NATIONAL MARINE FISHERIES SERVICE REPORT ON GROUNDFISH MANAGEMENT

Situation: The National Marine Fisheries Service (NMFS) will report on its regulatory activities and developments relevant to groundfish fisheries. Specific items for discussion include an update on 2003 regulations and progress made in the rulemaking process, a briefing on recent negotiations with Canada concerning whiting allocation and management, and other issues of interest to the Council.

Council Task:

1. Discussion.

Reference Materials:

1. None.

Agenda Order:

a. Agendum Overview (Including Update on 2003 Regulations and U.S./Canada Whiting Meeting) — Bill Robinson
b. Reports and Comments of Advisory Bodies
c. Public Comment
d. Council Discussion

Groundfish Fishery Strategic Plan (GFSP) Consistency Analysis

This agenda item is not expected to require Council decision making that raises issues of consistency with the GFSP.

PFMC
10/15/02

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON STATUS OF FISHERIES AND INSEASON ADJUSTMENTS

The Groundfish Advisory Subpanel (GAP) met with the Groundfish Management Team (GMT) to discuss necessary harvest adjustments for the remainder of the 2002 season.

The GAP concurs with the GMT recommendation that the limited entry small footrope trawl fishery north of 40° 10' N latitude be allowed a 500 pound per month incidental catch of widow rockfish and a 300 pound per month incidental catch of nearshore rockfish for the months of November and December. These incidental limits were in place earlier in the year, will not risk attainment of optimum yield, and will provide a means of avoiding discards in the multi-species fishery.

As a general note, although not directly applicable to inseason adjustments, the GAP suggests that in the future the Council and the GMT consider a generic incidental catch allowance for all gear types in order to avoid discards.

PFMC
10/29/02

GROUNDFISH MANAGEMENT TEAM REPORT ON STATUS OF FISHERIES AND INSEASON ADJUSTMENTS

Just prior to the November Council meeting, the Groundfish Management Team (GMT) became aware that the landings of canary rockfish reported in the quota species monitoring (QSM) system (40 mt) had exceeded the commercial landed catch optimum yield (OY) (35 mt) by 5 mt. This represented an increase of 6 mt from the landed amount estimated at the time of the mid-October GMT meeting, and was attributed to landings in the state of Washington. This increase does not reflect catch occurring in October, but rather corrections to the original soft data submissions from the summer, based on the incorporation of fishticket data from that period into Pacific Coast Fisheries Information Network (PacFIN). The GMT believes the two major sources of this significant increase involve inadequate incorporation of tribal catch in the soft data submissions and QSM correction factors for canary rockfish in Washington that apparently reduced the estimates of catch for the summer's soft data submissions. The GMT will be pursuing means of reducing the likelihood of such surprises occurring late in the year during 2003. This circumstance emphasizes the importance of timely hard data submissions from the coastal states.

In an effort to evaluate the need for immediate inseason closures in commercial shelf fisheries, the GMT reviewed the status of recreational landings of canary in 2002. The GMT's best estimate of recreational canary landings through the end of the year is less than 20 mt. Given the July 1 closure of recreational fishing outside of 20 fm south of 40^{o} 10' N latitude, the fact that Washington's estimates of recreational landings are complete through August, and the historical pattern of reduced winter recreational landings in the north, we feel confident this estimate is not likely to be greatly exceeded by the end of the year. Given that the 2002 recreational OY is 44 mt, and the additional canary mortality projected for remaining commercial opportunities is minimal, the GMT does not believe that closure of shelf trawl opportunities for the remainder of the year is necessary to ensure total mortality does not exceed the 2002 rebuilding OY for canary.

The GMT learned earlier this month of the inadvertent omission of an allowance for widow rockfish and nearshore rockfish retention north of 40° 10' N latitude with small footrope trawls. The GMT, therefore, recommends landing limits of 500 pounds of widow rockfish per month and 300 pounds of nearshore rockfish per month using small footropes for the remainder of the year. This recommendation will decrease discard of incidental bycatch of these species while pursuing nearshore flatfish species in the north.

An additional inseason issue was raised with the GMT at this meeting. It was brought to our attention that the prohibition on groundfish retention in all exempted trawl fisheries, approved in September for the remainder of 2002, has resulted in discards of small amounts of valuable flatfish species in the trawl fishery for California halibut. We believe that allowing minimal retention of flatfish bycatch in this fishery, which occurs largely inside of 40 fm, is unlikely to result in any additional bycatch of bocaccio. We recommend allowing retention of up to 100 pounds per day of flatfish species in the presence of at least one California halibut and between 100 pounds and 300 pounds of flatfish provided flatfish poundage does not exceed California halibut poundage. Because of the small size of this limit and the variability of California halibut catch rates, we favor suspension of the previous requirement that groundfish poundage not exceed non-groundfish poundage for landings in this fishery.

We also advocate altering 2003 regulations for bycatch in this fishery. The current regulation allows retention of 300 pounds of groundfish per day, provided that groundfish poundage does not exceed non-groundfish poundage. We propose adding to this an opportunity to land up to 100 pounds of groundfish without the ratio requirement, provided at least one California halibut is landed. Additionally, we recommend changing the adopted monthly cap of 3,000 pounds, no more than 300 of which may be species other than sanddabs, to a cap of 3,000 pounds per month, no more than 300 pounds of which may be species other than Pacific sanddabs, sand sole, starry flounder, rock sole, curlfin sole, or California scorpionfish. Groundfish retention allowances in other open access and exempted trawl fisheries would remain as previously specified. Vessels fishing for sea cucumbers that also encountered and retained California halibut would still have access to the higher 300 pound daily limit for groundfish, but only if their non-groundfish poundage was at least as great as their groundfish poundage.

PFMC
10/30/02

MEMORANDUM

OREGON DEPARTMENT OF FISH AND WILDLIFE

DATE: October 7, 2002

TO: Don Bodenmiller

FROM: Bob Hannah

SUBJ: Analysis of 1999-2002 Recreational Data

This memo summarizes some recent analysis trying to answer the question "Are recreational fishers still targeting canary and/or yelloweye rockfish in offshore fishing trips?" The analysis I conducted indicates they are not targeting these fish, but appear to be actively avoiding them.

Methods

This analysis focused on the recreational catch and species composition data from 1999 through 2002. This time period was used for two reasons. First, prior to May 1999, species composition data was not tied to individual trips, so the type of analysis conducted here cannot be done on earlier data. This time period also encompasses fishing under less restrictive catch limits (1999), as well as fishing under the current limits of 1 canary rockfish and 1 yelloweye rockfish per angler per day. In 1999, the rockfish bag limit was 15 rockfish, with no sub-limits for offshore species. In 2000, the bag dropped to 10 rockfish with a sub-limit of 3 canary rockfish, then in 2001 the sub-limit was dropped to 1 canary rockfish. In 2002, a sub-limit of 1 yelloweye rockfish was added. Also, we began collecting catch data by reef area, either "inside" or "outside" in 1999, so this is really the only data set that can be used for this analysis.

In concept, determining how targeting is changing relies on analysis of changes in the frequency of catch rates above some threshold. Targeting increases these frequencies while avoidance should reduce them. Consider the distribution of canary rockfish per angler data (Figure 1). This is a frequency distribution of the total catch of canary from a trip, divided by the number of anglers, for 1999 offshore trips. The graph shows that, for example, somewhere around 85 trips averaged less than 1 canary per angler (first bar) in 1999. It's easy to see that, with no change in limits, if targeting was increased after 1999, then the number of trips reaching any threshold (say>1 canary/angler) should go up. If canary was being avoided, the frequency above the threshold should go down.

Changes in retention limits, however, complicate the issue. Assume you imposed a catch limit of 1 canary rockfish (arrow in Figure 1) after 1999, and further that all anglers retain canary rockfish until the boat limit is met. All the trips in the bar just to the left of the arrow would just meet the limit of 1 canary/angler, while the trips in the bars further to the right would discard some canary, however, they too would meet the limit of 1 canary/angler. Accordingly, the proportion of trips that "met or exceeded" the limit would be the same for 1999 and the next year when the new limit was imposed. So, in theory, if targeting behavior does not change, the proportion of trips that meet or exceed the new limit should not change. Increases in this proportion should indicate targeting, while decreases should indicate avoidance.

The only question, is whether the assumption that all boats retain fish until the boat limit is met is reasonable for the Oregon recreational fleet. Given the dominance of charter boats, and the fact that they generally retain fish until the boat limit is met, I believe this is a reasonable assumption.

Results

The proportion of offshore trips (Table 1) meeting or exceeding a threshold of 1 canary or 1 yelloweye rockfish per angler is going downwards for both species since 1999 (Table 2) suggesting anglers are avoiding them. The same trends are seen in Garibaldi (Table 3), considered alone (you had asked for this). This agrees with the catch data (Figures 2 and 3) showing less canary rockfish in the offshore catch over time and increases in yellowtail and widow rockfish. Note that 2000 is a bit anomalous, in that higher levels of black rockfish are included in the "offshore" data. This is probably because fishers were asked where they spent most of their time fishing, and some trips combined offshore and onshore fishing. Most likely, 2000 just had more of this mixed fishing.

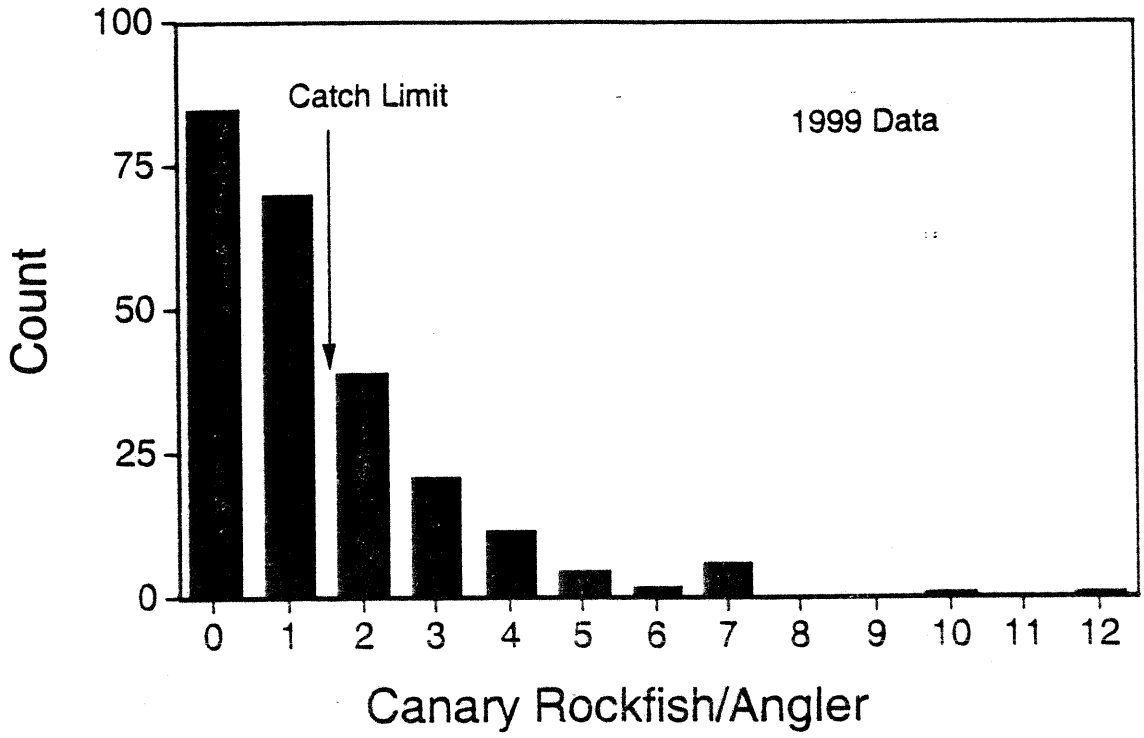


Figure 1. Frequency distribution of canary rockfish catch per angler, 1999. The x-axis shows the lower limit of the catch rate bin (the bin marked 0 is for catches less than 1 canary/angler).

Year	All Trips	Offshore Trips	Garibaldi Offshore Trips
1999	5619	277	122
2000	5862	252	111
2001	5054	152	77
2002	3914	168	84

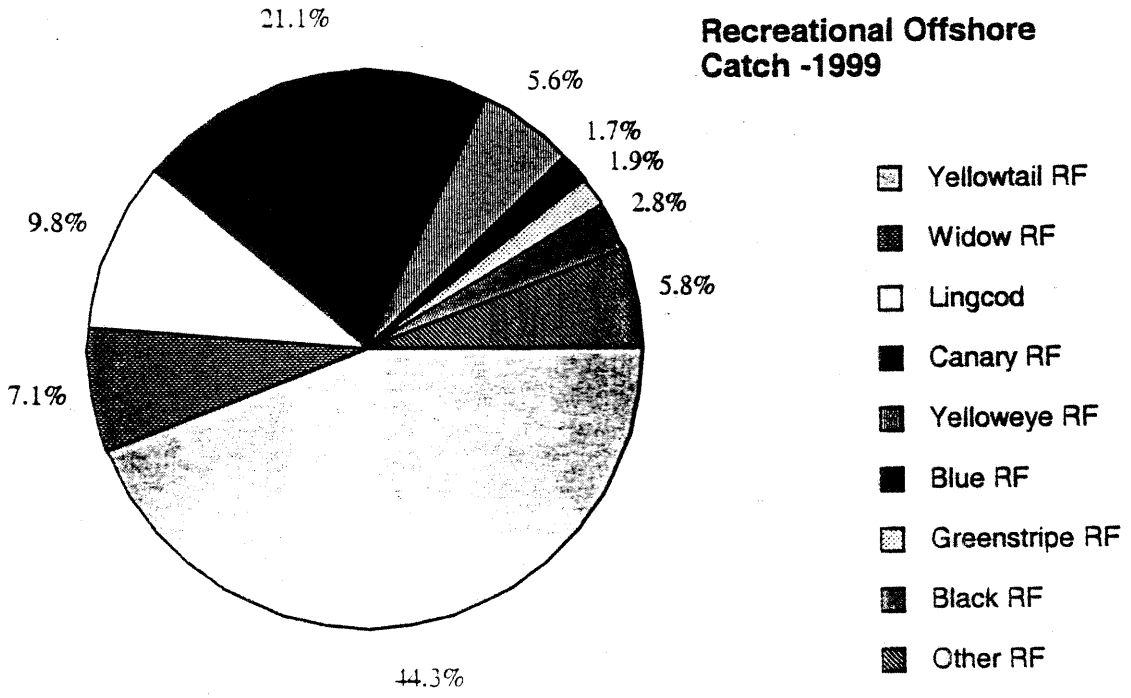
Table 1. Summary of Oregon marine recreational fishing trips sampled for species composition, statewide and for the port of Garibaldi, 1999-2002.

Year	P-Canary/Angler	P-Yelloweye/Angler
1999	0.6488	0.2655
2000	0.4479	0.1942
2001	0.3173	0.0610
2002	0.3220	0.0476

Table 2. Proportion of offshore Oregon recreational fishing trips with a mean catch of □ 1 canary rockfish or yelloweye rockfish per angler (P-Canary/Angler, P-Yelloweye/Angler), 1999-2002.

Year	P-Canary/Angler	P-Yelloweye/Angler
1999	0.5182	0.1304
2000	0.4700	0.1410
2001	0.3729	0.0408
2002	0.3382	0.0000

Table 3. Proportion of offshore Oregon recreational fishing trips in Garibaldi with a mean catch of □ 1 canary rockfish or yelloweye rockfish per angler (P-Canary/Angler, P-Yelloweye/Angler), 1999-2002.



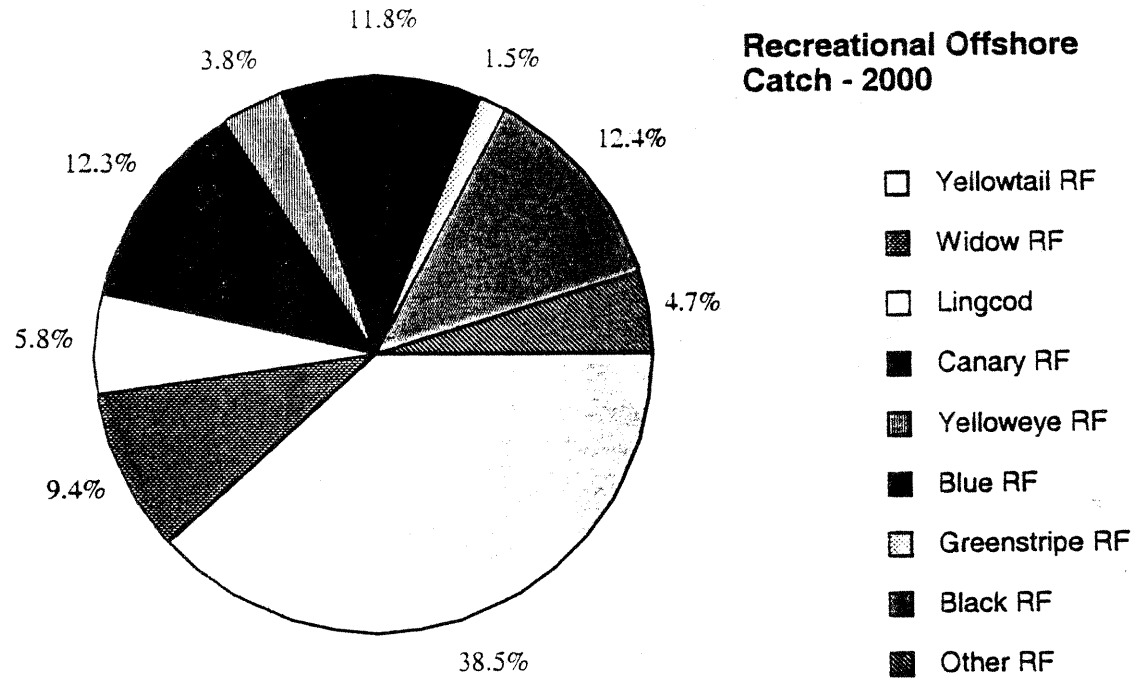


Figure 2. Species composition of offshore recreational fishery catch, 1999-2000.

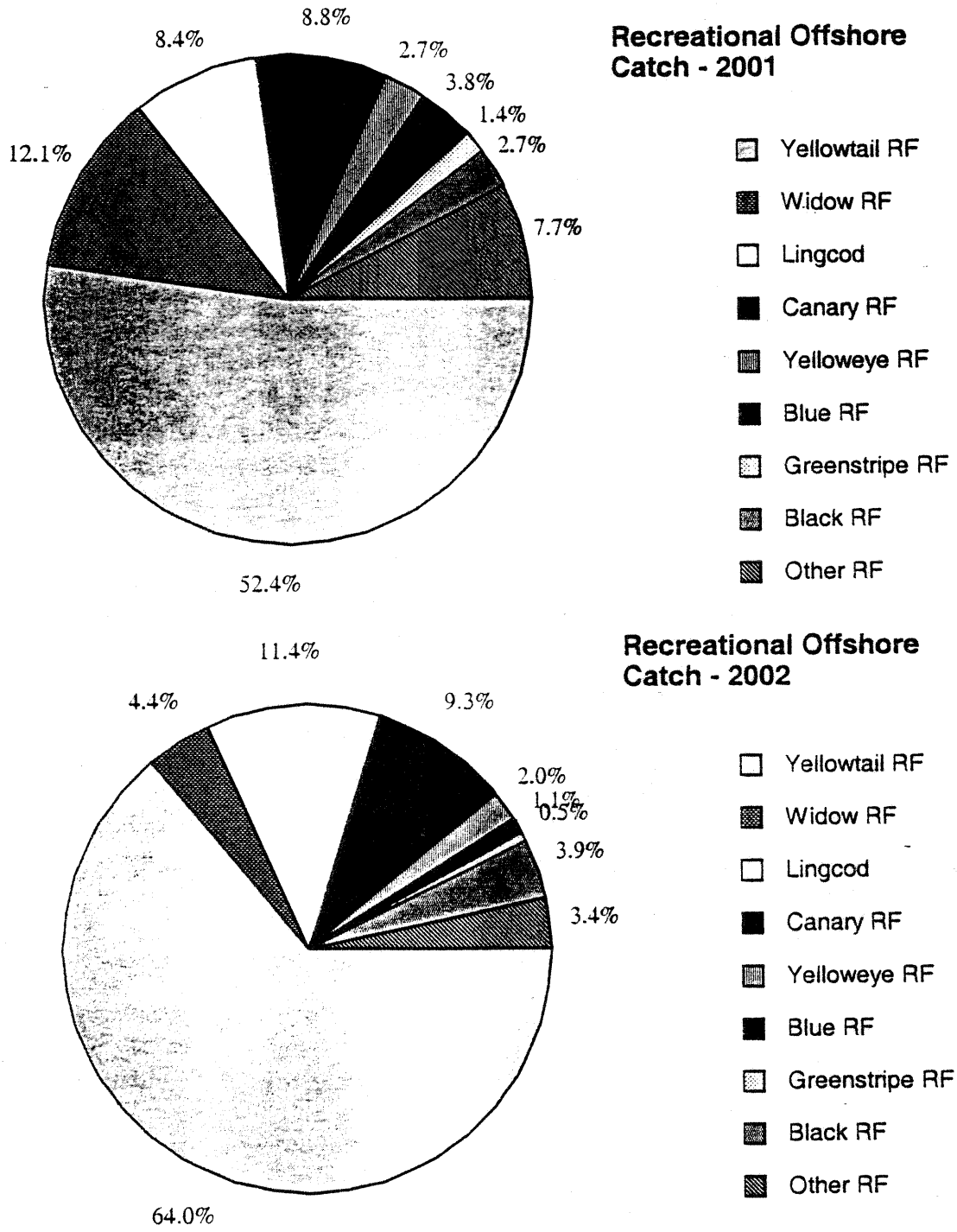


Figure 3. Species composition of offshore recreational fishery catch, 2001-2002.

STATUS OF FISHERIES AND INSEASON ADJUSTMENTS

Situation: In the current groundfish management program, the Council sets annual harvest targets (optimum yield [OY] levels) and individual vessel landing limits for specified periods, with the understanding these vessel landing limits will likely need to be adjusted periodically through the year in order to attain, but not exceed, the OYs. The initial vessel landing limits are based on predicted participation rates, estimates of how successful participants will be at attaining their limits for each period, and comparisons with previous years. The Groundfish Management Team (GMT) tracks landings data throughout the year and periodically makes projections based on all the information available. The GMT presents these landings data and projections to the Groundfish Advisory Subpanel (GAP), and they discuss adjustments that may be necessary and beneficial.

Significant challenges have been posed this year by early attainment of the bocaccio OY in California and projected early attainment of the coastwide darkblotched rockfish OY. The Council recommended widespread fishery closures and no groundfish retention regulations for many of the California fisheries at the June meeting to protect bocaccio. The Council also recommended an emergency rule to adopt depth based restrictions in this year's limited entry trawl fishery north of Cape Mendocino to allow the fishery to continue after August and avoid exceeding the darkblotched OY. At the September meeting, the Council established a Darkblotched Conservation Area (DBCA) north of Cape Mendocino between management lines specified at 100 and 250 fathoms where all bottom trawling with groundfish gear is prohibited. Groundfish bottom trawling remains closed south of Cape Mendocino. Protections afforded by these management actions allowed the Council to approve additional fishing opportunities for several stocks including Dover sole, thornyheads, sablefish, certain flatfish, widow, yellowtail, and minor slope rockfish.

The Council is to consider advice from the GMT, the GAP, and the public on additional recommended inseason adjustments to the groundfish fishery and adopt changes as necessary.

Council Action:

1. **Consider and adopt inseason adjustments if necessary.**

Reference Materials:

1. None at time of briefing book distribution.

Agenda Order:

a. Agendum Overview — Mike Burner
b. Reports and Comments of Advisory Bodies
c. Public Comment
d. **Council Action:** Consider Adjustments in 2002 Management Measures

Groundfish Fishery Strategic Plan (GFSP) Consistency Analysis

The GFSP supports establishing an allowable level of catch that prevents overfishing while achieving OY based on best available science (Sec. II.A.2). The GFSP also supports establishing and maintaining a management process that is transparent, participatory, understandable, accessible, consistent, effective, and adaptable (Sec. II.C). The Council process of adopting inseason adjustments to landing limits is consistent with these GFSP principles.

PFMC
10/15/02

Supplemental Reference Materials

1. Exhibit G.2.b, Supplemental GAP Report.
2. Exhibit G.2.b, Supplemental ODFW Report.
3. Exhibit G.2.b, Supplemental GMT Report,

DRAFT SUMMARY MINUTES
Ad Hoc Vessel Monitoring System Committee

Pacific Fishery Management Council
West Conference Room
7700 NE Ambassador Place, Suite 200
Portland, OR 97220
(503) 820-2280
October 11, 2002

The Ad Hoc Vessel Monitoring System (VMS) Committee met October 11, 2002 at the Council office. The following committee members were present.

