent City and the nearest decent lake to fish is three hours away. With the cost of gas spiraling up, it isn't cost effective to travel that far to fish with only two days off to do it in! Fishing off the coast is all we have here with a boat.

You should take into consideration that the wind here blows more often than not. A lot of the time you can't even get out because of small craft warnings. You can only hope the ocean is fishable on your day off.

With only four months out of the year now to fish, the days we will be able to get out will be minimal.

With this critical decision, it will kill what few businesses we have up here. It will be an economical disaster. The fish and tackle shops will be devastated. The hotels, RV parks, restaurants, boat dealers, grocery stores, etc., will be greatly impacted. Fewer people will travel here for coastal activity. Mooring fees as well as launching fees will be lost.

Fish and Game should reconsider this closure and give back our fishing privileges that we pay for in our annual fishing license.

Dwane Griffin
Crescent City

2/19/05

Rockfish: 'Common sense says ... take another look'

(Continued from Page A1)

The Fish and Game number is actually less than the harvest target of 158,732 pounds.

"The salient point for us is, if we're below the harvest target, why in the world are we getting our season cut back?" Crescent City Harbormaster Richard Young said.

When asked that same question, Deborah Aseltine-Neilson, a research analyst with Fish and Game, said comparing the two surveys is "like looking at apples and oranges."

While the catch levels were the state survey's findings, the harvest target numbers were based on the federal survey. Aseltine-Neilson said the two surveys' methods were too different to compare them.

Young

But by September, Fish and Game expects to have a rough adjustment of the surveys that could potentially extend the groundfish season to the end of the year this year and next.

In 2003, the federal study was based on a random digit dialing telephone survey performed every other month in coastal California. If a fishing household was found, the occupants would be asked when they last fished, from what type of boat, and how much fish they caught.

Fish and Game also uses a phone survey, but calls only licensed anglers. It also uses more on-site samplers in the field, is performed every month, and it covers six different areas instead of two used in the federal survey. One of those areas is the Del Norte/Humboldt region.

The groundfish season could be extended if Fish and Game, Pacific Fishery Management Council and the National Marine Fisheries Service agree to review the previously recorded black rockfish catch and find it to be inaccurate.

"Just because 2006 is written in the regulations now doesn't mean it cannot be changed," said Aseltine-Neilson. "But that would have to happen through council process."

The Harbor Commission will discuss the matter at tonight's meeting. "According to the process (Pacific Fishery Management Council) established, they shouldn't change anything," said Young. "But common sense says we should take another look at these issues."

3/1/05 From THE DAILY TRIPLICATE

Updated numbers for rockfish harvest may help extend season

By Katherine Kerlin
Triplicate staff writer

A new survey of the 2003 black rockfish catch may give California sport fishermen and the Crescent City Harbor new hope of extending the season later this year and in 2006.

The year-round groundfish season was recently reduced to four months, between July and October, for both 2005 and 2006.

The 2003 federal Marine Recreational Fisheries Statistical Survey, used by the Pacific Fishery Management Council to determine the number of fish taken and catch limits, reported a catch of 952,387 pounds of black rockfish in 2003. It was a dramatic increase from the 200,618 pounds caught in 2002.

That increase raised the eyebrows of local sport fishermen and others, who said it was too big.

The California Department of Fish and Game released its own survey in late February that showed a marked difference in data — 116,624 pounds caught versus the 952,387 pounds in the federal survey.

(See *Rockfish*, Page A10)

IF YOU GO
What: Harbor Commission meeting
When: 6:30 p.m. today
Where: Harbor District office, 101 Citizens Dock Road

3/1/05

3/2/05

Harbor calls for review of rockfish figures

By Katherine Kerlin
Triplicate staff writer

The Crescent City Harbor Commission added its name to a growing list of those campaigning for a review of 2003 black rockfish figures that led to a reduction in the groundfish season from year-round to four months.

Figures from a new California Department of Fish and Game fish catch survey are decidedly lower than those reported by the federal Pacific Fishery Management Council. The state agency found 116,624 pounds of black rockfish were caught in 2004, while the federal agency found 952,387 pounds were caught in 2003.

■ Fishermen allowed into Klamath suit, A3

During its meeting Tuesday, the Harbor Commission agreed to send a letter to the Pacific Fishery Management Council, which sets the fishery seasons, emphasizing the economic damage that such a limited season could cause to both the harbor and local fishermen.

"It appears to me there's no justification for restricting the season," said Harbormaster Richard Young. "My recommendation is to pursue as vigorously as we can getting this changed back to a 12-month season."

Sport fisherman Harold Frazier told the commission that he spoke with the Pacific Legal Foundation in Washington to get it involved in the issue.

"Businesses are going to lose money here every year," said Frazier. "This isn't going to stop until the government has a rope around our neck."

(See *Fish*, Page A3)

Fish: State, federal figures appear at odds

(Continued from Page A1)

The state numbers appear to be below the target harvest level. But Department of Fish and Game officials say the figures should not be compared with those of the federal council because the surveys' methodologies differ significantly.

Sport and commercial fishermen are expected to make a strong showing regarding the issue at a March 17-18 meeting of the state Fish and Game Commission in Oakland.

Local fisherman Kenyon Hensel, who has been pursuing the issue, said a comparison of black rockfish catches in Brookings to those in Crescent City and Eureka suggest the federal survey's high numbers may not be possible.

Fishermen in Brookings caught 145,505 pounds of black rockfish with 376 sport fishing slips in 2003, while the Pacific Fishery Management survey said 952,387 pounds were caught with only 69 sport slips in Crescent City and another 30 slips in Eureka.

"For us to catch that, we would need six or seven times as many boats as Brookings," said Hensel.

The Department of Fish and Game said Wednesday there is a chance the season may be extended toward the end of this year and into 2006 if the Pacific Fishery Management Council determines that the new information is more accurate after the figures have been adjusted for comparison.

3/2/05

2005 Recreational Groundfish Season Background.

The recreational groundfish season in Northern California (from approximately Cape Mendocino to the OR/CA border) is scheduled to open July 1, 2005 and close October 31, 2005.

This reduced season results from the estimated Black Rockfish catch of 432 metric tons in this area in 2003. This estimated 2003 catch is

- Almost **four times larger than any previous year**.
- Almost **five times larger than in 2002**.
- **Eight times larger than the catch in 2004**.
- Over **six times larger than the catch in Brookings during 2003**.

Year	1996	1997	1998	1999	2000	2001	2002	2003	2004
BR Catch	81	52	68	71	56	138	91	432	53

The 2003 catch is so large that it is just not believable.

In March of 2005 the California Department of Fish and Game produced a report estimating the 2004 recreational catch of Black Rockfish at 52.9 metric tons. This was well within the target harvest of 72 metric tons. (This report is available on the internet at http://www.pcouncil.org/bb/2005/0305/ir_2.pdf). A table is attached.

According to the most recent stock assessment (July, 2003, p. iv) "The northern California-Oregon stock of black rockfish is in healthy condition, with 2002 spawning output estimated to be 49% of the unexploited level. This places the stock well above the management target level of B(40%)."

The California Fish and Game Commission will reconsider recreational rockfish seasons at their meeting in Oakland on March 18, 2005. Letters, phone calls, emails, and signing this petition will help us bring this to their attention.

California Fish and Game Commission
1416 Ninth Street
Sacramento, California 95814
(916) 653-4899
Email fgc@dfg.ca.gov

To the California Fish and Game Commission: March 2005

The most recent estimate from the California Department of Fish and Game indicates the 2004 recreational catch of Black Rockfish in the Northern California area was 52.9 metric tons. This catch resulted from a seven month season in 2004, and was LESS than the target harvest of 72 metric tons.

Because recreational fishermen were UNDER their target harvest in 2004 with a seven month season, we request that you reconsider this years regulations and open the Northern California recreational groundfish season May 1, 2005 and allow it to remain open until December 31, 2005 or until such time as the target harvest is attained.

Name	Address

MARCH 15, 2005

Groundfish limit spurs petition

Signatures gathered to fight shortened season

By Matt Mais
Triplicate staff writer

A local sport fisherman is rousing Northern California and Southern Oregon residents against a controversial regulation that he contends could turn Crescent City into a ghost town.

In 2004, California's recreational groundfish season was shortened from year-round to seven and a half months. This year, it was further filleted to four months, July to October.