LTJG Gregg Casad, U.S. Coast Guard
CAPT Mike Cenci, Washington Department of Fish and Wildlife
Mr. Tom Ghio, Groundfish Advisory Subpanel, California Fixed Gear Representative
Mr. Dayna Mathews, NMFS, Law Enforcement
Mr. Rod Moore, Groundfish Advisory Subpanel Chair, Processor Representative
Ms. Becky Renko, NMFS, Northwest Region
Mr. Kelly Smotherman, Groundfish Advisory Subpanel, Oregon Trawl Representative
Mr. Steve Springer, NMFS, Law Enforcement

The committee's charge was to develop alternative closed area monitoring systems for the Council to consider. The committee reviewed and commented to the authors on the draft alternatives developed by NMFS Northwest Region, the draft proposed rule for VMS, a VMS regulatory time line, and maps of proposed closed zones. The committee also received a letter from Ms. Charlotte Jurekovic on applicability of the VMS system to the Newport Beach dory fleet.

Summary of Committee Discussion

Goals and Objectives

The following potential goals and objectives were identified. With respect to the objectives it was apparent the decision as to whether or not to include the second objective would have a substantial effect on the scope of the VMS and declaration system.

Potential Goals: Ensure integrity of closed zones.

Potential Objective:

1. Prevent illegal incursion of limited entry vessels into the restricted zone.
2. Monitor activity in the zone.

Declaration System Characteristics

During discussions certain desirable characteristics for a declaration system were identified. These characteristics are as follows.

Declaration System

- Vessels covered by the declaration system would be required to declare their intended activity prior to entering a closed zone (see matrix below).
- The declaration should be valid until changed.
- Vessels must receive a confirmation they can use to demonstrate they have met the requirement.

Vessels that need to declare if they will be fishing in the restricted zone (vessels for which it is difficult to use visual observation from a distance to determine the type of fishing activity in which the vessel is engaged):

Halibut
Crab (some vessels fish with their trawl reel on)
Shrimp (some vessels fish single rig)
Directed Open Access
    Fixed Gear (rockfish and sablefish)
    Handline Jig south of 40°10' N latitude
Widow (already part of limited entry fleet)

Vessels not part of the declaration system:
Salmon Trollers
Sport Vessels (charter)

Decision Criteria for the VMS System

- Degree to which the system works over the long term, as it is expanded to cover more segments of the fleet.
- Degree to which vessels not required to take part in the declaration or VMS system can be easily identified, visually (gear type on board, gear type in water).
- Clear categories of activity (multizone or multigear trips).
- Simplicity.
- Cost effectiveness (balance benefits and costs related to industry, enforcement, and resource impacts)– traditional enforcement cost for a given level of effectiveness increase further from shore; therefore, net gain from VMS increases.

Coverage for the VMS and Declaration System

The following alternatives to status quo were developed for consideration (Alternative 1 is status quo):

2A	All limited entry vessels Limited entry vessels	must carry VMS; must declare their intent before entering the zone.
2B	All limited entry vessels <u>that are active</u> Limited entry vessels	must carry VMS; must declare their intent before entering the zone.
3	All limited entry vessels Open access vessels fishing in the zone Limited entry and open access vessels	must carry VMS <u>and</u> must carry VMS; must declare their intent before entering the zone.
4	All limited entry vessels All other vessels fishing in the zone All fishing vessels	must carry VMS <u>and</u> must carry VMS; must declare their intent before entering the zone.
5	All fishing vessels All fishing vessels	must carry VMS; must declare their intent before entering the zone.

To assist in the description and discussion of the alternatives for the vessels to be covered by the monitoring system, the following table was developed. The rows of this table (vessel categories) were defined such that for any given vessel only one row should apply. A "y/n" indicates the existence of a suboption within an alternative. "N"s have been omitted to make it easier to read the table (all blank cells are "N"). "VMS" columns indicate whether vessels would be required to carry VMS equipment. "Decl" columns indicate whether vessels would be required to make declarations before entering a closed zone. One alternative was considered but rejected (shaded columns and rows). The rejected alternative has been preserved in this table in order to provide documentation of the decision process. Future versions of this table will not include the shaded parts.

Y= yes, N (blank) = no	Alt 2A		Alt 2B		Alt 3		Rejected Alt		Alt 4		Alt 5	
Vessel Categories (comprehensive & mutually exclusive)	VMS	Decl	VMS	Decl	VMS	Decl	VMS	Decl	VMS	Decl	VMS	Decl
Inactive LE Vessels	Y				Y		Y		Y		Y	
LE Vessels Active In the Zone	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LE Vessels Active Only Outside the Zone (not fishing in the zone at any time)	Y		Y		Y		Y		Y		Y	
LE Vessels Active Near the Zone							Y	Y				
Open Access Vessels Legally Allowed to Land Groundfish and Active in the Zone (prioritize groups–include charter, exclude private rec)		y/n		y/n	Y	Y	Y		Y	Y	Y	Y
Any Other Vessels Active in Zone (prioritize groups)		y/n		y/n		y/n	Y	Y	Y	Y	Y	Y
Non LE Vessels Active Near Zone							Y	Y				Y
Open Access Vessels . . . and Other Vessels Active Only Outside the Zone (not fishing in the zone at any time)											Y	
Definition for "Zone." The "zones" referenced in the above rows are any depth management zones closed to any gear. Thus, for example, a fixed gear vessel fishing in a no-trawling zone would have to submit a declaration on its intended activities. (Option rejected: "Restrictions referencing the zone apply only to depth management zone that applies to the vessel." This definition would have created some additional complexity as fixed gear vessels could be in a zone closed to trawlers without having to make a declaration. For simplicity and to enhance the effectiveness of the system in identifying potential incursions into a closed area, it was decided that if a vessel is required to carry VMS equipment and/or meet declaration requirements those requirements should apply when the vessel enters any closed area, including those areas that do not specifically apply to the vessel.)											
Definition for "Active": Fishing in the Washington, Oregon, and California Exclusive Economic Zone (gear stowed if in transit).												

Option rejected: The "Near" zone category of vessels was originally proposed in an attempt to restrict the set of open access vessels that would be required to participate in the monitoring program. This was replaced by the concept that open access vessels would be restricted to those legally allowed to land groundfish. An additional concern with respect to the use of the "near" concept was that it would create another set of lines, another level of complexity in the regulations, and the attendant regulatory burden. A potential advantage could be that any vessel intending to operate only well outside the zone would not be burdened with the need to carry the VMS equipment.

Option rejected: Require a declaration for transiting a close zone. This option was rejected because draft regulations contain requirements for gear stowage that provide adequate opportunity for enforcement to ensure vessels ostensibly in transit are not fishing.

Priorities for Expansion of the VMS Program

In considering the fleet to which VMS should be applied (beyond the limited entry fleet), the sport charter vessels and directed open access vessels are the segments of the fleet most in need of monitoring. These are the segments with the greatest potential for impacting constraining overfished species.

Confidentiality

The committee discussed the importance of confidentiality of the information provided. Industry representatives present expressed concern that the information might be revealed for nonenforcement research. There was a discussion of the potential benefit the locational information might provide, in that it could allow the development of information that might be used to justify more liberal harvest opportunities. The issue was not resolved.

Cost Sharing

The committee discussed the issue of cost sharing with respect to the purchase of VMS equipment for vessels. Mr. Steve Springer reported that past systems have gone into place without cost sharing, but in some cases the government has provided reimbursements after the fact. Industry members present were interested in seeing cost sharing as part of the program.

State Water Restrictions

The committee wants the Council to be aware that the states will need to be prepared to implement complementary regulations for state waters.

PFMC
10/23/02

Exhibit G.3.b
Supplemental NMFS Report
November 2002

A Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery

Drafted October 2002
NMFS Northwest Region

1.0 INTRODUCTION

It is the responsibility of fisheries management to maintain sustainable fisheries by: researching sustainable catch levels; developing fishery specifications and management measures (regulations); monitoring and overseeing fishery harvests; enforcing fishery regulations and prosecuting those who engage in illegal activities.

Fishing fleets are routinely monitored to ensure that vessel operators comply with fisheries regulations. Traditional monitoring techniques include the monitoring of fisheries from air and surface craft, observer programs, and analysis of catch records and vessel logbooks. The efficiency of these traditional monitoring techniques can be dramatically enhanced by the addition of a vessel monitoring system (VMS).

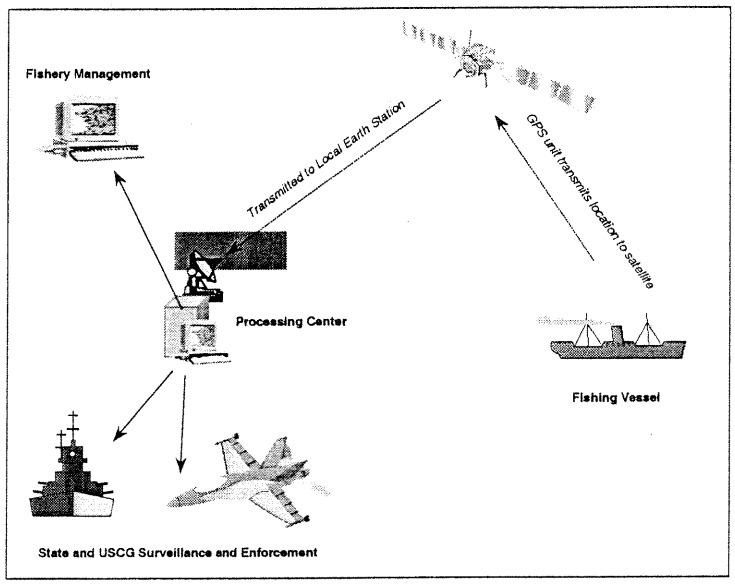


Figure 1.1 Example VMS Scenario

VMS is a tool that is commonly used to monitor vessel activity in relationship to geographical defined management areas where fishing activity is restricted. VMS transmitters installed aboard vessels automatically determine the vessel's location and transmit that position to a processing center via a communication satellite. At the processing center, the information is validated and analyzed before being disseminated for fisheries management, surveillance, and enforcement purposes. VMS transmitters determine the vessel's position at least once per hour, using Global Positioning System (GPS) satellites. Depending on the defined need, position transmissions can be made on a predetermined schedule or upon request from the processing center. VMS transmitters are designed to be tamper resistant. The vessel operator is unable to alter the signal or the time of transmission and in most cases the vessel operator is unaware of exactly when the unit is transmitting the vessel's position. Figure 1.1 illustrates the flow of information from a VMS system.

On September 23, 1993, NMFS Fisheries published proposed VMS standards at 58 FR 49285. On March 31, 1994, NMFS published final VMS standards at 59 FR 151180. These notices stated that NMFS endorses the used of VMS and defined specific criteria for using VMS (see Appendix A) as a fishery management tool. On September 8, 1998, NOAA published a request for information (RFI) in the Commerce Business Daily in which it stated minimum VMS specifications necessary for approval by NOAA. The RFI requested that responses from interested VMS providers including supporting information which would demonstrate that the VMS could meet the minimum specifications established by the NOAA Office of Law Enforcement (OLE).

NMFS requires that VMS systems meet the standards to assure compatibility with the national monitoring center, while recognizing the need to promulgate regulations and approve systems on a fishery-by-fishery basis. All approved units must be consistent with the basic features identified and endorsed by NMFS, however, additional features may be added to better meet the specific needs of a particular fishery.

The following are NMFS's minimum specifications for VMS systems used for fishery management and enforcement purposes:

- the VMS unit must be tamper proof such that it does not permit the input of false positions;
- the equipment must be fully automatic and operable at all times;
- the VMS unit must be accurate to within 400 m (1,300 feet) and capable of tracking a vessel throughout the entire geographical area where the management measures apply;
- the VMS unit must be capable of transmitting and storing information such as vessel identification, date, time, latitude, longitude, speed and bearing;
- the VMS unit must provide accurate position transmissions;
- the VMS unit must allow position transmissions to be set or changed remotely and allow NMFS to poll vessels (to freely query a vessel's transmitter for a position); and.
- under certain conditions, the VMS units may be required to provide two-way message communications between the ship and shore (one-way communication only allows the vessel to transmit positions from the ship to shore). Such communications would include, but not be limited to transmitting and receiving full or compressed data messages.

Amendment 13 to the Pacific Coast Groundfish FMP recognized the value of VMS in enforcing closed areas established to reduce bycatch levels. 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.

1.2 Purpose and need for action

Time and area closures have long been used to restrict fishing activity in the Pacific Coast groundfish fishery to keep harvests within sector allocations and at sustainable levels or to prohibit the catch of certain species. Until September 2002, geographically defined areas tended to be nearshore or defined by a simple latitude lines. On September 13, 2002, NMFS took emergency action to define depth-based management measures (67 FR 57973). The emergency rule restricted trawling north of 40°10' N. lat., in the months of September - December 2002, to depths where darkblotched rockfish was not expected to be encountered. These measures were taken to reduce the incidental catch of darkblotched rockfish, in order to keep total catch below the 2002 Optimum Yield (OY) level. The new depth-based area, referred to as the Darkblotched Rockfish Conservation Area, is based on bottom depth ranges where darkblotched rockfish commonly occur (100-250 fm) and uses a series of latitudinal and longitudinal coordinates to define a large irregularly shaped geographical area that extends far offshore with much activity being beyond the range of State enforcement capabilities.

For 2003, the Council sought a management strategy that would allow fishing to continue in areas and with gear that can harvest healthy stocks with little incidental catch of low abundance species. Recent stock assessments for bocaccio, yelloweye, canary and darkblotched rockfish, indicate little surplus production is available for harvest. Measures must be taken to protect these stocks and rebuild them to sustainable biomass levels. Therefore, the Council recommended that NMFS define additional management areas for the groundfish fishery that are based on bottom depth ranges where these low abundance species are commonly found. For 2003, large-scale depth-related closures, referred to as groundfish conservation areas, will be used to prohibit both commercial and recreational fishing across much of the continental shelf. Deep-water fisheries on the slope and nearshore fisheries will be permitted, but only in areas seaward or shoreward of the depth-based conservation areas.

The boundaries of the groundfish conservation areas are complex, involving hundreds of points of latitude and longitude to delineate nearshore and offshore fathom curves. The areas are vast, extending along the entire West Coast from Canada to Mexico, and the weather and sea conditions are frequently harsh. Some fishing such as midwater trawling for pelagic species and shrimp trawling with finfish excluders, will

be allowed to occur in the conservation areas. In addition, vessels intending to fish seaward of the westernmost boundary of a conservation area will be allowed to transit through the area providing the gear is properly stowed.

Ensuring the integrity of conservation areas using traditional enforcement methods is especially difficult when the closed areas are large-scale and the lines defining the areas are irregular. Furthermore, when some gear types and target fishing are allowed 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 used of traditional enforcement methods. To allow for a more liberal depth-based management regime, as proposed by the Council for 2003, it is necessary to take action to establish a monitoring program to ensure the integrity of these large irregularly shaped depth-based conservation areas. This action is intended to create a program that will prevent unlawful incursions into conservation areas while allowing legal fishing activity that occurs within conservation areas to be effectively monitored. The purpose of this Environmental Assessment (EA) is to analyze components of a program that can used to monitor groundfish conservation areas.

Table 2.0.1 Summary of Alternative Actions for Monitoring Time-area Closures in the Pacific Coast Groundfish Fishery

ISSUE 1: The Monitoring System	**Alternative 1** No action	**Alternative 2** Declaration reports from limited entry and open access California halibut, pink shrimp, or crab vessels intending to fish within any conservation area and landing reports for fish taken in conservation areas		**Alternative 3** Basic VMS system and declaration reports from limited entry and open access California halibut, pink shrimp, or crab vessels and landing reports from vessels without VMS, VMS operable 24 x 7	**Alternative 4** Upgraded VMS system and declaration reports from limited entry and open access California halibut, pink shrimp, or crab vessels and landing reports for vessels without VMS, VMS operable 24 x 7	**Alternative 5** Observers and declaration reports from limited entry and open access California halibut, pink shrimp, or crab vessels and landing reports from vessels without observers
	* Limited availability of air and surface craft to monitor conservation areas. * Fish tickets and logbooks used to monitor fishing location	* Same as Alt. 1 plus: * 386 LE & 1,336 OA - California halibut, pink shrimp, or crab vessels would be required to provide declaration and landing reports * Declaration reports aids in identifying vessels fishing legally in conservation areas * Landing reports used to direct dockside monitoring		* Same as Alt. 1 & 2 plus: * Must be consistent with VMS standards * GIS Position accurate to within 50 m * Position data could be used as basis for enforcement action * Position data could be used to monitor distribution of fishing * Distress signal	* Same as Alt. 1, 2 & 3 plus: * Must be consistent with VMS standards * Vessel location received in real-time * Real-time position data would allow enforcement to respond to infractions * 2-way communications can be used to transmit reports from vessel; to receive operational messages; and to inquire about use of distress signal * Vessel may choose value added services used only by vessel	* Same as Alt. 1 & 2 plus: * Position data can be used as basis for enforcement action * Observer reports could be used to verify vessel activities * Most observer data is beyond the scope of the identified need * Catch composition data would be available to assess the impacts of both legal and illegal fishing activities
ISSUE 2: Coverage (Issue 2 applies only when issue 1, alternatives 3, 4 or 5, VMS or observers are selected as the monitoring system)	**Alternative 1** No action	**Alternative 2A** All vessels registered to a limited entry permit	**Alternative 2B** All limited entry vessels that actively fish	**Alternative 3** All active limited entry, and open access and recreational charter vessels that fished in conservation areas	**Alternative 4** All active limited entry vessels and all commercial fishing vessels and recreational charter vessels that fish in conservation areas.	**Alternative 5** All active limited entry, open access and recreational charter vessels regardless of where they fish
	* Coverage would be voluntary, except for mandatory observer coverage required under the federal observer program	* In 2001, this was 424 vessels including catcher/ processors (257 trawl, 140 line, 11 pot , and 16 combined gear)	* In 2001, 386 LE vessels landed groundfish (233 trawl, 129 line & 24 pot vessels)	* LE same as Alt. 2B * OA 2,732 vessels * Recreational charter: 525 vessels - If 100% of WA and 90% of CA & OR vessels identified fish in conservation area, 300 if 100% of WA and 50% of CA & OR fish in conservation area	* LE same as Alt. 2B * OA same as Alt. 3 * Recreational charter same as Alt. 3 * Other commercial fisheries: 132 hagfish (7 vessels), spiny lobster (125) rock crab, sheep crab, ??surfperch??, shark,.....	* LE same as Alt. 2B * OA 3,691 vessels * Recreational charter of 581 vessels, with 20 from WA, 146 from OR and 415 from CA
ISSUE 3: VMS Expenditures (Issue 3 applies only when issue 1, alternatives 3 or 4, are selected for the monitoring system)	**Alternative 1** Vessel owner pays for all	**Alternative 2** Vessel owner pays for VMS transmitter		**Alternative 3** NMFS pays for initial VMS transmitter	**Alternative 4** NMFS pays for all	
	* Vessel pays all costs associated with purchasing, installing and maintaining the VMS transmitter unit *Vessel pays all costs associated with the transmission of report sand data from the vessel * Does not preclude reimbursement for all or a portion of expenditures	* Vessel would be responsible for paying all costs associated with purchasing, installing and maintaining the VMS transmitter. * NMFS pays for transmission of reports and data * Federal funding not currently available		* NMFS pays vessel for all or a portion of VMS transmitter * Associated costs including installation, maintenance and replacement paid by vessel * Transmission costs paid by vessel * Federal funding not currently available	* NMFS would be responsible for paying all costs associated with purchasing, installing and maintaining the VMS transmitter unit, as well as the costs associated with the transmission of report and data rom the vessel * Federal funding not currently available	

2.0 ALTERNATIVE MANAGEMENT ACTIONS

ISSUE 1: THE MONITORING SYSTEM This issue defines the types of systems and reporting requirements that could be used to monitor fishing activities to ensure the integrity of groundfish conservation areas. The alternatives below describe three approaches to monitoring systems including: a declaration system, a VMS program, and fishery Observers.

Alternative 1: No action alternative. Do not define a specific monitoring system for managing the integrity of groundfish conservation areas. Do not define reporting requirements for groundfish vessels conducting allowed fishing activities in conservation areas.

Discussion: Traditional monitoring techniques, including monitoring from air and surface craft, analysis of fish tickets and vessel logbooks would continue to be used to monitor vessel activity in relationship to geographically defined management areas where fishing activity is restricted. Enforcement resources would continue to be used to identify questionable behavior and locate vessels over a large geographical area and within fishing fleets targeting multiple species.

Alternative 2: Declaration system only. Do not define a specific monitoring system for managing the integrity of groundfish conservation areas. Require operators of all limit entry vessels and open access California halibut, pink shrimp, or crab vessels to provide notice regarding the intent to fish within the boundaries of any conservation area. In addition, require vessels that have legally fished in a conservation area to provide notice regarding the intent to land catch.

Discussion: As with Alternative 1, traditional monitoring techniques including monitoring from air and surface craft, analysis of fish tickets, and vessel logbooks would continue to be used to monitor vessel activity in relationship to geographically defined conservation areas where fishing activity is restricted. To assist enforcement in identifying vessels that are legally fishing in conservation areas, operators of all limit entry vessels and open access California halibut, pink shrimp, and crab vessels, would be required to provide notice of their intent to fish within a conservation area with a legal gear type. Salmon troll and sport charter vessels are visually unique and would therefore not be required to provide declaration reports. A declaration report would be required before gear could be deployed in a conservation area. Declaration reports would be sent to NMFS and vessel operators would receive conformation that could be used to verify that the reporting requirement was met. In addition, vessel operators would be required to provide notice of their intent to land catch that was legally taken in the conservation area. Requiring the vessel operator to provide notice of their intent to land fish taken in the conservation area would be used by enforcement to direct dock-side monitoring activities.

Alternative 3: Basic VMS system. Establish standards for VMS transceiver and mobile communication service providers that are consistent with the final VMS standards published on March 31, 1994 at 59 FR 15180 (Appendix A). Require operators of any limited entry vessel or open access California halibut, pink shrimp, or crab vessel without VMS to provide notice regarding the intent to fish in a conservation area. Require operators of any limited entry vessel or open access California halibut, pink shrimp, or crab vessel, without VMS that legally fished in a conservation area to provide notice regarding the intent to land catch.

Discussion: This alternative provides for a basic VMS system that would transmit vessel positions, via secured satellite communications, to a central data processing center managed by the NMFS Office of Enforcement (OLE). Because GPS positions provide accuracy to within 50 meters, vessel position data could be used by managers to monitor fleet behavior and by enforcement to identify questionable fishing activity and easily locate individual vessels. One-way communications allow a vessel's position to be sent to NMFS through a communication service provider. It also allows for a distress signal to be sent from the vessel. Although the interval between position fixes and receipt by NMFS is not specified in the national standards, the units currently available that meet the criteria under this alternative transmit data within approximately 10 minutes of the position fix. This alternative is intended to define minimum requirements and would not preclude a vessel owner from procuring a VMS unit approved by NMFS for the Pacific Coast groundfish fishery that provides additional services and capabilities used exclusively by the vessel

owner and operator. It is NMFS intention to approve VMS transmitters and service providers and publish, in the Federal Register, a list of type approved units for the Pacific Coast groundfish fishery. Transmitter manufactures or communication service providers may continue to submit products or services to NMFS for evaluation based on the published specifications. As necessary, NMFS will publish amendments to the list of approved systems in the Federal Register.

Any limited entry vessel or open access California halibut, pink shrimp, or crab vessel would be required to provide notice regarding their intent to fish in a conservation area. Landing reports would not be necessary for vessels with VMS units, because a VMS vessel track would be used to identify vessels that are nearing port. To aid enforcement efforts, any limited entry vessel or open access California halibut, pink shrimp, or crab vessels without VMS, would be required to provide notice of their intent to land fish taken in the restricted area.

These transmitter units range in price from approximately $800 (this is contingent on the low end units being approved by OLE) to $3,800 per unit, installed. The costs per day for data transmissions is $1.67-$5. The annual transmission costs may vary between vessels depending on the number of days fished and proximity of the activities to the conservation areas (polling may increase). The costs of installation are minimal because the transmitters can be installed by the vessel operator.

Alternative 4: Upgraded VMS system. Establish standards for VMS transceiver and mobile communication service providers that are consistent with the final VMS standards published on March 31, 1994, at 59 FR 151180 (Appendix A). In addition to the basic standards, the upgraded system would require real time (or near real time) intervals between position fix and receipt by NMFS, and two-way communications between the vessel and shore such that full or compressed data messages can be transmitted and received by the vessel. Require operators of any limited entry vessel or open access California halibut, pink shrimp, or crab vessel, without VMS to provide notice regarding the intent to fish in a conservation area. Require operators of any limited entry vessel or open access California halibut, pink shrimp, or crab vessel, without VMS that have legally fished a conservation area to provide notice regarding the intent to land catch.

Discussion: This alternative provides for a more advanced system in that it has a message terminal or is attached to a personal commuter. Like Alternative 3, the upgraded system would transmit vessel positions, via secured satellite communications, to a central data processing center managed by the NMFS OLE. Vessel position data could be used by managers to monitor fleet behavior and by enforcement to identify questionable fishing activity and easily locate individual vessels. In addition, VMS systems with two-way satellite communications capability can be used to report suspicious activities directly to State or Federal enforcement officers and the U. S. Coast Guard. Two-way messaging capability allows the necessary position reports to be sent from the vessel, and also has the capability for the vessel to receive operational messages (changes in regulations, weather reports, safety messages, etc). The addition of a manual input device aboard the vessel (keyboard, hand-held terminal, or PC) adds the catch reporting capability. Two-way communications allow for a distress signal to be sent from the vessel, and also allow for a response or inquiry to be sent back to the vessel. GPS positions provides accuracy to within 50 meters. Accuracy is particularly important given there are many areas where fishing incursions into the conservation areas could occur over very short distances and result in a heavy impact on the resources being protected by the closed areas. Having a near real-time interval between the position fix and when NMFS receives the report, would allow enforcement to respond to an apparent infraction in near real-time, if resources were available.

Any limited entry vessel or open access California halibut, pink shrimp, or crab vessel, would be required to provide notice regarding their intent to fish in a conservation area. Landing reports would not be necessary for vessels with VMS units, because a VMS vessel track would be used to identify vessels that are nearing port. To aid enforcement efforts, any limited entry vessel or open access California halibut, pink shrimp, or crab vessels, without VMS, would be required to provide notice of their intent to land fish taken in the restricted area.

These transmitter units range in price from approximately $2,700 to $5,295 per unit, installed. The costs per day for data transmissions is $1-$3.5. The annual transmission costs vary considerably between vessels depending on the number of days fished and proximity of the activities to the conservation areas. The costs of installation are minimal because the transmitters can be installed by the vessel operator.

Alternative 5: Observers. Require vessels to carry observes to monitor vessel activity in relation to groundfish conservation areas. Require operators of any limited entry vessel or open access California halibut, pink shrimp, or crab vessel without an observer on board, to provide notice regarding the intent to fish in a conservation area. Require any limited entry vessel or open access California halibut, pink shrimp, or crab vessels that have legally fished a conservation area without an observer to provide notice regarding the intend to land catch.

Discussion: In 2001, NMFS implemented a Federal observer program in the Pacific coast groundfish fishery as a viable means to collect much-needed data on at-sea discards. In 2002, approximately 30 observers were stationed along the coast from Bellingham, WA to Morro Bay, CA. In addition, observers have been placed on a voluntary basis aboard offshore catcher/processors and processing vessels in the Pacific whiting fishery to gather total catch, bycatch, and biological data since 1991. Observers are a uniformly trained group of scientific technicians who are stationed aboard vessels to observe fishing activities. Observers gather independent conservation and management data that is too burdensome for vessel personnel to collect and which would otherwise not be available for managing the fisheries. Although the observers do not have a direct role in fisheries compliance, data on fishing effort, which included fishing location, could be used to in an enforcement action. Under this alternative, observers would be available to collect information that could be used to monitor fishing activity in relationship to conservation areas. This would most likely require a substantial expansion of the current observer program infrastructure. Because observer data is processed after a fishing trip is completed, the data would not available in realtime. Although critical for management of the fishery, much of the observer's sampling and data are beyond the scope of the identified need and are not directly applicable to monitoring fishing activities to ensure the integrity of groundfish conservation areas.

Any limited entry vessel or open access California halibut, pink shrimp, or crab vessel without an observer, would be required to provide notice regarding their intent to fish in a conservation area. To aid enforcement efforts, any limited entry vessel or open access California halibut, pink shrimp, or crab vessel without and observer would be required to provide notice of their intent to land fish taken in the conservation area.

ISSUE 2: COVERAGE This issue identifies the sectors of the groundfish fleet that would be required to have a VMS or observer monitoring system (as identified under issue 1, alternatives 3,4,& 5) in place in order to participate in Pacific coast groundfish fishery.

Alternative 1: No action. Do not specify mandatory coverage requirements for a monitoring system.

Discussion: Under the existing regulations vessels could elect to voluntarily carry a VMS transmitter unit and provide position reports when they choose. Vessels could also be expected to carry a Federal observer when randomly selected from a large pool of vessels. In 2002, approximately 30 observers were stationed along the coast from Bellingham, WA to Morro Bay, CA. If coverage in 2003 were allocated in the same proportions as 2002, approximately 75% of observer time would be dedicated to cover the limited entry trawl fishery with the remaining 25% of observer time used to collect data on fixed gear and open access. Observers would continue to be placed on a voluntary basis on board offshore catcher/processors and mothership processing vessels in the Pacific whiting fishery.

Alternative 2A: All vessels registered to a limited entry permit. Beginning in 2003, require all trawl and fixed gear vessels registered to limited entry permits to have VMS or an observer as specified under

issue 1. Vessels would be required to have VMS transmitter units or observers on board at all times regardless of the fishery.

Discussion: This alternative would affect all limited entry vessels beginning in 2003, regardless of where they fish or if they fished in the WOC. In 2001, there were 424 vessels with Pacific coast groundfish limited entry permits, of which 257 were trawl vessels, 140 were longline vessels and, 11 were trap vessels, and 16 were combined gear permits. Since 2001, the number of vessels registered for use with limited entry permits has decreased because of implementation of the permit stacking program for sablefish-endorsed limited entry fixed gear permits.

This alternative would allow enforcement to effectively monitor limited entry trawl vessels for unlawful incursions into conservation areas while allowing legal incursions, such as midwater trawling, for Pacific whiting, yellowtail and widow rockfish and non-groundfish target fisheries, to occur. Vessels registered to a limited entry permits would be required to have either an operable VMS unit or an observer on board. 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, that would continue to occur in the conservation area. Vessels would be required to have either an operable VMS unit or an observer on board during these fisheries.

Alternative 2B: All vessels registered to a limited entry permit and that fish for groundfish Beginning in 2003, require all trawl and fixed gear vessels registered to a limited entry permit to have either VMS or an observer as specified under issue 1, before they can fish in the Pacific coast groundfish fishery. Vessels would be required to have VMS transmitter unit or an observer on board at all times regardless of the fishery.

Discussion: This alternative is the same as alternative 2A except that only vessels that are registered to a limited entry permit and that fish in the WOC would be required to have VMS or observer. In 2001, there were 386 vessels with limited entry permits that actually fished with Pacific Coast groundfish fishery, of which 233 were trawl vessels, 129 were longline vessels, and 24 were trap vessels.

Alternative 3: All limited entry vessels regardless of where fishing occurs; and all open access and recreational charter vessels that fish in the conservation areas. Beginning in 2003, require all trawl and fixed gear vessels registered to a limited entry permit to have either VMS or an observer as specified under issue 1, before they can fish in the Pacific coast groundfish fishery. By 2004, begin phasing in VMS or an observer requirement for open access vessels (including exempted gears) that fish within a conservation area. Open access fisheries would be prioritized by the estimated impacts on overfished species. By 2004, begin phasing in VMS or an observer requirement for recreational charter vessels that fish within a conservation area. Vessels would be required to have VMS transmitter unit or an observer on board at all times regardless of the fishery.

Discussion: Requirements for the limited entry fleet under this alternative are the same as alternative 2B. In addition to the requirements under 2B, this alternative would require open access gears that fished in the conservation area to have an operable VMS unit or an observer on board at all times. This is estimated to affect 2,732 open access vessels.

Alternative 4: All limited entry vessels regardless of where fishing occurs; all fishing vessels operating in conservation area. Beginning in 2003, require all trawl and fixed gear vessels registered to a limited entry permit to have either VMS or an observer as specified under issue 1, alternatives 3, 4. & 5, before they can fish in the Pacific coast groundfish fishery. By 2004, begin phasing in VMS or observer requirements for all other fishing vessels that operate in the conservation areas. Fisheries would be prioritized by the estimated impacts on overfished species. Vessels would be required to have VMS transmitter unit or an observer on board at all times regardless of the fishery.

Discussion: Requirements for the limited entry fleet under this alternative are the same as Alternative 2B.

Requirements for the open access gears and recreational charter vessels would be the same as Alternative 3. In addition, this alternative would require all other commercial fishing vessels operating in the conservation area to have an operable VMS unit or an observer on board at all times.

Alternative 5: All limited entry, open access, and recreational charter vessels regardless of where fishing occurs. Beginning in 2003, require all trawl and fixed gear vessels registered to a limited entry permit to have either VMS or an observer as specified under issue 1, before they can fish in the Pacific coast groundfish fishery. By 2004, begin phasing in VMS or observer requirements for all open access and recreational charter vessels regardless of where the vessel will be fishing. Fisheries would be prioritized by the estimated impacts on overfished species. Vessels would be required to have VMS unit or an observer on board at all times regardless of the fishery.

Discussion: Requirements for the limited entry fleet under this alternative are the same as Alternative 2B. Requirements for the open access gears and recreational charter vessels would include all vessels that can legally take groundfish, regardless of where they are fishing in relation to the conservation areas. This alternative would allow enforcement to monitor all groundfish vessels throughout the year, regardless of the fisheries in which they participate.

ISSUE 3: VMS RELATED EXPENDITURES -- This issue defines the responsibilities of purchasing, installation, and maintenance of VMS transmitter units, as well as the responsibilities for transmission of reports and data.

Alternative 1: Vessel pays all. Under this alternative the vessel would be responsible for paying all costs associated with purchasing, installing and maintaining the VMS transmitter unit, as well as the costs associated with the transmission of reports and data from the vessel. This alternative would not preclude reimbursement for all or a portion of expenditures at a later point in time if money were available.

Alternative 2: Vessel pays for transmitter. Under this alternative the vessel would be responsible for paying for all costs associated with purchasing, installing and maintaining the VMS transmitter unit. NMFS would pay for transmission of reports and data only.

Alternative 3: NMFS pays for initial transmitter. Under this alternative, NMFS pays or reimburses the vessel owner for all or a portion of the initial VMS transmitter unit. Associated expenses including installation, maintenance and replacement would be paid for by the vessel. Transmission costs would also be paid for by the vessel.

Alternative 4: NMFS pays all. Under this alternative NMFS would be responsible for paying all costs associated with purchasing, installing and maintaining the VMS transmitter unit, as well as the costs associated with the transmission of reports and data from the vessel.

3.3 SOCIO-ECONOMIC ENVIRONMENT

3.3.1 Depth-Based Management

Since 1998, groundfish management measures have been shaped by the need to rebuild overfished groundfish stocks. The 80 plus 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 more carefully crafted to recognize the tendencies of overfished species to co-occur with healthy stocks at certain times and in certain areas.

With the 2002 specifications and management measures, the Council introduced a new bycatch analysis that allowed managers to set trip limits so that healthy stocks were more strongly targeted in times when they were less likely to co-occur with overfished stocks. The 2002 management measures primarily varied by time (two-month period) and by north-south management area (north of Cape Mendocino, between Cape Mendocino and Point Conception, south of Point Conception, etc.) For 2003, the Council has recommended using a new management tool, depth-based closures intended to prevent vessels from fishing in depths where overfished species commonly occur.

Depth-based management measures were first introduced on September 13, 2002 (67 FR 57973) with an emergency rule that opened trawling in the months of September-December 2002 in waters north of 40°10' N. lat. (approximately at Cape Mendocino) and at depths where darkblotched rockfish was not expected to be encountered. At its June 2002 meeting, the Council had found that the darkblotched rockfish estimated total catch was expected to near the OY before the end of 2002. In order to protect darkblotched rockfish from overharvest while still allowing fisheries access to under harvested healthy stocks, the Council asked NMFS to implement an emergency rule that would allow trawling inshore of 100 fm (184 m) and offshore of 250 fm (461 m). The Council could not simply implement depth-based management measures through an inseason action because the FMP requires discussion of new management measures at two Council meetings before they are made effective. NMFS reviewed and implemented the Council's request, revising the restrictions to allow fishing inshore of 100 fm (184 m) only in October-December and offshore of 250 fm (461 mt) in September-December, to prevent overharvest of canary rockfish and darkblotched rockfish in September.

The September-December 2002 closure was intended to specifically protect darkblotched rockfish, which are commonly caught by trawl gear in waters of 70-250 fm depth. In designing 2003 management measures, the Council considered depth closures that would provide protection for several overfished species. Different closed areas are provided for different gear types, as not all gear types encounter each overfished species at the same rate or in similar areas. POP, for example, is almost exclusively caught in trawl fisheries, whereas yelloweye rockfish tends to be caught by hook-and-line gear.

For the limited entry bottom trawl fisheries north of 40°10' N. lat., canary rockfish tends to be available in 20-200 fm depths, with higher catches in more shallow areas during the summer. As mentioned earlier, darkblotched rockfish tends to be found in 70-250 fm. The Council recommended a closed area for bottom trawl fisheries north of 40°10' N. lat. between 100-250 fm depth for 2003, with the inshore closed area boundary line moving to 75 fm for the months of July-August. This closure is expected to protect canary and darkblotched rockfish in areas where they have historically been taken by trawl fisheries. In the months of January-February and November-December, the offshore closed area boundary would be revised to allow some bottom trawling in areas where petrale sole tends to aggregate. This closed area is also expected to protect other northern continental shelf and slope overfished species, such as lingcod, widow rockfish, POP, and yelloweye rockfish. Midwater trawling, as defined at 50 CFR §660.302, would be permitted within the closed area for Pacific whiting, yellowtail and widow rockfish.

In the limited entry bottom trawl fisheries south of 40°10' N. lat., bocaccio tend to found in 45-160 fm depths and the greatest number of bocaccio tend to be taken between 40°10' N. lat. and 34°27' N. lat. (Point Conception.) Although darkblotched rockfish are considered a northern species, they are also found between 40°10' N. lat. and 38° N. lat. To protect these overfished species, the Council recommended closing bottom trawling between 40°10' N. lat. and 38° N. lat. in 60-250 fm depths, except that the inshore closed area boundary would be at 50 fm in January-February. South of 38° N. lat., bottom trawling would be closed in 60-150 fm depths, except that the inshore closed area boundary would be at 50 fm in January-February, and that small footrope trawling would be permitted along the mainland coast (not off California islands) inside of 100 fm south of 34°27' N. lat. Midwater trawling, as defined at 50 CFR §660.302, would be permitted within the closed areas for Pacific whiting, yellowtail and widow rockfish. In addition to these depth closures, the Cowcod Conservation Areas will remain closed to fishing offshore of 20 fm (## m).

North of Cape Mendocino, limited entry fixed gear and open access hook-and-line fisheries tend have a greater effect on yelloweye rockfish and a lesser effect on darkblotched rockfish than trawl gear fisheries. Thus depth restrictions for these fisheries were designed to prevent hook-and-line gear from operating in depths where yelloweye rockfish are commonly found, 100 fm and shallower. The Council has recommended closing limited entry and open access fishing shoreward of the 100 fm contour off the Washington coast, and between 27 fm and 100 fm off the Oregon coast and off California north of 40°10' N. lat. The 27 fm contour occurs entirely in state waters off the state of Washington and commercial fishing for groundfish is prohibited in state waters off Washington, making an inshore closed area boundary moot for that state.

South of 40°10' N. lat., limited entry fixed gear and open access fisheries will be primarily constrained by management measures to protect bocaccio. Fishing will be prohibited between the 20 fm and 150 fm depth contours throughout the year. An exception to this prohibition will be made for commercial vessels using hook-and-line gear with no more than 5 hooks per and using hooks that are commonly known as "Number 2" hooks. This type of gear is used by vessels fishing for Pacific sanddabs, an abundant species that does not usually co-occur with overfished species. Also, hook-and-line vessels will be permitted to fish in waters of 20-60 fm depths during July and August. "pink shrimp"In addition to these depth closures, the Cowcod Conservation Areas will remain closed to fishing offshore of 20 fm.

Recreational fisheries off Washington, Oregon, and California north of 40°10' N. lat. will be subject to fewer depth restrictions than the commercial fisheries, primarily because most recreational vessels tend to operate in the nearshore area inside state waters. Off Washington, recreational fishing for groundfish and halibut will be prohibited inside the Yelloweye Rockfish Conservation Area, an L-shaped closed area off the northern Washington coast. Off Oregon and California north of 40°10' N. lat., recreational fishing for groundfish will be closed outside of 27 fm if either the yelloweye or canary rockfish recreational fisheries set asides are projected to be achieved. As in past years, recreational fisheries off California south of 40°10' N. lat., will be constrained by depth in order to reduce catch of bocaccio and other overfished rockfish species. Recreational fishing for groundfish will be prohibited entirely in waters offshore of the 20 fm depth contour. The Cowcod Conservation Areas will also remain closed to fishing offshore of 20 fm.

For all of these closed areas and boundary lines except the 20 fm contour off California south of 40°10' N. lat., latitude/longitude waypoints will be provided in regulation. These coordinates provide straight-line approximations of the depth-contours so that fishers and enforcement officers may be in agreement on which areas are closed and which are open. To ensure that consistent nomenclature is used coastwide, an area closed to fishing for groundfish will be referred to as a "Conservation Area," regardless of whether that area is defined by coordinates that are fixed throughout the year or by depth contour boundaries that vary during the year. The Yelloweye Rockfish Conservation Area and the Cowcod Conservation Areas are defined by coordinates that are fixed throughout the year. The larger, gear or sector-specific closed areas defined by depth contour boundaries will be referred to as Groundfish Conservation Areas. For example, there will be both a trawl Groundfish Conservation Areas and a non-trawl Groundfish Conservation Areas north of 40°10' N. lat. Boundaries for the Groundfish Conservation Areas will be

referred to as either the "shoreward boundary," meaning the Groundfish Conservation Areas boundary or borderline that is closest to shore, or the "seaward boundary," meaning the Groundfish Conservation Areas boundary or borderline that is farthest offshore.

At its September meeting, the Council adopted the state of California's recommendations on creating a California Rockfish Conservation Area in waters south of 40°10' N. lat. To ensure consistent coastwide nomenclature, this area will be referred to as a Groundfish Conservation Areas in Federal regulations. This Groundfish Conservation Areas south of 40°10' N. lat. will be an area of restricted or no fishing intended to protect overfished rockfish species. This restricted area will be defined as ocean waters of 20-250 fm depth between 40°10' N. lat. and 38° N. lat and waters of 20-150 fm depth between 38° N. lat. and the U.S. border with Mexico. The restrictions for that area that apply to the groundfish fisheries and the exceptions to those restrictions are described earlier in the section on "depth-based management."

3.3.2 Commercial Fisheries

The Pacific coast groundfish fishery is a year-round, multi-species fishery that takes place off the coasts of Washington, Oregon, and California. Most of the Pacific coast non-tribal, commercial groundfish harvest is taken by the limited entry fleet. The groundfish limited entry program was established in 1994 for trawl, longline, and trap (or pot) gears. There are also several open access fisheries that take groundfish incidentally or in small amounts; participants in those fisheries may use, but are not limited to longline, vertical hook-and-line, troll, pot, setnet, trammel net, shrimp and prawn trawl, California halibut trawl, and sea cucumber trawl. Open access fisheries are described below in section 3.3.4. In addition to these non-tribal commercial fisheries, members of the Makah, Quileute, Hoh, and Quinault tribes participate in commercial, and ceremonial and subsistence fisheries for groundfish off the Washington coast.

Limited Entry Groundfish Fisheries

In 1994, NMFS implemented Amendment 6 to the 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 through that program specify the gear type that a permitted vessel may use to participate in the limited entry fishery, and the vessel length associated with the permit. A vessel may only participate in the fishery with the gear designated on its permit(s) and may only be registered to a permit appropriate to the vessel's length. Since 1994, the Council has created further license restrictions for the limited entry fixed gear (longline and fishpot gear) fleet that restrict the number of permits useable in the primary sablefish fishery (Amendment 9) and that allow up to three sablefish-endorsed permits to be used per vessel (Amendment 14.)

Table 3.3.2.1 Limited Entry Vessels by gear, 2001

	Gear group	Number of Limited Entry Vessels
Vessels registered to limited entry permits	Trawl (including catcher processors) Longline Pot Combined gears	257 140 11 16
	TOTAL	424
Vessels registered to limited entry permits that landed groundfish, including at-sea whiting, in 2001	Trawl (including catcher processors) Longline Pot	233 129 24
	TOTAL	386

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 variety of gears, excluding groundfish trawl gear. 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 provisions that have affected participation in groundfish fisheries.

The commercial open access groundfish fishery consists of vessels that do not necessarily depend on revenue from the fishery as a major source of income. Many vessels that predominately fish for other species inadvertently catch and land groundfish. Or, in times and areas when fisheries for other species are not profitable, some vessels will transition into the groundfish open access fishery for short periods. The commercial open access fishery for groundfish is split between vessels targeting groundfish (*directed fishery*) and vessels targeting other species (*incidental fishery*). The number of unique vessels targeting groundfish in the open access fishery between 1995-1998 coastwide was 2,723, while 2,024 unique vessels landed groundfish as incidental catch (1,231 of these vessels participated in both) (SSC's Economic Subcommittee, 2000).