Harold Frazier of Crescent City said Monday that in one week he collected 1,500 signatures on a petition seeking to have the recreational groundfish season reopened in May and kept open year-round again. He said he circulated the petition from Medford to Sacramento.

Frazier planned to have the petition delivered overnight Monday to the California Fish and Game Commission, which is scheduled to discuss the issue during sessions Thursday and Friday in Sacramento.

Frazier said limiting bottom fishing to the July-October period will hurt the local economy across the board.

"It's like a stack of dominoes. If the fishing goes, the tourism goes. When the tourism goes, business start to suffer, and they are already suffering," Frazier said.

(See *Fish*, Page A12)

Fish: Petition seeks year-round season

(Continued from Page A1)

The season was shortened based on federal Pacific Fishery Management Council figures showing a catch of 952,387 pounds of black rockfish in 2003 — a dramatic increase from the 200,618 pounds caught in 2002.

That report raised the eyebrows of local sport fishermen, who said it was too big.

"To get those kind of numbers, we would have had 50 times as many boats fish out of this harbor," Frazier said Monday.

The California Department of Fish and Game released its own survey in February that showed a marked difference in data — 116,624 pounds caught.

The federal numbers were based on a random monthly telephone survey of California coastal areas. If fishing households were called, they were asked how much groundfish they caught, from what kind of boat and when they last fished.

> *'We hope the decision is made on the best possible scientific data available.'*
>
> — Chris Howard, VP
> Del Norte-Crescent City
> Chamber of Commerce

"That's not scientific. They pulled those numbers out of thin air," Frazier said.

Frazier believes the state numbers are accurate, because they jive with historical catch amounts as well as with his personal experience. The state also used a phone survey, but called only licensed anglers. It also used samplers in the field.

Also, the state survey covered six different areas instead of the two used in the federal survey. One of those six areas was the Del Norte/Humboldt region.

The groundfish season could be lengthened if authorities review the federal figures and find them inaccurate.

"We hope the decision is made on the best possible scientific data available," said Chris Howard, vice president of the Del Norte-Crescent City Chamber of Commerce.

"Any further closure of the current sportfishing season would have a significant effect on our local economy and would have a trickle-down effect on our whole community," Howard said.

3/15/05

377 J STREET CRESCENT CITY, CALIFORNIA 95531-4025

Administration/Finance: 707-464-7483 Public Works/Planning: 707-464-9506
Utilities: 707-464-6517 FAX: 707-465-4405

March 11, 2005

Pacific Fishery Management Council
77000 NE Ambassador Place
Portland, OR 97220-1384

Gentlepersons:

The recent development in the recreational ground fish regulations is of much concern to the City of Crescent City and its residents. As you know, we have a deep and strong interest in both the commercial and sport fishing activities of our area. Any reduction in this season would have a detrimental effect on our economy and way of life.

We feel that the Black Rockfish catch of 432 metric tons during 2003 is much larger than in previous years. Also, the recreational catch of this species at 52.9 metric tons was well within the target harvest of 72 metric tons in 2004.

Because of the above data, we are requesting that you reconsider this years regulations and open the Northern California recreational ground fish season on May 1, 2005, and allow it to remain open until December 31, 2005, or until such time as the target harvest of 72 metric tons is attained.

Sincerely,

Dennis Burns
Mayor
City of Crescent City, CA

DB:dn

377 J STREET CRESCENT CITY, CALIFORNIA 95531-4025

Administration/Finance: 707-464-7483 Public Works/Planning: 707-464-9506
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Sincerely,

Dennis Burns
Mayor
City of Crescent City, CA

DB:dn

Agenda Item B.7
Situation Summary
April 2005

FINAL CONSIDERATION OF INSEASON ADJUSTMENTS

Consideration of inseason adjustments to ongoing groundfish fisheries is a two-step process at this meeting. The Council will meet on Wednesday and consider advisory body and public advice on inseason adjustments under Agenda Item B.6. If the Council elects to make final inseason adjustments under Agenda Item B.6, then the Council task under this Agenda Item is to clarify and/or confirm these decisions. Otherwise, the Council task under this agenda item is to consider advisory body advice and public comment on the status of ongoing fisheries and recommended inseason adjustments prior to adopting final changes as necessary.