Table 3.3.2.2: Open Access Fishery Landings in 1996 and 2001, by state, weight and value

Open Access Sector	1996 landings by weight	2001 landings by weight
Coastwide Directed	3,291 mt	1,086 mt
Coastwide Incidental	802 mt	197 mt
Washington Directed	225 mt	66 mt
Washington Incidental	296 mt	28 mt
Oregon Directed	458 mt	237 mt
Oregon Incidental	384 mt	98 mt
California Directed	2,608 mt	776 mt
California Incidental	122 mt	70 mt

Table 3.3.2.3 Estimated Number of Open Access Incidental Catch Vessels by Fishery and the Number Estimated to Fish Within Any of the Conservation Areas

	Depth range of fishery	Number of vessels (2001) g/	Proportion estimated to operate within any of the conservation areas during 2003
North of 40°10 min			
Dungeness Crab	10- 50 fm c/ 10-40 fm c/	WA - 190 (232 permits) a/ OR - 306 (1999) a/ CA north - 330 a/	WA - 100% (190 -9 mo/year) OR - 50% est. (153 -9 mo/yr) CA - 50% est. (165- 8 mo/yr)
Pink shrimp- Trawl	25-200 fm a/	WA - 19 & OR - 84 a/	100% - 103
Spot prawn Trawl d/ Trap	80 -110 fm b/	WA-3 a/, OR-2 WA-10 a/, OR-10	100% - 25 (trap only WA)
Pacific Halibut	Primarily found 20-300fm	184 (238 including LE sablefish vessels) e/	100% - 184
Coastal Pelagic Species - wetfish	10-???	WA-11(44 permits) OR-15 (60 permits) CA -6 a/	WA-100% - 11 OR-50% est- 8 CA-50% est- 3
Sea cucumber	20-50 fm /f	OR- 0 (26 permits)	100% - 0
Other fisheries (Hagfish)	Fishery occurs out to 110 **	7 e/	100% - 7
South of 40°10 min			
CA Halibut Trawl Pot	Primarily 20-50 fm, but some years inside 20 /f	45 a/ 254 a/	100%-299
Coastal Pelagic Species - squid	8-25 fm c/	115 a/ (197 permits c/)	20% est- 23
Coastal Pelagic Species - wetfish	10-???	107 a/	50% est - 54
Dungeness Crab	10-40 fm c/	central CA- 100 c/	50% est - 50
Gillnet complex	>50 fm some inside 20 fm f/	127 c/	80% est - 102 (6" footrope)
Pink shrimp - Trawl	25-200 fm a/	8 a/	100%-8
Ridgeback prawn	25-88 fm a/	32 a/	100%32
Sea cucumber	20-50 fm f/	13 a/	100% -13
Spot Prawn Trawl d/ Trap	25-267 fm a/ 100-180 fm (S. CA bight) a/	41 a/ 12 a/	100% - 53 (trap only)
CA Sheephead	<45 fm c/	124 c/	50% est - 62
Other fisheries	spiny lobster <70 fm c/	spiny lobster -251permits rock crab, sheep crab, surfperch, shark ???	50% est - 125 Others Unknown
Fisheries that occur both North & South of 40°10 min			
Salmon troll	??	1,194 a/	100% -1,194
Highly Migratory Species Longline Pole/line Gillnet/Driftnet Purse Seine		41 a/ 222 a/ 71 a/ 15 a/	0%
Total Number of Vessels (vessels that fish in multiple fisheries may be counted more than once)		**All commercial..... 3,949** **All OA..... 3,691**	**All Commercial..... 2,864** **All OA..... 2,732**

a/ Based the Pacific Coast Groundfish Open Access Fishery Report, June 2002
b/ Personal communication with ODF&W staff
c/ CA living Marine Resources: Status Report
d/ Most prawnfishing will be pot only in 2003
e/ IPHC personal communication
f/ 2003 annual specification and management measures EIS
g/ Vessels that fished in multiple fisheries may be represented more than one time

Table 3.3.2.4 Recreational Charter Vessels Engaged in Saltwater Fishing Outside of the Puget Sound in 2001, by Port

State	Porta/area	Number of Recreational Charter Vessels
Washington	Neah Bay	1
	La Push	0
	Westport	13
	Ilwaco	6
	TOTAL	20
Oregon	Astoria	22
	Tillamook	51
	Newport	45
	Coos Bay	13
	Brookings	15
	TOTAL	146
California	Crescent City	1
	Eureka	4
	Fort Bragg	14
	San Francisco	67
	Monterey	33
	Conception (north)	129
	San Diego	95
	Unknown	72
	TOTAL	415
	TOTAL FOR ALL STATES	581

Processing Sector

Table 4.0.1 Comparison of Biological and Socio-Economic Impacts of the Monitoring System Alternatives

	Alternative 1 No action	**Alternative 2** Declarations	**Alternative 3** Basic VMS system with declaration reports	**Alternative 4** Upgraded VMS system with declaration reports	**Alternative 5** Observers with declaration reports
Biological indicators					
Fishing mortality -- Incidental catch of overfished species in the conservation areas	* Mortality based on fish ticket data with bycatch estimates from Hastie model	* Same as Alt. 1	* May be joined to data from observed trips to better estimate fishing mortality * Available for all trawl and fixed gears	* May be joined to data from observed trips to better estimate fishing mortality * Available for all trawl and fixed gears	* Observer catch composition data likely to be used for estimating total catch by species over large geographical area regardless of gear. Not available in real time.
Ability to understand effort shifts --To project impacts on juveniles, other fishery resources, or habitat	* Would continue to use unverified trawl logbook data for fishing location * Logbook data is not currently available from gears other than trawl	* Declaration reports may be used to estimate the number of vessels/trips in conservation area	* Accurate harvest location data over large geographical area for both trawl and fixed gears	* Same as Alt. 3	* Can be used to verify harvest location * Length and age structure data may be collected to understand total catch of juveniles * Observer data may be used to estimate incidental catch of other fishery resources
Socio-economic indicators					
Availability of information for enforcement -- for efficiency in the use of enforcement resources	* Continue to use limited air & surface craft	Same as Alt. 1 plus * Aid in identifying vessels legally fishing in conservation areas * Landing reports can be used to direct dockside monitoring	Same as Alt. 1 & 2 plus * May act as deterrent * May be used to target landing and at-sea inspections *May be used to increase efficiency of surveillance patrols * May benefit homeland security activities * May be used as basis for enforcement action	* Same as Alt. 3 plus * 2-way communications allow for at-sea reporting of potential violations * Real-time data allow enforcement to respond to infractions	* May act as deterrent * Observer data could be used to verify vessel activity * May be used as basis for enforcement action

Availability of information for management -- for measuring the effectiveness of management measures	* Continue to used fishing logbooks to understand fishing location in relation to restrictions	* Same as Alt. 1 plus * Can be used to improve general understanding of depth ranges in which fisheries occur, particularly those fisheries currently without logbooks	Same as Alt 2 plus * Accurate harvest location data over large geographical area regardless of gear may be used to assess effectiveness of management regime * May be used in conjunction with observer data to improve bycatch management	Same as Alt 3	* Catch composition data would be available to assess bycatch and total catch levels in relation to OYs
The effects on harvesters, processors, and communities from more management regime	* Would likely result in more constrained harvest levels as compared to other alternatives, resulting in lost employment and fish for processors	* Similar to Alt. 1	* Most likely to maintain the integrity of conservation areas and allow higher harvest levels on healthy stocks and thereby provide processors with fish and employment opportunity	Same as Alt 3	* May allow fishery to sustain higher harvest levels on healthy stocks and thereby provide processors with fish and employment opportunity
Cost burden -- initial and long-term	* Would likely constrain the use of liberal management regimes that allows vessels to target healthy stocks in depth-based areas where overfished species are less likely to be taken incidentally	* Annual cost to transmit declaration report (5 min/rpt- 12 time per year) Fax ($3-$10) – $36-$120 Phone ($3) – $36 * Annual cost to transmit landing reports (5 min/rpt est. at a) 25, b) 50, c) 75 & d) 100 x per yr) 1 Fax ($3 [land]-$10 [international call from sea]) a) $75-$250, b) $150-$500, c) $225-$750, d) $300-$1,000 2) Phone ($3) a) $75, b) $150, c) $225, d) $300	* Same as Alt 2 * Allows the use of more liberal management regime where vessels can target healthy stocks in areas where overfished species are less likely to be taken incidentally * Capital costs would be $800-$3,800 (low estimate is continent on units being approved by NMFS) unless unit was leased or paid for by NMFS * $1.67-$5/fishing day * at 10 fishing days per mo cost would be $200- $600 per yr	* Allows the use of more liberal management regime where vessels can target healthy stocks in areas where overfished species are less likely to be taken incidentally * Capital costs would be $2,700-$5,295 unless unit was leased or paid for by NMFS * $1-$3.5/fishing day * With 10 fishing days per mo the cost would be $120-$450 per year	* If a direct pay system similar to the at-sea Pacific whiting fishery is used, for each day the observer is on the vessel the cost to the vessels would be $300/day. Training and debriefing costs would be an additional $1200/observer. * Including the costs of sampling equipment or infrastructure needed to support an increased number of observers and their data would likely increase the daily rate by 30% * Paying observer salaries would not be economically feasible for most vessels
Safety of human life -- search and rescue efficiency	* Varies between vessels due to fishing locations, equipment available on vessels, and how well equipment is maintained * When fishing opportunity is reduced and profits are marginal, vessels may display more risk prone behavior and may not adequately maintain equipment and vessels	* Same as Alt 1	* Distress signal may reduce response time in emergency	* Same as Alt 3 plus * 2-way communication can increase communications regarding vessel safety and medical issues	* Same as Alt 1

4.1 Physical Impacts

Physical impacts generally associated with fishery management actions result from changes to the physical structure of the benthic environment as a result of fishing practices. This action pertains to a data collection program that is expected to provide reliable information needed to monitor fishing behavior in relationship to time area closures and to evaluate the effectiveness of management measures. Because the proposed alternatives are not expected to change fishing behavior from the existing conditions, the potential effect on the physical environment is not distinguishable between the alternatives.

4.2 Biological Impacts

4.3 Socio-economic Impacts

Commercial Fisheries

Recreational Fisheries

Processors

Impacts on state and federal enforcement

VMS does not replace or eliminate traditional enforcement measures such as aerial surveillance, boarding at sea via patrol boats, landing inspections and documentary investigation. Many of these measures may need to be activated as a specific response to information received via the VMS. VMS positions can indicate probable fishing activity and provide a good and sufficient basis for further investigation by one or more of the traditional enforcement measures. VMS positions have also been used as the basis for an enforcement action.

Deterrent - One of the major benefits of VMS is its deterrent effect. This has been observed and reported on through practical experience in Australia, New Zealand and the USA (Cite). 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 rather than a cure.

To be effective, 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 which effect 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. Use of the system for direct communication between vessel and monitoring agency (Issue 1, Alternative 4) further strengthens the presence of the monitoring function.

Probable cause and targeted investigations: In an active sense VMS will potentially show enforcement officers breaches of closed area restrictions. VMS can show officers those vessels which are following the rules as well those which are not. In doing so, it makes the activities of investigating officers much more cost effective since less time will be spent pursuing false trails and fishing operators who are following the rules. It may also be a requirement to have established "probable cause" before pursuing some types of investigations, for example, in obtaining a search warrant. VMS may be of assistance in this situation because while not being evidence of sufficient significance by itself, it could provide sufficient evidence to lead an officer to believe that an illegal act had occurred.

Targeting landing and at sea inspections - 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, sometimes 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 good and 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.

Increasing efficiency of surveillance patrols - Patrols by both sea and air will still be necessary for fully effective monitoring and management even with an effective VMS. 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 to these patrol craft can minimize the effort spent confirming radar contacts of vessels fishing legitimately. 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.

Homeland security: Implementation of a VMS (monitoring system Issue 1, Alternative 3 & 4) program would clearly supports an enforcement mission; and it has direct ancillary benefits to Homeland Security activities. NOAA believes that 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. Furthermore, critical decisions on the deployment of enforcement assets can be based on VMS surveillance reports. Satellite communication can also update essential information during a law enforcement response. VMS with two-way satellite communications capability (Issue 1, Alternative 4 -VMS upgrade), which can be used to report suspicious activities or vessels directly to NMFS Special Agents, Enforcement Officers and the U. S. Coast Guard. Investigative methodologies would 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 is expanding the capability to detect and prevent terrorism and other criminal activity in one of our most vulnerable areas, the U.S. Exclusive Economic Zone. VMS also supports the Coast Guard's "Coastal Watch" initiative, which was developed in response to their homeland defense activities.

Table 4.3.1. Estimated Burden, per Vessel, for the Monitoring System Alternatives Described under Issue 1

	Alternative 1 No action	Alternative 2 Declarations	Alternative 3 Basic VMS system with declaration reports	Alternative 4 Upgraded VMS system with declaration reports	Alternative 5 Observers with declaration reports
Installation - start up cost	$0	$0	* Minimal - not to exceed 4 hours per year or $120 * Most are do-it yourself installation	* Minimal - not to exceed 4 hours per year or $120 * Most are do-it yourself installation	$0
VMS transceiver/transponder unit - start up cost	$0	$0	* $800-$3,800 (low estimate is continent on units being approved by NMFS)	* $2700 ($1,500 for unit plus approx.$1,200 for computer) - $5,295	$0
Annual maintenance	$0	$0	* 4 hours or $120 per year	* 4 hours or $120 per year	$0
Annual replacement costs (unit cost/years of service - estimate based on 4 years of service)	$0	$0	* $200-$950 per year	* $675-$1,324 per year	$0
Annual cost to transmit 24 hourly position reports	$0	$0	* $1.67-$5/fishing da y * With 10 fishing days per mo the cost would be $200-$600 per year	* $1-$3.5/fishing da y * With 10 fishing days per mo the cost would be $120-$450 per year	$0
Annual cost to transmit declaration report (5 min/rpt-12 time per year) 1) Fax ($3-$10) 2) Phone ($3) 3) VMS (7 cents -21 cents)	1) $0 2) $0 3) $0	1) $36-$120 2) $36	1) $36-$120 2) $36 3) $0.84-$2.52	Same as Alternative 3	Same as Alternative 2
Annual cost to transmit landing reports (5 min/rpt est. at a) 25, b) 50, c) 75 & d) 100 x per yr) 1) Fax ($3 [land]-$10 [international call from sea]) 2) Phone ($3)\ 3) VMS (7 cents -21 cents)	1) $0 2) $0 3) $0	1) a) $75-$250, b) $150-$500, c) $225-$750, d) $300-$1,000 2) a) $75, b) $150, c) $225, d) $300	1) Same as Alternative 2 2) Same as Alternative 2 3) a) $1.75-$5.25, b) $3.5-$10.5, c) $5.25 -$15.75, d) $7-$21	Same as Alternative 3	Same as Alternative 2
Observer costs to the vessels - if a direct pay system similar to the at-sea Pacific whiting fishery is used, for each day the observer is on the vessel the cost to the vessels would be $300/day. Training and debriefing costs would be an additional $1200/observer. NOTE: The costs of sampling equipment or infrastructure needed to support an increased number of observers and their data has not been included in this estimate. Including these costs is estimated to increase the daily rate by approximately 30%.	$0	$0	$0	$0	$18,000 year @ 5 fishing days per mo ($1500) $36,000 year @ 10 fishing days per mo ($3,000) $72,000 @ 20 fishing days per mo ($6,000) $108,000 @ 30 fishing days per mo ($9,000)

Vessels That Qualify for VMS Reimbursements Because of Alaska Groundfish Fishery Participation

On January 8, 2002, an emergency interim rule (67 FR 956) was issued by NMFS to implement Steller sea lion protection measures and 2002 harvest specifications for the groundfish fisheries in federal waters off Alaska. All vessels using pot, hook-and-line or trawl gear in the directed fisheries for pollock, Pacific cod or Atka mackerel are required to have an endorsement on their federal fisheries permit. As of June 10, 2002, section 679.7(a)(18) requires all vessels 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 transmitter. Table 4.3.X shows the number of Vessels that landed groundfish in the WOC during 2001 that are also qualified for VMS for reimbursement Alaska groundfish fisheries

For these fisheries NMFS approved the ArgoNet MarGE transmitter, for which North American Collection and Location by Satellite, Inc. (NACLS) is the sole communications service provider. The Argos system was approved because of its ability to meet other specified VMS elements which could not be met by the other systems. Because the ArgoNet MAR GE uses NOAA polar-orbiting satellites, and, as such, it is considered a NOAA Data Collection and Location System (DCS). The use of any NOAA DCS is governed by 15 CFR part 911. Pursuant to those regulations, use of a NOAA DCS can be authorized only if it is determined that there are no commercial space-based services available that meet the user's requirements.

The list price of ARGOS MAR-GE units is $2,000 plus freight and installation. The cost per day is $5 for 24 hourly positions. After approximately 11.5 hours of inactivity, the unit goes into sleep mode, incurring only $5/week transmission costs until activity (movement) resumes. There is currently a reimbursement program for the initial VMS equipment purchase. The Pacific States Marine Fisheries Commission has received a grant of over $1.5 million for reimbursements to vessel owners who are required to purchase VMS units for Alaska groundfish fishery participation. Eligible participants receive reimbursements for up to $2,000 of the purchase price of the VMS unit.

Table 4.3.X Vessels that landed groundfish in the WOC during 2001 that are also qualified for VMS for reimbursement Alaska groundfish fisheries

	Number of vessels
Number of WOC groundfish vessels that qualify for reimbursement for Argos Mar-GE VMS because of participation in the pollock, cod or Atka mackerel fisheries off Alaska	49
Number of vessels that have already purchase Argos Mar-GE VMS units	32
The number of vessels that have already been reimbursed	17

4.5 Cumulative Impacts

Appendix A

Final VMS standards
(March 31, 1994: 59 FR 151180)

Appendix B

Maps of
Groundfish Conservation Areas
Proposed for 2003

Appendix C

Draft Proposed Rule

Billing Code:

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration (NOAA)

50 CFR Part 663

[Docket No. ; I.D.]

RIN

Pacific Coast Groundfish Fishery

AGENCY: NOAA Fisheries, National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Proposed rule; request for comments.

SUMMARY: NOAA Fisheries issues a proposed rule to require vessels participating in the Pacific Coast groundfish fishery off the coasts of Washington, Oregon and California to carry and use a Vessel Monitoring System (VMS) transmitter. This action is necessary to enhance monitoring of compliance with large-scale depth-based closures that are proposed to be used to prohibit fishing across much of the continental shelf. In addition, this action is intended to further the conservation goals and objectives of the Pacific Coast Groundfish Fishery Management Plan (FMP) by allowing fishing to continue in areas and with gear that can harvest healthy stocks with little incidental catch of low abundance species.

DATES: Comments must be received by [insert date 45 days after date of filing with the Office of the Federal Register].

ADDRESSES: Send comments to, D. Robert Lohn, Administrator, Northwest Region, NOAA Fisheries, 7600 Sand Point Way, NE, Seattle, WA 98112, Attn: Becky Renko. Comments also may be sent via facsimile (fax) to 206-526-6736. Comments will not be accepted if submitted via e-mail or internet.

Copies of the Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis (RIR/IRFA) prepared for this action may be obtained from the Pacific Fishery Management Council (Council) by writing to the Council at 2130 SW Fifth Avenue, Suite 224, Portland, OR 97201, or by contacting Donald McIsaac at 503-326-6352, or may be obtained from William L. Robinson, Northwest Region, NMFS, 7600 Sand Point Way N.E., BIN C15700, Bldg. 1, Seattle, WA 98115-0070. Send comments on collection-of information requirements to the above address and to the Office of Information and Regulatory Affairs (OIRA), Office of Management and Budget (OMB), Washington DC 20503 (Attn: NOAA Desk Officer).

FOR FURTHER INFORMATION CONTACT: Becky Renko or Yvonne deReynier (Northwest Region, NMFS) 206-526-6140; or Svein Fougner (Southwest Region, NMFS) 310-980-4040.

ELECTRONIC ACCESS: This rule is accessible via the Internet at the Office of the Federal Register's Web site at *http://www.access.gpo.gov/su_docs/aces/aces140.html*. Background information and documents are available at the NMFS Northwest

Region Web site at *http://www.nwr.noaa.gov/1sustfsh/gdfsh01.htm* and at the Council's Web site at *http://www.pcouncil.org.*

SUPPLEMENTARY INFORMATION:

Background

Fishing fleets are routinely monitored to ensure that vessel operators comply with fisheries regulations. Traditional monitoring techniques include the monitoring of fisheries from air and surface craft, observer programs and analysis of catch records and vessel logbooks. The efficiency of these surveillance techniques can be dramatically enhanced by the addition of a vessel monitoring system (VMS).

VMS is a tool that is commonly used to monitor vessel activity in relationship to geographically defined management areas where fishing activity is restricted. VMS transmitters installed aboard vessels automatically determine the vessel's location and transmit that position to a processing center via a communication satellite. At the processing center, the information is validated and analyzed before being disseminated for fisheries management, surveillance and enforcement purposes. VMS transmitters automatically determine the vessel's location, at least once per hour, using Global Positioning System (GPS) satellites. Transmitters are designed to be tamper resistant. In most cases, the vessel owner would be unaware of exactly when the unit was transmitting and would be unable to alter the signal

or the time of transmission. 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 151180.

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

Time and area closures have long been used in the Pacific Coast groundfish fishery to restrict fishing activity in order to keep harvests within sector allocations and at sustainable levels or to prohibit the catch of certain species. Until September 2002, geographically defined areas tended to be in nearshore areas or defined by simple latitude lines. On September 13, 2002, NOAA Fisheries took emergency action to define depth-based management measures (67 FR 57973). This emergency rule restricted trawling north of 40°10' N. lat., in the months of September-December 2002, to depths where darkblotched rockfish, an overfished species, was not expected to be encountered. These measures were taken to reduce the incidental catch of darkblotched rockfish, in order to keep total catch below the 2002 Optimum Yield (OY) level. The new depth-based management area, referred to as the Darkblotched Rockfish Conservation Area,

is based on bottom depth ranges where darkblotched rockfish commonly occur (100-250 fm) and uses a series of latitudinal and longitudinal coordinates to define a large irregularly shaped geographical area that extends far offshore with much activity being beyond the range of State enforcement capabilities.

For 2003, the Council sought a management strategy that would allow fishing to continue in areas and with gear that can harvest healthy stocks with little incidental catch of low abundance species. Recent stock assessments for bocaccio, yelloweye, canary and darkblotched rockfish indicate that little surplus production is available for harvest. Measures must be taken to protect these stocks and rebuild them to sustainable biomass levels. Therefore, the Council recommended that NOAA Fisheries define additional management areas for the groundfish fishery that are based on bottom depth ranges where these low abundance species are commonly found. For 2003, large-scale depth-related closures, referred to as groundfish conservation areas, will be used to prohibit both commercial and recreational fishing across much of the continental shelf. Deep-water fisheries on the slope, and nearshore fisheries will be permitted, but only in very restricted areas outside the conservation areas.

The boundaries of the groundfish conservation areas are complex, involving hundreds of points of latitude and longitude

to delineate nearshore and offshore fathom curves. The areas are vast, extending along the entire West Coast from Canada to Mexico, and the weather and sea conditions are frequently harsh. Some fishing, such as midwater trawling for pelagic species and shrimp trawling with finfish excluders, will be allowed to occur in the conservation areas. In addition, vessels intending to fish seaward of the westernmost boundary of a conservation area will be allowed to transit through the area providing the gear is properly stowed.

Ensuring the integrity of conservation areas using traditional methods of enforcement, such as aerial surveillance and patrol boats and ships, is especially difficult when the closed areas are large-scale and the lines defining the areas are irregular. Furthermore, when some gear types and target fishing are allowed in all or a portion of the conservation area while other fishing activities are prohibited, it is more difficult and costly to effectively enforce closures. Scarce State and Federal resources also limit the use of traditional enforcement methods. To allow for a more liberal depth-based management regime, as proposed by the Council for 2003, it is necessary to take action to establish a monitoring program to ensure the integrity of the large irregularly shaped depth-based management areas. Effective enforcement of the conservation areas will be greatly enhanced if vessels participating in the fishery use a VMS transmitter that

automatically and frequently transmits vessel position to NOAA Fisheries. Vessels fishing near, in and/or transiting through the conservation area can be closely monitored. This action is intended to create a program that will prevent unlawful incursions into conservation areas and allow legal fishing activity that occurs within conservation areas to be effectively monitored.

At its September, 2002 meeting, the Council indicated that the additional information provided by a VMS program would assist in the management of the groundfish fishery, specifically, in maintaining the integrity of new, depth-based management measures. The Council requested that NOAA Fisheries further analyze implementation of a VMS program and develop regulations to implement such a system.

Declarations

Because some fishing is allowed in the conservation area, a declaration report will be necessary for vessels intending to fish in the conservation area. Declaration reports require the vessel operator to declare their intended activity prior to entering a conservation area. These reports will either be a requirement of the VMS or generated using another approved method. Vessel operators would receive confirmation that could be used to demonstrate that they met the reporting requirements.

A declaration would be valid until changed by the vessel operator.

To allow midwater trawl opportunity for widow and yellowtail rockfish in November and December 2002, the States of Washington and Oregon implemented a declaration process. As a condition of landing in State ports, vessel operators are required to contact the State in advance of a trip in which groundfish will be taken legally within the Darkblotched Rockfish Conservation Area. Due to limited State personnel resources to process the declaration reports, the frequency of trips landing either widow or yellowtail rockfish were restricted in Federal regulations to no more than two trips per vessel per 2-month cumulative period.

The Vessel Monitoring System

Under this action, *(Issue 2: alternative 1 - any vessel registered to a limited entry permit; alternative 2 - any limited entry vessel participating in the fishery; alternative 3 - any limited entry vessel participating in the fishery and all open access and recreational charter vessels that actively fished in conservation areas; alternative 4 - any limited entry vessels participating in the fishery and all commercial fishing vessels and recreational charter vessels that actively fish in conservation areas; alternative 5 - any limited entry vessels participating in the fishery and all open access and recreational charter vessels regardless of where they actively fish)* would be required to have an operating NOAA Fisheries-approved VMS transmitter on board.

Currently, NOAA Fisheries-approved VMS transmitter costs range from $2,000 to $6,000 per unit and the charge to the vessel owner for the transmission of VMS position data ranges from $1.00 to $5.00 per day. NOAA Fisheries is revising its type-approval process and will be testing new and emerging VMS transmitter technologies for agency approval. NOAA Fisheries intends to have completed this approval process and to have notified the public of a list of approved transmitters before NOAA Fisheries implements a final rule requiring use of VMS transmitters in the limited entry fishery. NOAA Fisheries expects the price of these new technologies to be generally lower than those quoted above. These requirements may include, but are not limited to, automatically generated position reports from transmitters with a fully integrated, tamper proof GPS, two-way communications for sending and receiving messages, global or near global coverage, latency from 5 minutes (near real time from transmitter to monitoring center) to several hours, ability to add sensors and data input devices, sleep modes that detect lack of vessel movement (in port) and stop sending position reports (greatly reducing power consumption) until the vessel begins moving again, and visual or audible alarms for malfunctions.

NOAA Fisheries will notify the owners of all vessels affected by this rulemaking to ensure that they are aware of what

VMS transmitters have been approved by NOAA Fisheries and have received installation instructions. The installation of the VMS transmitter is expected to take less than 4 hours and would be the responsibility of the vessel owners. In additon, this regulatory amendment would require that the owner or operator of a vessel with a VMS transmitter required under this rulemaking use a NOAA Fisheries-approved VMS transmitter at all times when engaging in any and all fisheries in the U.S. West Coast EEZ that take groundfish, either directly or as a bycatch.

The 2003 Annual Specifications and Management Measures

The 2003 Annual Specifications and Management Measures implement gear restrictions that affect this rulemaking. When the Annual Specifications and Management Measures become effective, it will be unlawful to take and retain, possess, or land groundfish taken with limited entry groundfish trawl gear in the trawl groundfish conservation area. Similarly, recreational fishing for groundfish will be prohibited within the Yelloweye Rockfish Conservation area and directed fishing with non-trawl gear (open access or limited entry) will be prohibited within the non-trawl gear Groundfish Conservation Area. As done in 2002, recreational and commercial fishing for groundfish will continue to be prohibited within the Cowcod Conservation Areas, except that recreational and commercial fishing for rockfish and lingcod

will be permitted in waters inside 20 fathoms (36.9 m). Vessels may, however, transit through the closed areas, with or without groundfish on board, provided all groundfish trawl gear is stowed either: (1) below deck; or (2) if the gear cannot readily be moved, in a secured and covered manner, detached from all towing lines, so that it is rendered unusable for fishing. In addition, no vessel may fish both inside and outside of a conservation area on the same fishing trip.

Classification

(*Classification language to be added here*)

Dated:

For the reasons set out in the preamble, 50 CFR part 660 is proposed to be amended as follows:

PART 660--FISHERIES OFF THE WEST COAST STATES AND IN THE WESTERN PACIFIC

SUBPART G -- West Coast Groundfish Fisheries

§ 660.302 Definitions

Vessel monitoring system (VMS) means a vessel monitoring system or VMS unit as set forth in § 660.XXX and approved by NMFS for

use on vessels that take (directly or incidentally) species managed under the Pacific Coast Groundfish FMP, as required by this subpart.

Vessel monitoring unit means a devise installed on board a vessel used for vessel monitoring and transmitting the vessel's position as required by this subpart.

§ 660.306 Prohibitions

(XXX) *(Issue 2: alternative 1 - Have a vessel registered to a limited entry permit; alternative 2 - Use any limited entry vessel from operating; alternative 3 - Use any limited entry vessel, or open access, or recreational charter vessels from operating in conservation areas; alternative 4 - Use any limited entry vessel, or any commercial fishing vessels, or recreational charter vessels from operating in conservation areas; alternative 5 -Use any limited entry vessel, or open access, or recreational charter vessels)* in the WOC unless that vessel carries a NOAA Fisheries-approved VMS unit and complies with the requirements described at § 660.XXX.

(XXX) Fail to install, activate, repair or replace a VMS unit prior to leaving port as specified in Sec. 660.(XXX).

(XXX) Fail to operate and maintain a VMS unit on board the vessel at all times as specified in Sec. 660.XXX.

(XXX) Tamper with, damage, destroy, alter, or in any way distort, render useless, inoperative, ineffective, or inaccurate the VMS, VMS unit, or VMS signal required to be installed on or transmitted by a vessel as specified in this subpart.

(XXX) Fail to contact NOAA Fisheries or follow NOAA Fisheries instructions when automatic position reporting has been interrupted as specified in Sec. 660.(XXX).

(XXX) Fail to declare a vessel's intent to fish for a species with a gear type allowed in the conservation area as specified in Sec. 660.(XXX).

* * * * *

Sec. 660(XXX) Vessel Monitoring System (VMS) Requirements.

(1) What is a VMS? A VMS consists of a NOAA Fisheries-approved VMS unit that automatically determines the vessel's position and transmits it to a NOAA Fisheries-approved communications service provider. The communications service provider receives the transmission and relays it to NOAA Fisheries.

(2) How are VMS units and communications service providers approved by NOAA Fisheries? (i) NOAA Fisheries publishes type approval specifications for VMS components in the Federal Register.

(ii) VMS unit manufacturers or communication service providers may submit products or services to NOAA Fisheries for evaluation based on the published specifications.

(iii) NOAA Fisheries will publish a list of NOAA Fisheries-approved VMS units and communication service providers in the Federal Register. As necessary, NOAA Fisheries will publish amendments to the list of approved components in the Federal Register.

(3) What are the vessel owner's responsibilities? If you are a vessel owner that must participate in a VMS program, you or your crew must: (i) obtain a NOAA Fisheries-approved VMS unit and have it installed onboard your vessel in accordance with the instructions provided by NOAA Fisheries. You may get a copy of the VMS installation and operation instructions from the NOAA Fisheries Office for Law Enforcement(OLE) Northwest VMS Program Manager upon request. *(Insert address an phone number)*

(ii) Activate the VMS unit and receive confirmation from NOAA Fisheries that the VMS transmissions are being received before participating in a fishery requiring the VMS.

(iii) Continue to operate the VMS unit continuously 365 days a year or until notified by NOAA Fisheries staff that you may stop transmissions.

(iv) When aware that transmission of automatic position reports has been interrupted, or when notified by NOAA Fisheries that automatic position reports are not being received, contact NOAA Fisheries *(insert phone number)* and follow the instructions

provided to you. Such instructions may include, but are not limited to, manually communicating to a location designated by NOAA Fisheries the vessel's position or returning to port until the VMS is operable.

(v) After a fishing trip during which interruption of automatic position reports has occurred, the vessel's owner or operator must replace or repair the VMS unit prior to the vessel's next trip. Repair or reinstallation of a VMS unit or installation of a replacement, including change of communications service provider shall be in accordance with the instructions provided by NOAA Fisheries and require the same certification.

(vi) Make the VMS units available for inspection by NOAA Fisheries personnel, U.S. Coast Guard personnel, state enforcement personnel or any authorized officer.

(vii) Ensure that the VMS unit is not tampered with, disabled, destroyed or operated improperly.

(viii) Pay all charges levied by the communication service provider.

Section 660.(XXX) Declaration Process for Fishing in a Groundfish Conservation Area

(1) All limited entry and open access vessels other than salmon troll and sport charter vessels intending to participate in a

fishery allowed in a conservation area, as defined at 660.XXX or in annual Federal regulations, must provide NOAA Fisheries OLE with a departure report at least 24 hours prior to entering a conservation area for the first time in a fishing year and at least 24 hours prior to entering the conservation area with a gear type that is different from the gear type used on the most recent trip in which the vessel fished in the conservation area. Departure notices must be submitted through the VMS or another method which is approved by NOAA Fisheries OLE and announced in the *Federal* Register such as facsimile or telephone. A declaration report must include:

(i) Name of the vessel and operator.

(ii) Area to be fished.

(iii) Date and time of departure.

(2) At least 6 hours prior to arrival in port, the owner or operator of a vessel intending to land California halibut, pink shrimp, or crab taken in a groundfish conservation area must provide NOAA Fisheries OLE with a landing report. Landing reports must be submitted through the VMS or another method which is approved by NOAA Fisheries OLE and announced in the *Federal* Register such as facsimile or telephone. A landing report must include:

(i)name of the vessel and operator.

(ii) Port of arrival;

(iii) Name of company where fish will be offloaded.

Excerpt from the 2003 Annual specifications and Management Measures Regarding Conservation areas

A. General Definitions and Provisions (19)(c)(i)
Groundfish Conservation Areas. For 2003, the Council has introduced several Groundfish Conservation Areas (GCAs) and has retained the Cowcod Conservation Areas used in 2001 and 2002. Collectively, any closed area intended to protect a particular groundfish species or species group or intended to protect a complex of species is referred to as a GCA. Both the Yelloweye Rockfish Conservation Area and the Cowcod Conservation Areas are GCAs. Larger GCAs intended to protect a complex of species, such as overfished shelf rockfish species, have boundaries defined by a series of coordinates intended to approximate particular depth contours, such as 100 fm (## m), 150 fm (## m), 250 fm (##,) etc. Different gear types or fishing sectors may have GCAs with differing boundaries.

(a) Yelloweye Rockfish Conservation Area. The coordinates of the Yelloweye Rockfish Conservation Area (YRCA) are defined at §660.304(d). Recreational fishing for groundfish is prohibited within the YRCA. It is unlawful for recreational fishing vessels to take, retain, possess, or land groundfish inside the YRCA.

(b) Cowcod Conservation Areas. The coordinates of the Cowcod Conservation Areas (CCAs) are defined at §660.304(c). Recreational and commercial fishing for groundfish is prohibited within the CCAs, except that recreational and commercial fishing for rockfish and lingcod is permitted in waters inside 20 fathoms (36.9 m). It is unlawful to take and retain, possess, or land groundfish inside the CCAs, except for rockfish and lingcod taken in waters inside the 20-fathom (36.9 m) depth contour, when those waters are open to fishing. Commercial fishing vessels may transit through the Western CCA with their gear stowed and groundfish on board only in a corridor through the Western CCA bounded on the north by the latitude line at 33°00'30" N. lat., and bounded on the south by the latitude line at 32°59'30" N. lat.

(c) Limited Entry Trawl Groundfish Conservation Area.
(i) The limited entry trawl GCA is closed to limited entry groundfish trawl fishing. Fishing with limited entry groundfish trawl gear is prohibited within the limited entry trawl GCA. It is unlawful to take and retain, possess, or land groundfish taken with limited entry groundfish trawl gear in the limited entry trawl GCA. Limited entry groundfish trawl vessels may transit through the limited entry trawl GCA, with or without groundfish on board, provided all groundfish trawl gear is stowed either: (1) below deck; or (2) if the gear cannot readily be moved, in a secured and covered manner, detached from all towing lines, so that it is rendered unusable for fishing. These restrictions do not apply to vessels fishing with midwater trawl gear for Pacific whiting or taking and retaining yellowtail rockfish or widow rockfish in association with Pacific whiting caught with midwater trawl gear. No vessel may fish both inside and outside of the limited entry trawl GCA on the same fishing trip.
(ii) * * *

(iii) * * *

(d) Non-Trawl (Limited Entry Fixed Gear and Open Access Nontrawl Gears) Groundfish Conservation Area.
(i) The non-trawl GCA is closed to non-trawl gear (limited entry or open access longline and pot or trap, open access hook-and-line, gillnet, set net, trammel net and spear) fishing for groundfish. Fishing with non-trawl gear is prohibited within the non-trawl gear GCA. It is unlawful to take and retain, possess, or land groundfish taken with non-trawl gear in the non-trawl gear GCA. Limited entry fixed gear and open access non-trawl gear vessels may transit through the non-trawl gear GCA, with or without groundfish on board, provided all limited entry fixed gear and open access non-trawl gear is stowed either: (1) below deck; or (2) if the gear cannot readily be moved, in a secured and covered manner, detached from all deploying lines, so that it is rendered unusable for fishing. These restrictions do not apply to vessels fishing for species other than groundfish with non-trawl gear. No vessel may fish both inside and outside

Exhibit G.10
SSC Statement Draft 1

Mr. Jim Seger updated the Scientific and Statistical Committee (SSC) on the current status of Amendment 16 options for the Groundfish Fishery Management Plan (FMP) to ensure that rebuilding plans for over-fished stocks comply with the Magnuson-Stevens Act (MSA).

The SSC identified Issues 2 and 3 from Sec. 2.1 of Attachment 1 of Exhbibit G.10 to have be most relevant to its discussion

Issue 2: The process for peridocially reviewing rebuilding plans
Issue 3: Defining events or standards that would trigger revision of a rebuilding plan

Following remarks in the Supplemental SSC Reports on C.5.b from June 2002 and C.7.b from September 2002, the SSC reiterates

ENFORCEMENT CONSULTANTS REPORT ON STATUS OF VESSEL MONITORING SYSTEM PLANS

The Enforcement Consultants (EC) met and reviewed the Ad Hoc Vessel Monitoring System Committee report and Supplemental NMFS Report, Exhibit G.3.b *A Program to Monitor Time - Area Closures in the Pacific Coast Groundfish Fishery* and make the following recommendations.

Issue 1: Monitoring Systems, we recommend Alternative 3, to include limited entry, California halibut, pink shrimp, but not crab. We recommend the declaration for legal fishing incursions into the Groundfish Conservation Area be a one time declaration to be made prior to leaving port with the single declaration remaining in effect until changed. No 24-hour pre-notification is necessary, nor do we see the need for a notice of landing declaration prior to returning to port.

Issue 2: Coverage, we recommend the Alternative 2B VMS option, as clarified, federal limited entry vessels participating in West Coast fisheries must carry operating Vessel Monitoring System (VMS) units.

Gear Type: We endorse the requirement that only one gear type be on board when fishing in the conservation zone and no fishing occur during the trip that is inconsistent with fishing in the conservation zone including species and trip limit possession.

Gear Storage: After discussions with the GAP on this issue, we recommend the regulation on gear storage when transiting the conservation zone be amended to include; trawl gear can remain on deck uncovered if the trawl doors are hung from their stanchions, and the net is disconnected from the doors.

One final issue discussed with the GAP involves the Dover sole/thornyhead/trawl-caught sablefish complex tier limit and daily-trip-limit (DTL). Prior to participating in the DTL fishery, fishers must fulfill the tier limit. Often, trips are made for small amounts to satisfy this requirement, resulting in the potential for overages. We are sympathetic to this problem and support modification of the regulations to address this situation.

PFMC
10/30/02

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON STATUS OF VESSEL MONITORING SYSTEM PLANS

The Groundfish Advisory Subpanel (GAP) spent a considerable amount of time reviewing proposals for a Vessel Monitoring System (VMS) and several other enforcement issues related to the use of depth-based management. The GAP greatly appreciates the time spent by the Enforcement Consultants in meeting with the GAP to discuss and resolve issues and encourages future joint meetings of this nature to ensure a workable and enforceable management system.

In regard to VMS, the GAP used Table 2.0.1 as displayed in Exhibit G.3.b, Supplemental NMFS Report as the basis for its recommendations. The GAP examined the issues primarily in the context of management options for 2003, recognizing that additional refinements would have to be made after a VMS program gets up and running.

In regard to issue #1 - Monitoring System, the GAP endorses Alternative 3, which would provide for a declaration and basic VMS system for certain vessels fishing in conservation areas. Alternative 3 is a good first step that could be expanded later. In the context of Alternative 3, the GAP believes, (1) that provision should be made for declarations covering a broad period of time for those vessels which frequently legally fish in conservation areas; (2) the recipient of declarations (whether federal, state, or a private contractor) be available to receive declarations 24 hours per day, 7 days per week, in order to accommodate the uncertainties of fishing activity; (3) a variety of ways be available to make a declaration, including but not limited to Internet based, telephone, and facsimile; and (4) that every declaration generate a confirmation so vessels can have proof they complied with the regulations.

In regard to Issue #2 - Coverage, the majority of the GAP endorsed Alternative 2B, which would require use of VMS on all limited entry vessels actively fishing. The GAP interpreted "actively fishing" as being away from port and would not include vessels that are not operating. This alternative would allow time to de-bug the VMS system while concentrating coverage on those vessels most likely to be present and fishing for groundfish in or adjacent to conservation areas.

A minority of the GAP endorsed Alternative 3, which would expand VMS coverage to recreational charter and open access vessels actively fishing in conservation areas. They suggested these vessels must eventually be covered anyway, so it would be more equitable to have them covered immediately along with limited entry vessels.

In regard to Issue #3 - Expenditures, the GAP unanimously endorsed Alternative 4, which would require NMFS funding for the entire system. The GAP noted that most other operable VMS systems in the U.S. fisheries were funded by the federal government either from the beginning or through reimbursement to vessel owners, and it would be inequitable to require West Coast groundfish vessels to have to pay their own way when others don't. Several members noted the statement in the table stating federal funding is not available and pointed out that funding by harvesters is, in many cases, not available either.

In regard to confidentiality of data such as vessel track lines, the GAP recommends such data not be released to anyone other than federal enforcement officers and state enforcement officers under a cooperative enforcement agreement. Individual vessel owners would be allowed to grant specific permission to release their vessel's data to other parties, including, but not limited to, fisheries managers, researchers, and private parties.

The GAP also discussed the issue of gear storage on trawl vessels transiting conservation areas. Current regulations require trawl gear to either be covered or stowed below deck. GAP members noted that covering is often impossible in heavy weather, that storage below deck is often equally impossible given the size and configuration of typical West Coast trawl vessels, and the regulations made it impossible for crews to work on gear while the vessel is traveling to a legal fishing area. The GAP recommends a third option be allowed: trawl gear can remain on deck while a vessel is in a conservation zone if the trawl doors are hung from their stanchions, and the net is disconnected from the doors.

Finally, the GAP discussed a discrepancy in existing sablefish regulations whereby a vessel must completely fill its tier limit before participating in the daily-trip-limit (DTL) sablefish fishery. Often, a vessel will have such a small amount left on its tier limit that filling it is impossible without encountering an overage. However, until the tier limit is filled, the vessel cannot legally participate in the DTL fishery, since all fish will accrue to the tier limit. The GAP recommends the following regulatory change: if a vessel has less than the DTL daily amount left in its tier limit, any sablefish caught will count towards the DTL fishery and not towards the tier limit. The vessel would be considered to have completed its tier limit fishery and entered the DTL fishery under these circumstances.

PFMC
10/30/02

GROUNDFISH MANAGEMENT TEAM STATEMENT ON STATUS OF VESSEL MONITORING SYSTEM PLANS

The Groundfish Management Team (GMT) was briefed by Mr. Dayna Matthews on the status of implementing a vessel monitoring system (VMS) for tracking fishing vessels under the depth-based management regime adopted for 2003. The GMT offers the following comments and recommendations regarding the applicability of VMS in managing West Coast groundfish.

Groundfish management could benefit from a better understanding of individual vessel fishing behavior and fleet distribution. These data could be available from VMS; however, anticipated confidentiality agreements could prevent use of such data for management. The GMT recommends VMS data be made available to federal and possibly state managers and scientists to improve understanding of fishery and stock dynamics. These data could be aggregated and/or disassociated from a vessel identification code to protect confidentiality.

The GMT notes that none of the alternatives, except Alternative 5, which covers all fishing vessels, provides for coverage of open access vessels targeting groundfish that would be prohibited from fishing in the closed area (<100 fm north of 40° 10' N latitude). Further, in setting priorities for VMS coverage, the GMT believes that coverage of open access vessels targeting groundfish that would be excluded from the closed area would be more meaningful than VMS coverage on vessels that are allowed to fish within the closed area.

While use of VMS data has potential benefits for managing groundfish, the GMT reiterates its strong support for implementing an electronic logbook system. Electronic logbooks could be linked to depth finders and Global Positioning System (GPS) systems which would provide a record of total catch and effort by depth and area. These data are viewed as critical by the GMT for providing fleet access to healthy stocks while avoiding overfished species. Such a system has been in the planning stage for many years, and the GMT believes implementation on a trial basis should occur as soon as possible. A comprehensive electronic logbook system would supplant the need for management and scientific access to VMS data.

The Council also requested, and the Ad Hoc VMS Committee analyzed alternative declaration systems, where skippers would declare their intended target when fishing in an otherwise closed area. The GMT believes a federal declaration system would aid enforcement of compliance of depth-based restrictions. State declaration systems may not be tenable due to lack of resources, and a federal declaration system may be delayed due to the requirements of the Paperwork Reduction Act. The GMT urges implementation of a federal declaration system as soon as practicable in 2003.

Finally, the GMT would like to express its gratitude to the Enforcement Consultants, NOAA Fisheries Enforcement, the Northwest Region staff of NMFS, and the members of the Ad Hoc VMS Committee for their strong efforts and progress implementing VMS. Their support and hard work has resulted in remarkable progress in advancing this important management tool.

PFMC
10/30/02

Dr. Donald McIsaac, Executive Director
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, Oregon 97220-1384

September 23, 2002

RECEIVED

SEP 3 0 2002

PFMC

Dear Dr. McIssac:

I am writing on behalf of the Newport Dory Fishing Fleet located in Newport Beach, California. It has come to my attention that there are restrictions being placed on the Dory Fleet fishermen that exceed rational and/or reasonable expectation. I am specifically asking for exemption from the vessel monitoring system under consideration by National Marine Fisheries Service (NMFS) and the Pacific Fishery Management Council (PFMC).

The Dory Fleet established in 1891, is unlike any other and should not be placed under the guidelines as larger commercial fishing vessels. They fish in deep water yet fish within a 30-mile range from the Newport pier. After retrieving their catch they come onto the beach to sell directly to the public at the base of the pier. I have had the opportunity to accompany a couple of the fishermen out to sea as an observer. It was a wonderful experience and the history of this unique fleet needs to be preserved for future generations to enjoy.

It is my understanding that the regulating agencies feels it is necessary to monitor the fishing industry to ensure enforcement of the numerous, complex regulations currently in place. In order to do this, the management agencies want to implement a vessel monitoring on all limited entry groundfish permit vessels. Unfortunately, this includes a small historical landmark such as the Dory Fleet. This seems unreasonable for the Dory Fleet and sounds as if it could possibly be illegal.

I believe regulations for the only Dory Fleet in the United States should be different do to their unique historical operation. The regulating agencies should consider exemption from a VMS program for the Newport Beach Dory Fleet.

Thank you for your consideration on this issue.

Sincerely,

Charlotte Jurekovic

Charlotte Jurekovic
120 Brookline Lane
Costa Mesa, CA 92627

cc. Secretary Donald Evans
Rod McInnis, NMFS
LB Boydstun, CDF&G

Subject: Fwd: Re:pleading for the Newport Dory Fleet
From: "PFMC Comments" <pfmc.comments@noaa.gov>
Date: Tue, 08 Oct 2002 08:10:53 -0700
To: john.devore@noaa.gov
CC: jim.seger@noaa.gov

Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, Oregon 97220-1384
Phone: 503-820-2280
Fax: 503-820-2299
Toll-Free: 1-866-806-7204
On the web at: http://www.pcouncil.org

Subject: Re:pleading for the Newport Dory Fleet
From: <CCIVicChen@aol.com>
Date: Mon, 7 Oct 2002 19:53:40 EDT
To: pfmc.comments@noaa.gov

Executive Director
Pacific Fishery Management Council
Dear Director
We strongly support the Newport Dory Fleet their request of exemption from the vessel monitoring enforcement program. Please do consider their reasonable request.
Victor Chen and Phebe Chen

PFMC Comments
<pfmc.comments@noaa.gov>

ALTERNATIVE MANAGEMENT ACTIONS FOR VESSEL MONITORING SYSTEM PLANS

ISSUE 1: THE MONITORING SYSTEM This issue defines the types of systems and reporting requirements that could be used to monitor fishing activities to ensure the integrity of groundfish conservation areas. The alternatives below describe three approaches to monitoring systems including: a declaration system, a Vessel Monitoring System (VMS) program, and fishery Observers.

Alternative 1: No action alternative. Do not define a specific monitoring system for managing the integrity of groundfish conservation areas. Do not define reporting requirements for groundfish vessels conducting allowed fishing activities in conservation areas.

Alternative 2: Declaration system only. Do not define a specific monitoring system for managing the integrity of groundfish conservation areas. Require operators of all limit entry vessels and open access California halibut, pink shrimp, or crab vessels to provide notice regarding the intent to fish within the boundaries of any conservation area.

Alternative 3: Basic VMS system. Establish standards for VMS transceiver and mobile communication service providers that are consistent with the final NMFS VMS standards. The system would require real-time (or near real-time) intervals between position fix and receipt by NMFS. Require operators of any limited entry vessel or open access California halibut, pink shrimp, or crab vessel to provide notice regarding the intent to fish in a conservation area.

Alternative 4: Upgraded VMS system. Establish standards for VMS transceiver and mobile communication service providers that are consistent with the final NMFS VMS standards. The system would require real-time (or near real-time) intervals between position fix and receipt by NMFS. In addition to the basic standards, the upgraded system would require two-way communications between the vessel and shore such that full or compressed data messages can be transmitted and received by the vessel. Require operators of any limited entry vessel or open access California halibut, pink shrimp, or crab vessel, to provide notice regarding the intent to fish in a conservation area.

Alternative 5: Observers. Require vessels to carry observes to monitor vessel activity in relation to groundfish conservation areas. Require operators of any limited entry vessel or open access California halibut, pink shrimp, or crab vessel without an observer on board, to provide notice regarding the intent to fish in a conservation area.

ISSUE 2: VMS COVERAGE This issue identifies the sectors of the groundfish fleet that would be required to have a VMS or observer monitoring system (as identified under issue 1, alternatives 3,4,& 5) in place in order to participate in Pacific coast groundfish fishery.

Alternative 1: No action. Do not specify mandatory coverage requirements for a monitoring system.

Alternative 2A: All vessels registered to a limited entry permit. Beginning in 2003, require all trawl and fixed gear vessels registered to limited entry permits to have VMS or an observer as specified under issue 1. Vessels would be required to have VMS transmitter units or observers on board at all times regardless of the fishery.

Alternative 2B: All vessels registered to a limited entry permit and that fish for groundfish. Beginning in 2003, require all trawl and fixed gear vessels registered to a limited entry permit to have either VMS or an observer as specified under issue 1, before they can fish in the Pacific coast groundfish fishery. Vessels would be required to have VMS transmitter unit or an observer on board at all times regardless of the fishery.