Council Action:

1. **Consider information on the status of ongoing fisheries.**
2. **Consider and adopt inseason adjustments as necessary.**

Reference Materials: None.

Agenda Order:

a.	Agenda Item Overview	John DeVore
b.	Report of the GMT	Susan Ashcraft
c.	Reports and Comments of Advisory Bodies	
d.	Public Comment	
e.	**Council Action:** Make Inseason Adjustments as Appropriate in the 2005 Groundfish Fishery	

PFMC
03/17/05

CONTROL DATE FOR THE LONGLINE SPINY DOGFISH FISHERY

The longline fishery for spiny dogfish is currently prosecuted by a limited number of vessels specializing in the fishery during the winter and early spring months when dogfish occur in fishable concentrations off the northern coast. The dogfish market is also relatively limited. A formal stock assessment for West Coast dogfish has not yet been conducted, but one is planned for the next assessment cycle (2007). Even in the absence of a formal assessment, life history information indicates that characteristics of the spiny dogfish (slow growing, late maturing, low fecundity) make it susceptible to overfishing. Dogfish populations have been depressed as a result of fishing in areas of Puget Sound and have been declared overfished on the East Coast.

Dogfish are currently included in the optimum yield for "Other Fish" in the management specifications for the Pacific Coast groundfish fishery. Given the life history characteristics of dogfish and their status in other areas, the Council may wish to consider adopting a separate acceptable biological catch and optimum yield for dogfish along with harvest control regulations (trip limits, etc.) as part of the 2007-2008 management cycle. Therefore, the Washington State government seat requests consideration of a mechanism to maintain the viability of the historical. Requiring a longline dogfish endorsement or permit based upon catch history is one mechanism that could be used to preserve the stability and economic viability of the current fishery should overall reduction of total catch become necessary.

Implementation of a dogfish endorsement or other mechanism to control dogfish catch for longline vessels would require an amendment to the fishery management plan. The results of stock assessments conducted and reviewed in 2007 could affect management measures considered as part of the 2009-2010 management cycle. Therefore, longline dogfish endorsements or other mechanisms to control dogfish catch, if approved, would be effective in 2009, at the earliest. A draft proposed process and timeline is outlined in Agenda Item B.8.b, Attachment 1.

While the potential effective date is a few years away, it will likely take over a year for National Marine Fisheries Service staff to draft the proposed and final rule and implement the resulting endorsement or permit application review, response, and appeal processes. As industry members are already aware that the Council may be considering limiting participation in the longline dogfish fishery in the future, it may be prudent to set a control date sooner, rather than later. Delaying adoption of a control date could lead to increased participation in the longline dogfish fishery by individuals anticipating the need to establish a catch history to qualify for an endorsement or permit in the future.

Council Action:

Consider Establishing a Control Date for the Longline Spiny Dogfish Fishery.

Reference Materials:

1. Agenda Item B.8.b, Attachment 1: Potential Longline Endorsement for Spiny Dogfish, Preliminary Draft Process and Timeline.

Agenda Order:

a. Agenda Item Overview — John DeVore
b. Report and Recommendations of Washington Department of Fish and Wildlife
c. Reports and Comments of Advisory Bodies
d. Public Comment
e. **Council Action:** Consider Establishing a Control Date

PFMC
03/21/05

Potential Longline Endorsement for Spiny Dogfish
Preliminary Draft Process and Timeline

Apr 2005 Council consider setting control date for longline endorsements

June 2005 Begin drafting FMP amendment for implementation of longline endorsements

Nov 2005 Initial consideration of draft groundfish management measures for 2007-08

Management measures could include:

- Consider opening 2 discrete areas for limited entry longline vessels
- Separating dogfish from "other fish" category; set separate ABC/OY for dogfish
- Consider setting trip limits for limited entry trawl, fixed gear, and open access fisheries

June 2006 Final adoption of groundfish management measures for 2007-08

Sept 2006 Draft FMP amendment for longline endorsements presented to Council

2007 Stock assessment on spiny dogfish

June 2007 Final FMP amendment for longline endorsements considered for approval

July 2007 NMFS staff drafts rule language to implement longline endorsements

NMFS permits office proceeds with endorsement application review, response, and appeal processes

Jan 2009 Longline endorsement rule effect**ive**