Alternative 3: All limited entry vessels regardless of where fishing occurs; and all open access and recreational charter vessels that fish in the conservation areas. Beginning in 2003, require all trawl and fixed gear vessels registered to a limited entry permit to have either VMS or an observer as specified under issue 1, before they can fish in the Pacific coast groundfish fishery. By 2004, begin phasing in VMS or an observer requirement for open access vessels (including exempted gears) that fish within a conservation area. Open access fisheries would be prioritized by the estimated impacts on overfished species. By 2004, begin phasing in VMS or an observer requirement for recreational charter vessels that fish within a conservation area. Vessels would be required to have VMS transmitter unit or an observer on board at all times regardless of the fishery.

Alternative 4: All limited entry vessels regardless of where fishing occurs; all fishing vessels operating in conservation area. Beginning in 2003, require all trawl and fixed gear vessels registered to a limited entry permit to have either VMS or an observer as specified under issue 1, alternatives 3, 4. & 5, before they can fish in the Pacific coast groundfish fishery. By 2004, begin phasing in VMS or observer requirements for all other fishing vessels that operate in the conservation areas. Fisheries would be prioritized by the estimated impacts on overfished species. Vessels would be required to have VMS transmitter unit or an observer on board at all times regardless of the fishery.

Alternative 5: All limited entry, open access, and recreational charter vessels regardless of where fishing occurs. Beginning in 2003, require all trawl and fixed gear vessels registered to a limited entry permit to have either VMS or an observer as specified under issue 1, before they can fish in the Pacific coast groundfish fishery. By 2004, begin phasing in VMS or observer requirements for all open access and recreational charter vessels regardless of where the vessel will be fishing. Fisheries would be prioritized by the estimated impacts on overfished species. Vessels would be required to have VMS unit or an observer on board at all times regardless of the fishery.

ISSUE 3: VMS RELATED EXPENDITURES -- This issue defines the responsibilities of purchasing, installation, and maintenance of VMS transmitter units, as well as the responsibilities for transmission of reports and data.

Alternative 1: Vessel pays all. Under this alternative the vessel would be responsible for paying all costs associated with purchasing, installing and maintaining the VMS transmitter unit, as well as the costs associated with the transmission of reports and data from the vessel. This alternative would not preclude reimbursement for all or a portion of expenditures at a later point in time if money were available.

Alternative 2: Vessel pays for transmitter. Under this alternative the vessel would be responsible for paying for all costs associated with purchasing, installing and maintaining the VMS transmitter unit. NMFS would pay for transmission of reports and data only.

Alternative 3: NMFS pays for initial transmitter. Under this alternative, NMFS pays or reimburses the vessel owner for all or a portion of the initial VMS transmitter unit. Associated expenses including installation, maintenance and replacement would be paid for by the vessel. Transmission costs would also be paid for by the vessel.

Alternative 4: NMFS pays all. Under this alternative NMFS would be responsible for paying all costs associated with purchasing, installing and maintaining the VMS transmitter unit, as well as the costs associated with the transmission of reports and data from the vessel.

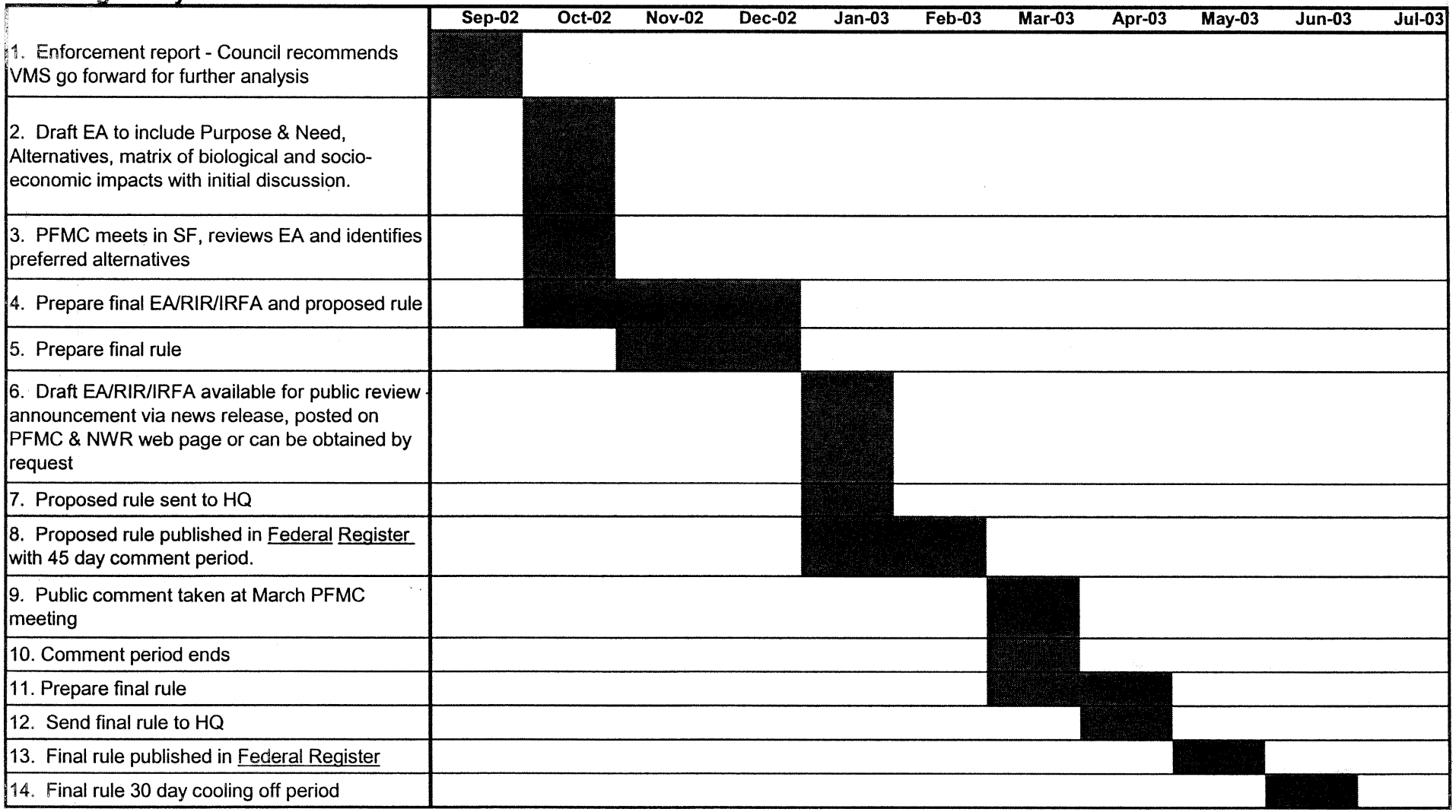
Table 2.0.1 Summary of Alternative Actions for Monitoring Time-area Closures in the Pacific Coast Groundfish Fishery

ISSUE 1: The Monitoring System	**Alternative 1** No action	**Alternative 2** Declaration reports from limited entry and open access California halibut, pink shrimp, or crab vessels intending to fish within any conservation area ~~and landing reports for fish taken in conservation areas~~	**Alternative 3** Basic VMS system and declaration reports from limited entry and open access California halibut, pink shrimp, or crab vessels ~~and landing reports from vessels without VMS,~~ VMS operable 24 x 7	**Alternative 4** Upgraded VMS system and declaration reports from limited entry and open access California halibut, pink shrimp, or crab vessels ~~and landing reports for vessels without VMS~~, VMS operable 24 x 7	**Alternative 5** Observers and declaration reports from limited entry and open acces California halibut, pink shrimp, or crab vessels ~~and landing reports fro vessels without observers~~
	* Limited availability of air and surface craft to monitor conservation areas. * Fish tickets and logbooks used to monitor fishing location	* Same as Alt. 1 plus: * 386 LE & 1,336 OA - California halibut, pink shrimp, or crab vessels would be required to provide declaration and landing reports * Declaration reports aids in identifying vessels fishing legally in conservation areas * Landing reports used to direct dockside monitoring	* Same as Alt. 1 & 2 plus: * Must be consistent with VMS standards * Vessel location received in real-time. * Real-time position data would allow enforcement to respond to infractions. * Distress signal	* Same as Alt. 1, 2 & 3 plus: * Must be consistent with VMS standards * Vessel location received in real-time * Real-time position data would allow enforcement to respond to infractions * 2-way communications can be used to transmit reports from vessel; to receive operational messages; and to inquire about use of distress signal * Vessel may choose value added services used only by vessel	* Same as Alt. 1 & 2 plus: * Position data can be used as bas for enforcement action * Observer reports could be used t verify vessel activities * Most observer data is beyond the scope of the identified need * Catch composition data would be available to assess the impacts of both legal and illegal fishing activiti

ISSUE 2: Coverage (Issue 2 applies only when issue 1, alternatives 3, 4 or 5, VMS or observers are selected as the monitoring system)	**Alternative 1** No action	**Alternative 2A** All vessels registered to a limited entry permit	**Alternative 2B** All limited entry vessels that actively fish	**Alternative 3** All active limited entry, and open access and recreational charter vessels that fish in conservation areas	**Alternative 4** All active limited entry vessels and all commercial fishing vessels and recreational charter vessels that fish in conservation areas.	**Alternative 5** All active limited entry, open access and recreational char vessels regardless of where they f
	* Coverage would be voluntary, except for mandatory observer coverage required under the federal observer program	* In 2001, this was 424 vessels including catcher/ processors (257 trawl, 140 line, 11 pot , and 16 combined gear)	* In 2001, 386 LE vessels landed groundfish (233 trawl, 129 line & 24 pot vessels)	* LE same as Alt. 2B * OA 2,732 vessels * Recreational charter: 525 vessels - If 100% of WA and 90% of CA & OR vessels identified fish in conservation area, 300 if 100% of WA and 50% of CA & OR fish in conservation area	* LE same as Alt. 2B * OA same as Alt. 3 * Recreational charter same as Alt. 3 * Other commercial fisheries: 132 hagfish (7 vessels), spiny lobster (125) rock crab, sheep crab, ??surfperch??, shark,.....	* LE same as Alt. 2B * OA 3,691 vessels * Recreational charter of 581 vesse with 20 from WA, 146 from OR anc 415 from CA

ISSUE 3: VMS Expenditures (Issue 3 applies only when issue 1, alternatives 3 or 4, are selected for the monitoring system)	**Alternative 1** Vessel owner pays for all	**Alternative 2** Vessel owner pays for VMS transmitter	**Alternative 3** NMFS pays for initial VMS transmitter	**Alternative 4** NMFS pays for all
	* Vessel pays all costs associated with purchasing, installing and maintaining the VMS transmitter unit *Vessel pays all costs associated with the transmission of report sand data from the vessel * Does not preclude reimbursement for all or a portion of expenditures	* Vessel would be responsible for paying all costs associated with purchasing, installing and maintaining the VMS transmitter. * NMFS pays for transmission of reports and data * Federal funding not currently available	* NMFS pays vessel for all or a portion of VMS transmitter * Associated costs including installation, maintenance and replacement paid by vessel * Transmission costs paid by vessel * Federal funding not currently a ble	* NMFS would be responsible for paying all costs associated with purchasing, installing and maintaining the VMS transmitter unit, as well as the costs associate with the transmission of report and data rom the vessel * Federal funding not currently available

VMS Regulatory Timeline



STATUS OF VESSEL MONITORING SYSTEM (VMS) PLANS

Situation: Depth-based restrictions are a fundamental aspect of the new groundfish management regime adopted at the September 9-13, 2002 Council meeting in Portland, Oregon. Depth-based restrictions are designed to limit fishing in areas inhabited by overfished groundfish stocks while providing opportunities to fish healthy groundfish stocks with minimized bycatch. The choice of depth-based restrictions was made with the intent of balancing stock conservation needs and the socioeconomic consequences of fishing restrictions.

Fathom contours can be erratic in shape and difficult to follow and enforce, particularly in deep water. Latitude and longitude waypoints submitted to the National Marine Fisheries Service (NMFS) by the three West Coast states specify most of the fathom lines adopted for management.

Enforcement of depth-based restrictions was also a Council consideration as current enforcement capabilities may be inadequate to enforce the new groundfish management regime. At-sea patrols of deeper management lines may depend on U.S. Coast Guard (USCG) aircraft and larger cutters at a time when Homeland Security and other missions also demand USCG attention, therefore, a vessel monitoring system (VMS) in under consideration for use as early as midyear 2003.

VMS is a shoreside tracking system that allows shoreside personnel to remotely track vessel locations. Transponders on vessels and satellite receivers enable remote tracking and can be capable of two-way communications. Two-way communication could allow NMFS personnel to warn a vessel when they are approaching a closed area, allow a skipper to notify NMFS of their intent or send a distress signal, or even transmit observer information. Providing for enforcement capabilities, additional measure of safety for vessels further offshore under the new management regime, and other benefits have all been cited as reasons to proceed with VMS planning.

There are concerns with the use of VMS and obstacles to immediate implementation. Cost and funding of VMS is a significant concern. NMFS stated funding is available for the costs of mainframe computer hardware and software at the shoreside remote stations. It has not been decided how the on-board component and installation costs would be bourne. Fishermen testified they were already on the economic edge and were having trouble covering expenses in the last few years. The Council has asked NMFS to consider direct funding of these on-board component and installation costs. Additional concerns include decisions on the level of technological complexity, logistics of on-board installation, privacy issues, staffing, coordination, which segments of the commercial and recreational fleets would be required to use VMS, regulatory language, and the Paperwork Reduction Act.

The Council also approved the formation of an Ad Hoc VMS Committee to be comprised of limited entry groundfish representatives from the three West Coast States, the Enforcement Consultants, and the Groundfish Advisory Subpanel chair. The Ad Hoc VMS Committee met for the first time at the Council office in Portland, OR on October 11, 2002. Their recommendations will be presented in Exhibit G.3, Supplemental Report of the Ad Hoc VMS Committee.

Council Action:

1. **Provide a recommendation on how to proceed with RMS implementation.**

Reference Materials:

1. Report of the Ad Hoc VMS Committee (Exhibit G.3.a, Supplemental Report of the Ad Hoc VMS Committee). received 10-25-02
2. Written public comments (Exhibit G.3.d, Public Comment).

Agenda Order:

a. Agendum Overview — Mike Burner
b. Reports and Comments of Advisory Bodies
c. Public Comment
d. **Council Action:** Provide Guidance and Approval

Groundfish Fishery Strategic Plan (GFSP) Consistency Analysis

The GFSP supports establishing a more stable, understandable, and enforceable regulatory structure (Sec. II.A.1) that protects weak stocks while providing harvest opportunities for healthy stocks (Sec. II.A.2). The GFSP also supports establishing and maintaining a management process that minimizes adverse economic effects and takes into account the needs of fishing communities (Sec. II.C). The Council process of pursuing the implementation of VMS is consistent with these GFSP principles.

PFMC
10/16/02

Supplemental Reference Materials

3. Report of the Ad Hoc VMS Committee (Exhibit G.3, Attachment 1).

4. Exhibit G.3.b, Supplemental NMFS Report.
5. Exhibit G.3, Supplemental NPFMC VMS Committee Minutes
6. Exhibit G.3.d, Supplemental Council VMS Considerations.
7. Exhibit G.3.c, Supplemental EC Report.
8. Exhibit G.3.c, Supplemental GAP Report.
9. Exhibit G.3.c, Supplemental GMT Report.

REPORT OF THE AD HOC VESSEL MONITORING SYSTEM COMMITTEE

The Ad Hoc Vessel Monitoring System (VMS) Committee met on October 11, 2002 to discuss VMS alternatives. Only three industry members were able to attend, those representing California fixed gear vessels, Oregon trawlers, and seafood processors. However, the committee was able to have fruitful discussions and provided useful comments to those drafting the alternatives and regulatory package. Committee guidance and concerns are provided in the attached summary minutes. It is the committee's understanding that a draft set of alternatives will be provided to the Council at its November meeting.

PFMC
10/23/02

Prepared by Jane DiCosimo October 1, 2002

VMS Committee Meeting
Draft Minutes
August 30, 2002 and
September 30, 2002

Committee chairman Earl Krygier, CAPT Rich Preston, Al Burch, Bob Mikol, Lori Swanson, Ed Page, and Guy Holt were in attendance for both meetings. Fourteen individuals representing seven venders attended the August 30th meeting held in Juneau. Staff for the August meeting were Jane DiCosimo, Garland Walker, and Alan Kinsolving.

For the September 30th meeting staff included Jane DiCosimo and NMFS enforcement representatives Ken Hansen and Gary Galbreath. Two representatives from the public also attended this meeting.

The NPFMC charge to the Committee was to review the current VMS system and potential new systems, and explore current and future uses of technology for monitoring fisheries and enhancing vessel safety in a cost-effective manner. The Committee focused on national standards for VMS and regional issues and further discussed the National Standards of the Magnuson-Stevens Act and took note of the following standards:

> "Conservation and management shall, where practicable, minimize costs and avoid unnecessary duplication."
>
> "Conservation and management measures, shall to the extent practicable, promote the safety of human life at sea."

The Committee discussed how VMS systems that provide two-way communications could aid compliance with fisheries regulations and maritime safety. In order to help evaluate the various transponder systems available, the Committee developed a list of performance factors important for serving as an approved VMS for Alaska fisheries. These factors included:

(1) The meeting of NMFS Requirements and Performance Standards

(2) The operation and cost of the systems

(3) Safety of Life and Property Factors

(4) Efficiency of Maritime Operations.

A copy of the evaluation matrix is attached.

The Committee proposed the following performance standards for certification for future systems:

- Modification of the position reporting period, presently every 30 minutes, to allow for variable reporting relative to vessel proximity to areas of concern which reduces operating costs

- Using "comprehensive coverage" as the performance standard for VMS as opposed to "seamless" that is the present requirement.

- Requiring future VMS to provide for 2-way communications capability to help reduce negative impact on protected resources and enhance maritime safety.

- Reliability of VMS hardware

- Backup systems, hardware or software based, as an alternative to a secondary VMS

The Committee received presentations from NOAA Fisheries Enforcement on the current vessel monitoring requirements and a comparative field test and study of satellite and EPIRB technology in the Aleutians by the Marine Exchange of Alaska. The Committee also heard briefings from seven private vendors of satellite transponder systems and software technology. Vendors were also invited to supply a written presentation to address the performance factors identified in the attached evaluation matrix.

Reviewing and certifying two-way VMS technologies would meet the Magnuson Stevens Act National Standards to enhance maritime safety and minimize costs. Upon review of the information presented, the Committee deemed Inmarsat C and Iridium satellite technology provides comprehensive VMS coverage for the Alaska Region. Additionally, these systems can integrate into the current NMFS software that will be shared with the USCG through a single interface.

In the event of a VMS failure, the Committee supported the approval of cost effective hardware or software technology back-up systems that would allow a fishing vessel to complete its current voyage and still meet NMFS' basic security and reporting criteria (geographic coverage, tamper resistant, encrypted data exports for tracking analysis, 30 minute poll rate, and vessel specific).

The Committee recommended that the National VMS Steering Committee, which will meet in October 2002 review and incorporate the Committee's proposed changes to 50 CFR 679 and consider the attached evaluation matrix as a possible strawman for consideration. In addition, the Committee seeks Council direction on whether it should continue as a committee to address operational and enforcement issues related to VMS once its task is completed or if NMFS/Council should resolve these issues outside of the committee process.

Encl: (1) VMS Evaluation Matrix
(2) Proposed changes to 50 CF 679

NMFS Requirements & Performance Standards	
1	Is the equipment presently approved by NMFS?
1a.	If so which regions?
2	Can the equipment and system meet the NMFS technical requirements?
3	What is the coverage area of the System?
3a.	Is communications with the satellite system always available?
3b.	Are there shadow areas? If so, where and how extensive?
4	What is the reliability of the system?
5	Can the system notify a vessel of a pending or actual incursion to aid compliance with applicable environmental regulations?
6	Is the system tamper-resistance?

Operation & Cost	
1	What is the cost of the equipment?
2	What are the operating costs; 24 hrs, positions every 30 minutes?
3	How is or can the system's proper operation be validated to allow for fishing?

Safety of Life & Property	
1	Can the system provide immediate notification of an emergency to the CG and the Owner/Operator?
2	Can the system receive emergency information?
3	Can the system receive weather reports?

Efficiency of Maritme Operations	
1	Can the system transmit catch reports?
2	Can the system receive fishing notices?
3	Can the system send and receive Email? If so what is the cost?
4	Can the system send vessel position info to the vessel owner & operator? What is the Cost?

50 CFR 679
VMS Requirements

The NPFMC VMS Committee reviewed NMFS draft VMS regulations for Alaska and recommended the following changes to provide for two-way communications that can better prevent negative impact to resources in Alaska and aid maritime safety.

Note:

Normal text represents draft NMFS regulations

Bold Italics text reflects VMS committee comments

Bold, underlined italics text represents proposed language for NMFS

The VMS Approval Process

A VMS consists of a NMFS-approved VMS transmitter that automatically determines the vessel's position and transmits it to a NMFS-approved communications service provider. ***(Recommend VMS "transmitter" be changed to "transceiver" to reflect the equipment can both send and receive communications.)*** The communications service provider receives the transmission and relays it to NMFS. On March 31, 1994, NMFS published standards for the use of VMS (59 FR 15180). NMFS will use the criteria described below, which are based on the 1994 standards, to approve VMS transmitters and communication service providers.

1. The VMS transmitter must be tamper-proof and it must be impossible for the vessel operator to input false position information; ***(Recommend change "impossible" to a more realistic standard, i.e. "The VMS transceiver must be tamper-resistant and designed to prevent the vessel operator to input false position information")***

2. The VMS transmitter must be able to determine, store and transmit vessel position;

3. The VMS transmitter must allow for regular as well as random automatically generated position reporting. The interval between position reports must be programmable;

4. Each position report must include: (a) the vessel location, accurate within 400 m; (b) a transmitter identifier that is unique to that transmitter; and (c) the date and time that the vessel position was taken;

(Recommend higher accuracy standard to reflect today's current technology in providing accurate position reports to 100 m vs 400 m. Accurate information will help determine if a vessel is actually inside a protected area.)

5. The VMS transmitter must be equipped with an onboard alarm system that will alert the vessel crew if the unit malfunctions or is not able to transmit;

6. The VMS transmitter, in conjunction with the VMS communication service provider, must provide seamless and transparent communications from any location within the exclusive economic zone off Alaska;

The objective of VMS is to ensure comprehensive coverage of protected areas and the timely detection and notification to NMFS to aid compliance and enforcement of applicable fisheries regulations.

The present "seamless" requirement implies seamless geographic coverage (currently available) as well as seamless communications connectivity, (which is not presently available).

In light of the above, the Committee recommends this section read: "The VMS transceiver, in conjunction with the VMS communications service provider, must provide comprehensive coverage of

all regulated fishery areas and their approaches in Alaska that ensures any incursions into protected areas are detected and communicated to NMFS within a period determined to be timely by NMFS in consideration of exsiting available technologies."

7. The transmitter must be able to fix the vessel's position at least once every 20 minutes and be able to store those positions in local, non-volatile memory until they can be transmitted to, and received by, the communication service provider;

(This section implies the equipment must take positions every 20 minutes at all times. In practice, a vessel operating 50 miles from a protected area need not provide positions every 20 minutes and doing so imposes an unnecessary communication cost to the owner/operator. NMFS policy should allow for variable polling rates depending on where a vessel is operating ranging every 12 hours when not underway or in the same geographic area within 100 m, to every 2 hours when underway greater than 3 miles from a protected area, to every 20 minutes when within 3 miles of a protected area including operating in a protected area. These standards would reduce VMS costs by ½ and still meet NMFS VMS objectives.)

8. In addition to regular position reports, the VMS transmitter must be capable of transmitting a specially identified status report giving the vessel position whenever the transmitter is powered-up, powered-down, is unable to determine vessel position or has its antenna disconnected;

9. It must not be possible for the vessel operator to determine when the VMS transmitter is transmitting or taking a position for later transmission;

10. Transmissions from the VMS transmitter and the communication service provider must be secure, and it must not be possible for unauthorized parties to intercept vessel location information.

Comments: Recommend a new paragraph one be inserted to address the two way communications standards desired to better meet the Magnuson-Stevens Act National Standard #10 that reads "Conservation and management measures shall, to the extent practicable, promote the safety of life at sea"

1. Approved VMS equipment shall have accurate and near real time position finding capability and provide reliable and near real time two way communications capabilities to aid compliance and enforcement of fisheries regulations and maritime safety. The VMS equipment shall have the capability to alert vessel operating personnel of an important incoming message.

Dr. Liz Clarke presentation 10/31/02 Agenda Item G.4b
<Administrative Record>

STAR PANELS - 2003

SPECIES	TYPE	DATE	LOCATION
WHITING - US/CANADA	FULL	FEB 25-28	SEATTLE
BOCACCIO, BLACK	FULL	APR 21-25	SANTA CRUZ
POP, WIDOW	FULL	APR 14-18	SEATTLE
COWCOD, DARKBLOTCHED, YELLOWTAIL	UPDATE	APR 28-29	PORTLAND/SEATTLE

Results to be ready for GMT in May 2003 and delivered to Council at June 2003 meeting

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON STOCK ASSESSMENT REVIEW PANEL PROCESS - REVIEW OF 2002 AND PLANNING FOR 2003

The Groundfish Advisory Subpanel (GAP) met jointly with the Scientific and Statistical Committee and the Groundfish Management Team to review the stock assessment review (STAR) panel process and the list of assessments scheduled for 2003. Drs. Elizabeth Clarke and Richard Methot of the Northwest Fisheries Science Center gave a presentation on these topics, which was followed by discussion among the three advisory bodies.

The GAP supports strict adherence to the STAR terms of reference that require a complete assessment document be available two weeks prior to STAR review. Failure to provide a complete stock assessment has caused unnecessary delays in past reviews. The GAP also agrees that a committee of independent experts (CIE) reviewer is not needed for assessment updates. Such updates involve assessments where modeling approaches have been generally agreed upon and having an independent reviewer would be an unnecessary expense.

In general, the GAP endorsed the list of stocks proposed for assessment, with two concerns. First, the GAP believes Pacific ocean perch (POP) should undergo a full assessment and be reviewed in the same panel with widow rockfish. Trying to review three stock assessments on three different species during one STAR panel is beyond the capability of reviewers and will undermine the quality of the review that will occur. Further, there are indications the POP assessment will involve a significant change in the assessment model, which would make it ineligible for a simple update.

While one logical way to resolve these concerns would be to review POP and widow rockfish during the same STAR panel, there is one issue that needs to be addressed in regard to POP and darkblotched rockfish, a species that is scheduled for an update review. Historical catch history for both POP and darkblotched rockfish depend on records of foreign catches. Unfortunately, there appears to be no clear accounting of which of these species were caught in what amounts. In order to avoid double-counting of foreign catch records in regard to these two species, it would be preferable they be reviewed by the same STAR panel. The GAP has no firm suggestions on how to resolve this dilemma other than by making clear to the relevant STAR and update panels that this possible problem exists and needs to be specifically addressed.

Second, the GAP strongly objects to reviewing Pacific whiting in the early spring, prior to the acoustic survey that will be conducted in the summer. It is the GAP's understanding that the spring review was scheduled, among other reasons, to accommodate Canadian reviewers who will participate in a binational review. While we appreciate the fact Canadian scientists have their own deadlines to meet, scheduling an assessment review without taking into account the most up-to-date data that will be available through the acoustic survey completely undercuts the science and management process and violates the legal precept that assessments be based on the best scientific information available. Further, as now scheduled, Pacific whiting would not undergo an assessment again until 2005 - a full two years after the acoustic survey. Pacific whiting is a fast-growing species that has shown significant population fluctuations. It has been designated overfished, and catches have been reduced significantly, resulting in substantial adverse economic effects for coastal communities. We should not be dismissing the availability of up-to-date data that will be useful in properly assessing this species. The GAP recommends that either the assessment and review take place after the 2003 acoustic survey, so the results can be available for the 2004 fishery.

Finally, the GAP notes that while money seems to be available for a variety of purposes, funds for groundfish data collection and assessments still falls far short of what is needed. The GAP urges the Council family continue its efforts to procure adequate funding for groundfish research.

PFMC
10/30/02

GROUNDFISH MANAGEMENT TEAM REPORT ON STOCK ASSESSMENT REVIEW PANEL PROCESS – REVIEW OF 2002 AND PLANNING FOR 2003

The Groundfish Management Team (GMT) discussed the stock assessment review (STAR) process and assessment priorities for 2003. The GMT notes that the Scientific and Statistical Committee (SSC) Terms of Reference require stock assessment documents to specifically contain estimates of both an acceptable biological catch (ABC) (without the 40-10 adjustment) and a total catch optimum yield (OY) (with the 40-10 adjustment, if necessary), which have not been consistently provided. Failure to include both estimates necessitates the GMT deriving the non-reported values. Timely conclusion of both assessments and assessment reviews are also a concern given that the GMT needs sufficient time to both review assessments and construct management advice well in advance of the June Council meeting.

If the Council chooses Alternative 3 for multi-year management, the GMT also recommends that both an updated lingcod and full cabezon assessment and assessment review be completed by October 2003. A full cabezon assessment is important, because of the possible shifts of effort to nearshore areas due to shelf closures, the movement of states to gain authority in nearshore management, and because no assessment of a species targeted in live-fish fishery exists to gauge the effects of effort shifts in the live-fish fisheries. If the Council does not choose Alternative 3 for multi-year management, then the GMT would recommend a full assessment of both lingcod and cabezon be completed in 2004.

PFMC
10/30/02

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON STOCK ASSESSMENT REVIEW PANEL PROCESS - REVIEW OF 2002 AND PLANNING FOR 2003

The Scientific and Statical Committee (SSC) met jointly with the Groundfish Management Team (GMT) and the Groundfish Advisory Subpanel (GAP) to review the 2002 stock assessment review (STAR) process and to discuss planning for the 2003 process. Afterwards, the SSC reconvened and continued discussion on this agenda item. Dr. Elizabeth Clarke presented the 2003 STAR process schedule to the joint meeting, and along with Dr. Richard Methot, participated in the SSC discussions.

With regard to 2002, the STAR process appears to have worked well for the most part. Assessments were completed, reviewed, and provided to the joint GMT/SSC Groundfish Subcommittee meeting in accordance with the agreed-upon schedule. Some improvement is needed in completing stock assessment documents in advance (2 weeks) of the STAR panel meetings to ensure all reviewers have adequate time to read documents prior to the start of their respective panel meeting.

The process fell somewhat short of expectations with respect to the yelloweye rockfish stock assessment. The initial stock assessment was revised in a rapid manner between June and September. The SSC recommends that stock assessments not be revised outside of the normal assessment cycle in future years.

With regard to the 2003 STAR process, the SSC has the following specific recommendations:

1. The STAR terms of reference (TOR) should be distributed to all concerned well in advance of the start of the 2003 process (January 2003). All stock assessment team (STAT) members and STAR panel members should re-read and adhere closely to the TOR.

2. Final dates for all STAR panels should be established as soon possible, but not later than November 2002.

3. A single STAR panel should not review more than two full stock assessments within the usual five-day meeting period.

4. In order to assist STAT members in completing their documents on time, the TOR should distinguish between sections of the document that must be completed prior to the document submission deadline, and those sections that could be completed after the STAR panel meeting. The SSC Groundfish Subcommittee will work with the stock assessment coordinator in modifying the TOR accordingly.

5. The section of the TOR regarding uncertainty requires modification. It appears the requirement that STAR panels present the "full range of uncertainty" in assessment results, as used in the TOR, has been generally misunderstood. Revised TOR should distinguish among the various components of uncertainty to include:
   a. Uncertainty in estimates of recruitment and/or other key model parameters.
   b. Uncertainty in the estimates of stock numbers and demographics at the end of the assessment period (i.e., the starting point for projections).
   c. Uncertainty in selection of the proper model structure for the stock assessment.

When multiple results reflecting differences in model structure are brought forward by STAR panels, some comment on the relative likelihood of each model (or state of nature) should be provided. Rough probabilities associated with each state of nature are suggested, but even more qualitative comments on these likelihoods would be helpful in moving the assessment results through the management process.

Finally, the SSC is concerned that the current STAR process may not be capable of providing good scientific review under the any of the various multi-year management proposals under consideration by the Council. Conducting perhaps 25 stock assessments in each of the "on" years is likely to overwhelm the current STAR process with concomitant degradation in the scientific foundation for groundfish management under the revised fishery management plan (FMP). Other processes for stock assessment review may be feasible (e.g., the stock assessment workshop environment used in other parts of the U.S., as well as in some international fora). However, additional resources (both people and money) will be needed to implement any such alternative review process.

GROUNDFISH STOCK ASSESSMENT AND REVIEW PROCESS DURING 2002

Introduction

The purpose of this document is to help the Council family and others understand the groundfish stock assessment review process (STAR). Parties involved are the National Marine Fisheries Service (NMFS); state agencies; the Council and its advisors, including the Scientific and Statistical Committee (SSC), Groundfish Management Team (GMT), Groundfish Advisory Subpanel (GAP), Council staff; and interested persons. The STAR process is a key element in an overall process designed to make timely use of new fishery and survey data, to analyze and understand these data as completely as possible, to provide opportunity for public comment, and to assure that the results are as accurate and error-free as possible. The STAR process is designed to assist in balancing these somewhat conflicting goals of timeliness, completeness and openness. (Insert references to NMFS technical guidance for implementing precautionary approach and reference to the NRC report on stock assessments).

STAR Goals and Objectives

The goals and objectives for the groundfish assessment and review process[†] are:

a) Ensure that groundfish stock assessments provide the kinds and quality of information required by all members of the Council family.

b) Satisfy the Magnuson-Stevens Sustainable Fisheries Act (SFA) and other legal requirements.

c) Provide a well-defined, Council oriented process that helps make groundfish stock assessments the "best available" scientific information and facilitates use of the information by the Council. In this context, "well-defined" means with a detailed calendar, explicit responsibilities for all participants, and specified outcomes and reports.

d) Emphasize external, independent review of groundfish stock assessment work.

e) Increase understanding and acceptance of groundfish stock assessment and review work by all members of the Council family.

f) Identify research needed to improve assessments, reviews and fishery management in the future.

g) Use assessment and review resources effectively and efficiently.

Shared Responsibilities

All parties have a stake in assuring adequate technical review of stock assessments. NMFS must determine that the best scientific advice has been used when it approves fishery management recommendations made by the Council. The Council uses advice from the SSC to determine whether the information on which it will base its recommendation is the “best available” scientific advice. Fishery managers and scientists providing technical documents to the Council for use in management need to assure that the work is technically correct. Program reviews, in-depth external reviews, and peer-reviewed scientific publications are used by federal and state agencies to provide quality assurance for the basic scientific methods used to produce stock assessments. However, the time-frame for this sort of review is not suited to the routine examination of assessments that are, generally, the primary basis for a harvest recommendation.

The review of current stock assessments requires a routine, dedicated effort that simultaneously meets the needs of NMFS, the Council, and others. Leadership, in the context of the stock assessment review process for groundfish, means consulting with all interested parties to plan, prepare terms of reference,

[†] In this document, the term "stock assessment" includes activities, analyses, and management recommendations, beginning with data collection and continuing through to the development of management recommendations by the Groundfish Management Team and information presented to the Council as a basis for management decisions.

and develop a calendar of events and a list of deliverables. Coordination means organizing and carrying out review meetings, distributing documents in a timely fashion, and making sure that assessments and reviews are completed according to plan. Leadership and coordination both involve costs, both monetary and time, which have not been calculated, but are likely substantial.

The Council and NMFS share primary responsibility to a successful STAR process. The Council will sponsor the process and involve its standing advisory committees, especially the Scientific and Statistical Committee. NMFS will provide a coordinator to oversee and facilitate the process. Together they will consult with all interested parties to plan, prepare terms of reference, and develop a calendar of events and a list of deliverables. NMFS and the Council will share fiscal and logistical responsibilities.

The STAR process is sponsored by the Council because the Federal Advisory Committee Act (FACA) limits the ability of NMFS to establish advisory committees. FACA specifies a procedure for convening advisory committees that provide consensus recommendations to the federal government. The intent of FACA was to limit the number of advisory committees; ensure that advisory committees fairly represent affected parties; and insure that advisory committee meetings, discussions, and reports are carried out and prepared in full public view. Under FACA, advisory committees must be chartered by the Department of Commerce through a rather cumbersome process. However, the SFA exempts the Council from FACA *per se*, but requires public notice and open meetings similar to those under FACA.

NMFS Responsibilities

NMFS will work with the Council, other agencies, groups or interested persons that carry out assessment work to organize STAT Teams and STAR Panels, and make sure that work is carried out in a timely fashion according to the calendar and terms of reference. NMFS will provide a senior scientist to coordinate these tasks with assistance from Council staff. NMFS will convene a pre-assessment meeting for STAT Teams, GAP representatives, and interested parties to discuss upcoming stock assessments, external reviews, and data.

The Stock Assessment coordinator, in consultation with the SSC, will select STAR Panel chairs, and will coordinate the selection of external reviewers following criteria for reviewer qualifications, nomination, and selection. The public is welcome to nominate qualified reviewers. Following any modifications to the stock assessments resulting from STAR panel reviews and prior to distribution to the stock assessment documents and STAR panel reports for the August GMT meeting, the coordinator will review the stock assessments and panel reports for consistency with the terms of reference, especially completeness. Inconsistencies will be identified and the authors requested to made appropriate revisions in time to meet the deadline for distributing documents for the GMT meeting at which ABC and OY recommendations are developed.

Individuals (employed by NMFS, state agencies, or other entities) that conduct assessments or technical work in connection with groundfish stock assessments are responsible for ensuring their work is technically sound and complete. The Council's review process is the principal means for review of complete stock assessments, although additional in-depth technical review of methods and data is desirable. Stock assessments conducted by NMFS, state agencies, or other entities must be completed and reviewed in full accordance with the terms of reference (Appendix Band C), at times specified in the calendar (Appendix A).

GMT Responsibilities

The GMT is responsible for identifying and evaluating potential management actions based on the best available scientific information. In particular, the GMT makes ABC recommendations to the Council based on estimated stock status, uncertainty about stock status, and socioeconomic and ecological factors. The GMT will use stock assessments, STAR Panel reports, and other information in making their ABC recommendations. The GMT's preliminary ABC recommendation will be developed at a meeting that includes representatives from the SSC, STAT Teams, STAR Panels, and GAP. A representative(s) of the GMT will serve as a liaison to each STAR Panel, but will not serve as a member of the Panel. The GMT will not seek revision or additional review of the stock assessments after they have been reviewed by the STAR Panel. The GMT chair will communicate any unresolved issues to the SSC for consideration.

Successful separation of scientific (i.e.; STAT Team and STAR Panels) from management (i.e.; GMT) work depends on stock assessment documents and STAR reviews being completed by the time the GMT meets to discuss preliminary ABC and OY levels. However, the GMT can request additional model projections, based on reviewed model scenarios, in order to develop a full evaluation of potential management actions.

GAP Responsibilities

The chair of the GAP will appoint a representative to track each stock assessment and attend the STAR Panel meeting where the assessment of his / her species is reviewed. The GAP representative will participate in review discussions as an advisor to the STAR Panel, in the same capacity as the GMT advisor.

The GAP representative, along with STAR, STAT, and SSC representatives, will attend the GMT meeting at which ABC recommendations are made. The GAP representative will also attend subsequent GMT, Council, and other necessary meetings where the assessment of his / her species is discussed.

The GAP representative will provide appropriate data and advice to the STAR Panel and GMT and will report to the GAP on STAR Panel and GMT meeting proceedings.

SSC Responsibilities

The Scientific and Statistical Committee (SSC) will participate in the stock assessment review process and provide the GMT and Council with technical advice related to the stock assessments and the review process. The SSC will assign one member from its Groundfish Subcommittee to each STAR Panel. This member is expected to attend the assigned STAR Panel meeting, the GMT meeting at which ABC recommendations are made, and the Council meetings when groundfish stock assessment agenda items are discussed (see calendar in Appendix A).The SSC representative on the STAR Panel will present the STAR Panel report at GMT, SSC and Council meetings. The SSC representative will communicate SSC comments or questions to the GMT and STAR Panel chair. The SSC will review any additional analytical work on any of the stock assessments required or carried out by the GMT after the stock assessments have been reviewed by the STAR Panels. In addition, the SSC will review and advise the GMT and Council on projected ABCs and OYs.

The SSC, during their normally scheduled meetings, will serve as arbitrator to resolve disagreements between the STAT Team, STAR Panel, or GMT. The STAT Team and the STAR Panel may disagree on technical issues regarding an assessment. In this case, a complete stock assessment must include a point-by-point response by the STAT Team to each of the STAR Panel recommendations. Estimates and projections representing all sides of the disagreement need to be presented, reviewed, and commented on by the SSC.

Council Staff Responsibilities

Council Staff will prepare meeting notices and distribute stock assessment documents, stock summaries, meeting minutes, and other appropriate documents. Council Staff will help NMFS and the state agencies in coordinating stock assessment meetings and events. Staff will also publish or maintain file copies of reports from each STAR Panel (containing items specified in the STAR Panel's term of reference), the outline for groundfish stock assessment documents, comments from external reviewers, SSC, GMT, and GAP, letters from the public, and any other relevant information. At a minimum, the stock assessments (STAT Team reports, STAR Panel reports, and stock summaries) should be published and distributed in the Council's annual SAFE document.

Stock Assessment Priorities

Stock assessments for West Coast groundfish are conducted periodically to assess the abundance, trends and appropriate harvest levels for these species. Assessments use statistical population models to analyze and integrate a combination of survey, fishery and biological data. Annually, the Council

establishes a prioritized list of species that it desires to have assessed. The principles used to set priorities and assign assessments to STAR panels are:

1. Assessments will be scheduled to take advantage of new data, especially survey data, and will generally be conducted once every three years due to limited fiscal and personnel resources.

2. Assessments may be conducted more frequently than once every three years if:
a. Biological situation requires more frequent tracking to prevent overfishing and to track OY
b. new data, including fishery dependent and anecdotal data indicating unforseen increases or decreases in stock size, are brought to the attention of the Council;
c. the Council believes that the results of a stock assessment are sufficiently in dispute to warrant a re-assessment the following year; or
d. a fishery for a species, stock, or stock complex has rapidly developed and that species, stock, or stock complex has not been assessed recently.

3. Generally, no more than 2 assessments will be reviewed by a STAR Panel when these assessments involve new types of data or assessment methods.

4. An update or report that falls short of a full assessment may be prepared for a species, stock, or stock complex to provide information helpful to the Council in making management decisions.

5. Any stock assessment submitted by the public should be submitted through normal Council channels and reviewed at STAR Panel meetings.

6. The assessment list should be discussed at the Council's June meeting and finalized at its September meeting to allow sufficient time for assembly of relevant assessment data and for arrangement of a STAR.

Terms of Reference for STAR Panels and Their Meetings

The principal responsibility of the STAR Panel is to carry out these terms of reference according to the calendar for groundfish assessments. Most groundfish stocks are assessed infrequently (every three years) and each assessment and review should result in useful advice to the Council. The STAR Panel's work includes:

7. reviewing draft stock assessment documents and any other pertinent information (e.g.; previous assessments and STAR Panel reports, if available);
8. working with STAT Teams to ensure assessments are reviewed as needed;
9. documenting meeting discussions; and
10. reviewing summaries of stock status (prepared by STAT Teams) for inclusion in the SAFE document.

STAR Panels normally include a chair, at least one "external" member (i.e.; outside the Council family and not involved in management or assessment of West Coast groundfish), and one SSC member. The total number of STAR members should be at least "n+2" where n is the number of stock assessments and "2" counts the chair and external reviewer. In addition to Panel members, STAR meetings will include GMT and GAP advisory representatives with responsibilities laid out in their terms of reference.

STAR Panels normally meet for one week.

The number of assessments reviewed per Panel should not exceed two.

The STAR Panel is responsible for determining if a stock assessment document is sufficiently complete according to Appendix B: Outline for Groundfish Stock Assessments. It is the Panel's responsibility to identify assessments that cannot be reviewed or completed for any reason. The Panel's decision that an assessment is complete should be made by consensus. If a Panel cannot reach agreement, then the nature of the disagreement must be described in the Panel's report.

The STAR Panel's terms of reference concern technical aspects of stock assessment work. The STAR Panel should strive for a risk neutral approach in its reports and deliberations. The full range of uncertainty should be reflected in completed stock assessments and the reports prepared by STAR Panels. The STAR Panel should identify scenarios that are unlikely or have a flawed technical basis.

Recommendations and requests to the STAT Team for additional or revised analyses must be clear, explicit and in writing. A written summary of discussion on significant technical points and a lists of all STAR Panel recommendations and requests to the STAT Team are required in the STAR Panel's report. This should be completed (at least in draft form) prior to the end of the meeting. It is the chair and Panel's responsibility to carry out any follow-up review work that is required.

Additional analyses required in the stock assessment should be completed during the STAR Panel meeting. If follow-up work by the STAT Team is required after the review meeting, then it is the Panel's responsibility to track STAT Team progress. In particular, the chair is responsible for communicating with all Panel members (by phone, e-mail, or any convenient means) to determine if the revised stock assessment and documents are complete and ready to be used by managers in the Council family. If stock assessments and reviews are not complete at the end of the STAR Panel meeting, then the work must be completed prior to the GMT meeting where the assessments and preliminary ABC levels are discussed.

The STAR Panel, STAT Team, and all interested parties are legitimate meeting participants that must be accommodated in discussions. It is the STAR Panel chair's responsibility to manage discussions and public comment so that work can be completed.

STAT Teams and STAR Panels may disagree on technical issues. If the STAR Panel and STAT Team disagree, the STAR Panel must document the areas of disagreement in its report. The STAR Panel may request additional analysis based on alternative approaches. Estimates and projections representing all sides of the disagreement need to be presented in the assessment document, reviewed, and commented on by the SSC. It is expected that the STAT Team will make a good faith effort to complete these analyses.

The SSC representative on the STAR Panel is expected to attend GMT and Council meetings where stock assessments and harvest projections are discussed to explain the reviews and provide other technical information and advice.

The chair is responsible for providing Council staff with a camera ready and suitable electronic version of the Panel's report for inclusion in the annual SAFE report.

Suggested Template for STAR Panel Report

1. Minutes of the STAR Panel meeting containing
   a. Name and affiliation of STAR Panel members; and
   b. List of analyses requested by the STAR Panel.
2. Comments on the technical merits and/or deficiencies in the assessment and recommendations for remedies.
3. Explanation of areas of disagreement regarding STAR Panel recommendations:
   a. among STAR Panel members (majority and minority reports), and
   b. between the STAR Panel and STAT Team
4. Unresolved problems and major uncertainties, e.g.; any special issues that complicate scientific assessment, questions about the best model scenario.
5. Prioritized recommendations for future research and data collection

Terms of Reference for Groundfish STAT Teams

The STAT Team will carry out its work according to these terms of reference and the calendar for groundfish stock assessments.

Each STAT Team will appoint a representative who will attend the pre-assessment planning meeting, if one is held. STAT Teams are encouraged to also organize independent meetings with industry and interested parties to discuss issues, questions, and data.

Each STAT Team will appoint a representative to coordinate work with the STAR Panel and attend the STAR Panel meeting.

Each STAT Team will appoint a representative who will attend the GMT meeting and Council meeting where preliminary acceptable biological catch (ABC) and optimum yield (OY) levels are discussed. In addition, a representative of the STAT Team should attend the GMT and Council meeting where final ABC and OY levels are discussed, if requested or necessary. At these meetings, the STAT Team member shall be available to answer questions about the STAT Team report.

The STAT Team is responsible for preparing three versions of the stock assessment document: 1) a "draft" for discussion at the stock assessment review meeting; 2) a revised "complete draft" for distribution to the GMT, SSC, GAP, and Council for discussions about preliminary ABC and OY levels; 3) a "final" version published in the SAFE report. Other than authorized changes, only editorial and other minor changes should be made between the "complete draft" and "final" versions. The STAT Team will distribute "draft" assessment documents to the STAR Panel, Council, and GMT and GAP representatives at least two weeks prior to the STAR Panel meeting.

The STAT Team is responsible for bringing computerized data and working assessment models to the review meeting in a form that can be analyzed on site. STAT Teams should take the initiative in building and selecting candidate models. If possible, the STAT Team should have several complete models and be prepared to justify model recommendations.

The STAT Team is responsible for producing the complete draft by the end of the STAR Panel meeting. In the event that the complete draft is not completed, the Team is responsible for completing the work as soon as possible and to the satisfaction of the STAR Panel at least one week before the GMT meeting.

The STAT Team and the STAR Panel may disagree on technical issues regarding an assessment, but a complete stock assessment must include a point-by-point response by the STAT Team to each of the STAR Panel recommendations. Estimates and projections representing all sides of the disagreement need to be presented, reviewed, and commented on by the SSC.

For stocks which are newly projected by the STAT Team to fall below overfishing thresholds, the STAT Teams need to estimate the baseline rebuilding parameters as described in Appendix B. In addition to providing the baseline calculations, authors are encouraged to present alternative approaches (where appropriate), along with clear justification for why the alternatives may be an improvement over the baseline approach.

Electronic versions of final assessment documents, parameter files, data files, and key output files will be sent to the Stock Assessment Coordinator for future inclusion in a stock assessment archive.

Appendix A: 2002 Stock Assessment Review Calendar

Jan 24	**Pre-Assessment Workshop (Portland)**
Feb 4-7	GMT meeting (Portland)
Feb 20-22	**STAR/PSARC Panel meeting for Pacific whiting (Seattle)**
Mar 11-15	PFMC Meeting (Sacramento)
Apr 8-12	PFMC Meeting (Portland)
Apr 15-19	**STAR Panel meeting for bocaccio and canary rockfish (Seattle)**
May 1-7	**STAR Panel teleconference (May 6) and email exchange for sablefish**
May 13-17	GMT meeting (Santa Cruz)
Jun 17-21	PFMC Meeting (San Francisco)
Jul 29-Aug 2	GMT meeting (Portland)
Aug 11-14	**STAR Panel meeting for yelloweye rockfish (Seattle)**
Aug 27-28	GMT/SSC Groundfish Subcommittee meeting to discuss management implications of the yelloweye rockfish assessment
Sep 9-13	PFMC meeting (Portland)

Appendix B: Outline for Groundfish Stock Assessment Documents

This is an outline of items that should be included in stock assessment reports for groundfish managed by the Pacific Fishery Management Council. The outline is a working document meant to provide assessment authors with flexible guidelines about how to organize and communicate their work. All items listed in the outline may not be appropriate or available for each assessment. In the interest of clarity and uniformity of presentation, stock assessment authors and reviewers are encouraged (but not required) to use the same organization and section names as in the outline. It is important that time trends of catch, abundance, harvest rates, recruitment and other key quantities be presented in tabular form to facilitate full understanding and followup work.

1. Title page and list of preparers – the names and affiliations of the stock assessment team (STAT) either alphabetically or as first and secondary authors

2. Executive Summary (see attached template). This also serves as the STAT summary included in the SAFE.

3. Introduction

a. Scientific name, distribution, stock structure, management units
b. Important features of life history that affect management (e.g.; migration, sexual dimorphism, bathymetric demography)
c. Important features of current fishery and relevant history of fishery
d. Management history (e.g. changes in mesh sizes, trip limits, optimum yields)
e. Management performance – a table or tables comparing acceptable biological catches, optimum yields, landings, and catch (i.e., landings plus discard) for each area and year

4. Assessment

a. Data
    i. Landings by year and fishery, discards (generally specified as a percentage of total catch in weight and in units of mt), catch-at-age, weight-at-age, survey and CPUE data, data used to estimate biological parameters (e.g.; growth rates, maturity schedules, and natural mortality) with coefficients of variances (CVs) or variances if available. Include complete tables and figures if practical.
    ii. Treatment of discards (specified as a percentage of total catch in weight and in units of mt).
    iii. Sample size information for length and age composition data by area, year, gear, market category, etc.

b. History of modeling approaches used for this stock – changes between current and previous assessment models

c. Model description
    i. Complete description of any new modeling approaches.
    ii. Assessment program with last revision date (i.e.; date executable program file was compiled).
    iii. List and description of all likelihood components in the model.
    iv. Constraints on parameters, selectivity assumptions, natural mortality, assumed level of age reader agreement or assumed ageing error (if applicable), and other assumed parameters.
    v. Description of stock-recruitment constraint or components.
    vi. Critical assumptions and consequences of assumption failures.
    vii. Convergence criteria.

d. Model selection and evaluation
    i. Evidence of search for balance between realistic (but possibly over-parameterized) and simpler (but not realistic) models –
    ii. Use hierarchical approach where possible (e.g.; asymptotic vs. domed selectivities, constant vs. time varying selectivities).
    iii. Do parameter estimates make sense, are they credible?
    iv. Residual analysis (e.g.; residual plots, time series plots of observed and predicted values, or other approach).
    v. Convergence status and convergence criteria for “base-run(s)” –
    vi. Randomization run results or other evidence of search for global best estimates.

e. Base-run(s) results
   i. Table listing all parameters in the stock assessment model used for base runs, their purpose (e.g.; recruitment parameter, selectivity parameter) and whether or not the parameter was actually estimated in the stock assessment model.
   ii. Time-series of total and spawning biomass, recruitment and fishing mortality or exploitation rate estimates (table and figures).
   iii. Selectivity estimates (if not included elsewhere).
   iv. Stock-recruitment relationship.

f. Uncertainty and sensitivity analyses.
   i. The best approach for describing uncertainty and range of probable biomass estimates in groundfish assessments may depend on the situation. Approaches used previously are:
      (1) Sensitivity analyses (tables or figures) that show ending biomass levels or likelihood component values obtained while systematically varying emphasis factors for each type of data in the model.
      (2) Likelihood profiles for parameters or biomass levels may also be used.
      (3) CVs for biomass estimated by bootstrap, implicit autodifferentiation, or the delta method;
      (4) Subjective appraisal of magnitude and sources of uncertainty;
      (5) Comparison of alternate models;
      (6) Comparison of alternate assumptions about recent recruitment.
   ii. If a range of model runs (e.g.; based on CV's or alternate assumptions about model structure or recruitment) is used to depict uncertainty, then it is important that some qualitative or quantitative information about relative probability be included. If no statements about relative probability can be made, then it is important to state that all scenarios (or all scenarios between the bounds depicted by the runs) are equally likely.
   iii. if possible, ranges depicting uncertainty should include at least three runs: (a) one judged most probable; (b) at least one that depicts the range of uncertainty in the direction of lower current biomass levels; and (c) one that depicts the range of uncertainty in the direction of higher current biomass levels. The entire range of uncertainty should be carried through stock projections and decision table analyses.
   iv. retrospective analysis (retrospective bias in base model or models for each area).
   v. historic analysis (plot of actual estimates from current and previous assessments for each area).
   vi. Simulation results (if available).

5. Rebuilding parameters –

a. determine B_o as the product of spawners per recruit (SPR) in unfished state multiplied by the average recruitment expected while the stock is unfished. This typically is estimated as the average recruitment during early years of fishery. According to the 1999 SAFE report (PFMC 1999, p. 24)[††], the values for spawners are preferably measured as total population egg production, but female spawning biomass is a common proxy.
b. $B_{msy} = 0.4\ B_o$;
c. mean generation time; and
d. forward projection using a Monte Carlo re-sampling of recruitments expected to occur as the stock rebuilds. These future recruitments typically are taken from the recent time series of estimated recruitments or recruits per spawner.

6. Target fishing mortality rates (if changes are proposed).

7. Harvest projections and decision tables –
   i. Harvest projections and decision tables should cover the plausible range of uncertainty about current biomass and the full range of candidate fishing mortality targets used for the stock or requested by the GMT. Ideally, the alternatives described in the decision table will be drawn

[††]Pacific Fishery Management Council. 1999. Status of the Pacific Coast Groundfish Fishery Through 1998 and Recommended Biological Catches for 2000: Stock Assessment and Fishery Evaluation. (Document prepared for the Council and its advisory entities.) Pacific Fishery Management Council, 2130 SW Fifth Avenue, Suite, 224, Portland, Oregon 97201.

from a probability distribution which describes the pattern of uncertainty regarding the status of the stock and the consequences of alternative future management actions. Where alternatives are not formally associated with a probability distribution, the document needs to present sufficient information to guide assignment of approximate probabilities to each alternative;

ii. Information presented should include biomass and yield projections for at least three years into the future, beginning with the first year for which management action could be based upon the assessment.

8. Management recommendations.

9. Research needs (prioritized).

10. Acknowledgments-include STAR Panel members and affiliations as well as names and affiliations of persons who contributed data, advice or information but were not part of the assessment team.

11. Literature cited.

12. Complete parameter files and results for base runs.

Appendix C: Template for Executive Summary Prepared by STAT Teams

Stock: species/area

Catches: trends and current levels-include table for last ten years and graph with long term data

Data and assessment: date of last assessment, type of assessment model, data available, new information, and information lacking

Unresolved problems and major uncertainties: any special issues that complicate scientific assessment, questions about the best model scenario, etc.

Reference points: management targets and definition of overfishing

Stock biomass: trends and current levels relative to virgin or historic levels, description of uncertainty-include table for last 10 years and graph with long term estimates

Recruitment: trends and current levels relative to virgin or historic levels-include table for last 10 years and graph with long term estimates

Exploitation status: exploitation rates (i.e., total catch divided by exploitable biomass) – include table for last 10 years and graph with long term estimates.

Management performance: ABC and OY estimates, overfishing levels, actual catch and discard

Forecasts: normally three-year forecasts of catch and biomass

Decision table: (if available)

Recommendations: research and data collection needs

Sources of additional information: cite STAR Panel report, assessment documents, and other sources

Appendix D: History of STAR process

In 1995 and earlier years, stock assessments were examined at a very early stage during ad-hoc stock assessment review meetings (one per year). SSC and GMT members often participated in these ad-hoc meetings and provided additional review of completed stock assessments during regular Council meetings. There were no terms of reference or meeting reports from the ad-hoc meetings. NMFS provided leadership and coordination by setting up meetings. Each agency or Council paid their own travel costs. Council staff distributed meeting announcements and some background documents. The Council paid for publication of assessments as appendices to the annual Stock Assessment and Fishery Evaluation (SAFE) document.

A key event occurred in July 1995 when NMFS convened an independent, external review of West Coast groundfish assessments.[1] The report concluded that: 1) uncertainties associated with assessment advice were understated; 2) technical review of groundfish assessments should be more structured and involve more outside peers; and 3) the distinction between scientific advice and management decisions was blurred. Work to develop a process to review groundfish stock assessments was aimed at resolving these problems.

For 1996, the groundfish stock assessment review process was expanded to include: 1) terms of reference for the review meeting; 2) an outline for the contents of stock assessments; 3) external anonymous reviews of previous assessments; and 4) a review meeting report.[2] Plans were developed during March and April Council meetings and NMFS convened a week long review meeting in Newport, Oregon where preliminary groundfish stock assessments were discussed. The expanded process itself was reviewed by the Council family at an evaluation meeting at the end of the year. Leadership and planning responsibilities were shared by the SSC Groundfish Subcommittee, NMFS, GMT, GAP, and persons who participated in planning discussions during the March and April Council meetings. There was no formal coordination except for the review meeting terms of reference, organization of the review meeting by NMFS, and as provided by Council staff for publication of documents. Costs were shared as in previous years.

The review process for 1997 was further expanded based on a planning meeting in December 1996.[3] It was agreed that agencies (including NMFS and state agencies) conducting stock assessments were responsible for making sure assessments were technically sound and adequately reviewed. A Council-oriented review process was developed that included agencies, the GMT, GAP, and other interested members of the Council family. The process was jointly funded by the Council and NMFS, with NMFS hosting the Stock Assessment Review (STAR) Panel meetings and paying the travel expenses of the external reviewers, and the Council paying for travel expenses of the GAP representative and non-federal GMT and SSC members.

The process for 1997 included: 1) goals and objectives; 2) three STAR Panels, including external membership; 3) terms of reference for STAR Panels; 4) terms of reference for Stock Assessment (STAT) Teams; 5) a refined outline for stock assessments; 6) external anonymous reviews; 7) a clearer distinction between science and management; and 8) a calendar of events with clear deliverables, dates and well defined responsibilities. For the first time, STAR Panels and STAT Teams were asked to provide "decision table" analyses of the effects of uncertain management actions and to provide information required by the GMT in choosing harvest strategies. In addition, STAR Panels were asked to prepare

[1]Anon. 1995. West coast groundfish assessments review, August 4, 1995. Pacific Fishery Management Council. Portland, OR.

[2] Brodziak, J., R. Conser, L. Jacobson, T. Jagielo, and G. Sylvia. 1996. Groundfish stock assessment review meeting - June 3-7, 1996 in Newport, Oregon. *In*: Status of the Pacific coast groundfish fishery through 1996 and recommended acceptable biological catches for 1997. Pacific Fisheries Management Council. Portland, OR.

[3]Meeting Report, Proposals and Plans for Groundfish Stock Assessment and Reviews During 1997 (May 8, 1997). Pacific Fishery Management Council, 2130 SW Fifth Avenue, Suite 224, Portland, OR 97201.

"Stock Summaries" that described the essential elements of stock assessment results in a concise, simple format.

At the end of 1997, participants met to discuss events and make recommendations for 1998.[4] Participants concluded that objectives were, to varying degrees, achieved during 1997. A notable shortfall was in "increasing acceptance and understanding by all members of the Council family." The most significant issues seemed to be the nature of the STAR Panels' responsibilities, communicating uncertainty to decision makers, workload, and inexperience in conducting the review process.

In retrospect, there was no formal coordination and leadership except for the terms of reference and the calendar. As in previous years, Council staff coordinated distribution of meeting announcements and distribution of documents. Costs increased substantially due to travel for external experts, increased number of review meetings (three instead of one), and distribution of larger and additional reports. NMFS paid travel and other costs for external members of STAR Panels. Other costs were distributed as in 1996. It was not possible for the Council to copy and distribute all of the stock assessments because of limited funds.

In 1998, the stock assessment process was similar to that in 1997, including the 8 elements listed above. In November, a joint session of the SSC, GMT, and GAP was held to review events in 1998 and make recommendations for 1999. Several topics were discussed, including policy issues related to the 1998 terms of reference and operational issues related to how the terms of reference were implemented in 1998. This meeting produced a list of recommended changes for 1999, including:

- increasing the SSC's involvement in the process;
- clarify/modify the participant roles;
- limit the number of assessments, especially the difficulty caused by the late addition of assessments (e.g., sablefish and shortspine thornyhead in 1998);
- increase the involvement of external participants;
- timeliness in completing and submitting assessments; and
- duration of STAR Panel meetings, and the time required to adequately reviewing assessments.

Accordingly, the terms of reference were amended to include a cut-off date of November by which anyone proposing to present an assessment for review in the following year must notify the stock assessment coordinator. This change will ensure there is adequate time for formation and planning of STAR Panel meetings. The terms of reference were also changed to clarify the SSC's role in the process as "editor" and "arbiter;" the SSC will hear reports from all STAR Panels at its September meeting and will be involved in any unresolved issues between the STAT Teams, STAR Panels, or the GMT. Other issues were raised that had no quick solutions, such as how to incorporate socioeconomic information into the process, and how to present the decision tables to GMT and Council members.

Other than the changes noted above, the 1999 STAR process was similar to 1997 and 1998. As in previous years, a joint meeting of the SSC, GAP, and GMT was convened to review and evaluate the stock assessment process and to recommend modifications for 2000. There were relatively few concerns about the process in 1999, and they centered mainly around the difficulty of recruiting sufficient (external and internal) reviewers. Participants did not recommend departing from the current terms of reference regarding STAR panel composition, although they seemed to regard it more as a goal than a strict requirement. A notable continuing concern was the timeliness of STAT team reports prior to the STAR panel meetings.

Requirements for stock rebuilding analyses and monitoring of rebuilding progress and their relationship to the STAR process were also discussed. The group agreed that the terms of reference should be modified to require additional values (e.g., B_{msy}) be tabulated and included in STAT Team report related to an overfished species. There was general agreement that the STAR process should be used to review assessments of overfished species, which are still likely to be on a 3-year cycle. However, the STAR

[4]Jacobson, L.D. (ed.). 1997. Comments, issues and suggestions arising from the groundfish stock assessment and review process during 1997. Report to the Pacific Fishery Management Council (Revised Supplemental Attachment B.9.b, November 1997).

process is not the appropriate process for the "monitoring" reports (required every 2 years), when they are out of phase with the assessment cycle.

Additionally, it was agreed that certain additional values should be consistently tabulated in the STAT team report in order to build a long-term computerized database of key parameters. The group noted that this would not impose additional work for the STAT team, but would simply require these values to be reported consistently.

The 2000 STAR process was reviewed during a joint meeting of the GAP, GMT, and SSC at the November 2000 meeting. There were relatively few recommendations for improvement to the terms of reference for 2001, although concerns about the long-term future for the STAR process were raised. It was agreed that the future of the STAR process would be evaluated during 2001, but the STAR process in 2001 would proceed similarly to past years. For the 2001 STAR process, participants at the review meeting recommended that greater efforts be made to produce and distribute documents in a timely manner and to assure their completeness and consistency with the terms of reference. In addition, the SSC agreed that its groundfish subcommittee would meet in concert with the GMT during the August 2001 meeting to identify issues, if any, with the assessments or STAR panel reviews that may require additional consideration by the SSC.

At the March 2001 PFMC meeting, the SSC provided recommendations for integrating rebuilding analyses and reviews into the STAR process for 2001.

Appendix E: Terms of Reference for Expedited Stock Assessment Updates

While the ordinary STAR process is designed to provide a general framework for obtaining a comprehensive, independent review of a stock assessment, in other situations a less rigorous review of assessment results is desirable. This is especially true in situations where a "model" has already been critically examined and the objective is to simply update the model by incorporating the most recent data. In this context a model refers not only to the population dynamics model *per se*, but to the particular data sources that are used as inputs to the model, the statistical framework for fitting the data, and the analytical treatment of model outputs used in providing management advice, including reference points, the allowable biological catch (ABC) and optimum yield (OY). When this type of situation occurs, it is an inefficient use of scarce personnel resources to assemble a 6 person panel for a whole week to evaluate an accepted modeling framework. These terms of reference establish a procedure that can accommodate an abbreviated form of review for stock assessment models that fall into this latter category. However, it is recognized that what in theory may seem to be a simple update, may in practice result in a situation that is impossible to resolve in an abbreviated process. In these cases, it may not be possible to update the assessment – rather the assessment may need to be revised in the next full assessment review cycle.

Qualification

The Scientific and Statistical Committee (SSC) will determine when a stock assessment qualifies for an expedited update under these terms of reference. To qualify, a stock assessment must carry forward its fundamental structure from a model that was previously reviewed and endorsed by a full STAR panel. In practice this means similarity in: (a) the particular sources of data used, (b) the analytical methods used to summarize data prior to input to the model, (c) the software used in programming the assessment, (d) the assumptions and structure of the population dynamics model underlying the stock assessment, (e) the statistical framework for fitting the model to the data and determining goodness of fit, (f) the weighting of the various data components, and (g) the analytical treatment of model outputs in determining management reference points, including F_{msy}, B_{msy}, and B_0. It is the SSC's intention to employ an expedited stock assessment update in situations where no significant change in these 7 factors has occurred, other than extending time series of data elements within particular data components used by the model, e.g., adding information from a recently completed survey with an update of landings. In practice there will always be valid reasons for altering a model, as defined in this broad context, although, in the interests of stability, such changes should be resisted when possible. Instead, significant alterations should be addressed in the next subsequent full assessment and review. In principle, an expedited update is reserved for stock assessments that maintain fidelity to an accepted modeling framework, but the SSC does not wish to prescribe in advance what particular changes may or may not be implemented. Such a determination will need to be made on a case by case basis.

Composition of the Review Panel

The groundfish subcommittee of the SSC will conduct the review of an expedited stock assessment update. A review panel chairman will be designated by the chairman of the groundfish subcommittee from among its membership and it will be the panel chairman's responsibility to insure the review is completed properly and that a written report of the proceedings is produced. Other members of the subcommittee will participate in the review to the extent possible, i.e., input from all members will not be required to finalize a report. At a minimum, one member of the SSC's groundfish subcommittee will be needed to conduct a review (i.e., the panel chairman). In addition, the groundfish management team (GMT) and the groundfish advisory panel (GAP) will designate one person each to participate in the review, although the GMT and GAP panelists will serve in an advisory capacity only.

Review Format

Typically, a physical meeting will not be required to complete an expedited review of an updated stock assessment. Rather, materials can be distributed electronically. STAT and panel representatives will largely be expected to interact by email and telephone. A conference call will be held to facilitate public participation in the review.

The review process will be as follows. Initially, the STAT team that is preparing the stock assessment update will distribute to the review panelists a document that summarizes the team's findings. In addition, Council staff will provide panelists with a copy of the last stock assessment reviewed under the full STAR process, as well as the previous STAR panel report. Each panelist will carefully review the materials provided. A conference call will be arranged by the panel chairman, which will provide an opportunity to discuss and clarify issues arising during the review, as well as provide for public participation. Notice of the conference call and a list of public listening stations will be published in the *Federal Register* (generally, 23 days in advance of the conference call) and a Meeting Notice will be distributed (generally, 14 days in advance). A dialogue will ensue among the panelists and the STAT team over a period of time that generally should not exceed one week. Upon completion of the interactive phase of the review, the panel chairman may, if necessary, convene a second conference call to reach a consensus among panel members and will draft a report of the panel's findings regarding the updated assessment. The whole process should be scheduled to occur within a two week period and the STAT team and panelists should be prepared to complete their work within that time frame. It will be the chairman's responsibility to insure that the review is completed in a timely manner.

STAT Team Deliverables

It is the STAT team's responsibility to provide a description of the updated stock assessment to the panel at the beginning of the review. To streamline the process, the team can reference whatever material it chooses, which was presented in the previous stock assessment (e.g., a description of methods, data sources, stock structure, etc.). However, it is essential that any new information being incorporated into the assessment be presented in enough detail, so that the review panel can determine whether the update satisfactorily meets the Council's requirement to use the best available scientific information. Of particular importance will be a retrospective analysis showing the performance of the model with and without the updated data streams. Likewise, a decision table that highlights the consequences of mis-management under alternative states of nature would be useful to the Council in adopting annual specifications. Similarly, if any minor changes to the "model" structure are adopted, above and beyond updating specific data streams, a sensitivity analysis to those changes may be required.

In addition to documenting changes in the performance of the model, the STAT team will be required to present key assessment outputs in tabular form. Specifically, the STAT team's final update document should include the following:

- Title page and list of preparers
- Executive Summary (see Appendix C)
- Introduction
- Documentation of updated data sources
- Short description of overall model structure
- Base-run results (largely tabular and graphical)
- Uncertainty analysis, including retrospective analysis, decision table, etc.
- 10 year harvest projections under the default harvest policy

Review Panel Report

The expedited stock assessment review panel will issue a report that will include the following items:

- Name and affiliation of panelists
- Comments on the technical merits and/or deficiencies of the update
- Explanation of areas of disagreement among panelists and between the panel and STAT team
- Recommendation regarding the adequacy of the updated assessment for use in management

PACIFIC FISHERY MANAGEMENT COUNCIL

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October 4, 2002

Dr. Usha Varanasi
National Marine Fisheries Service
Northwest Fisheries Science Center
2725 Montlake Blvd. E.
Seattle, WA 98112

RE: Stock Assessment Priorities for 2003

Dear Usha:

The Pacific Fishery Management Council (Council) recommended groundfish stock assessment priorities for 2003 at its September 9-13, 2003 meeting in Portland, Oregon. Dr. Elizabeth Clarke presented a list of stocks to consider for assessment in 2003, including recommendations for stocks that should be considered for full assessment and those that should be considered for expedited assessment updates.

The Council considered the list of candidate stocks, comments from the public, and statements from the Scientific and Statistical Committee (SSC) and the Groundfish Advisory Subpanel (GAP). Criteria used to prioritize assessments that should go forward include the importance of new information for management purposes, the relative risk to stocks under the new depth-based management regime, the elapsed period since the last assessment, and the available resources to do the assessment. The Council understands the National Marine Fisheries Service (NMFS) would be the lead agency on these assessments with state agency support where appropriate and as available.

The Council prioritized stock assessments for 2003 as follows:

Highest Priority Stock Assessments

Full Assessments

Pacific whiting was given high priority for a full assessment due to gaps and uncertainties in the data used in the 2002 assessment.

Bocaccio was given high priority for a full assessment due to the high risk of overfishing this species and the fact that bocaccio bycatch restrictions constrain many other fisheries.

Widow rockfish was given a high priority for a full assessment because the 2000 assessment may be significantly outdated. The Council recommended a full assessment rather than an update after statements by the GAP and SSC indicated that a full assessment is warranted and that personnel will be available to complete a full assessment in 2003.

Black rockfish was given high priority for a full assessment as they and other nearshore species are facing increased pressure as depth-based restrictions under the new management regime force fishers closer to shore. Additionally, this stock has not been assessed since 1999 and considerable data uncertainties remain. The Council discussed the geographic extent of the assessment and anticipates that a black rockfish assessment in 2003 would be limited to populations off Oregon and California.

Assessment Updates

Darkblotched rockfish was given a high priority for an assessment update because the species is at high risk of overfishing, the 2000 stock assessment is outdated, and darkblotched bycatch restrictions constrain many other fisheries.

Cowcod was assigned a high priority for an updated assessment because the last assessment in 1999 is outdated.

Lower Priority Stock Assessments

Assessment Updates

Pacific ocean perch and *yellowtail rockfish* were given lower priority status because fisheries are not expected to attain the optimum yields (OYs) for either species in the next few years under the new management regime.

Lingcod was given a lower priority because fisheries are not expected to attain lingcod OYs in the next few years under the new management regime. Washington Department of Fish and Wildlife indicated a willingness to devote staff resources to this assessment should it proceed as an assessment update.

Delayed Assessments

Cabezon stock assessment was recommended to be delayed. A cabezon assessment would be new, requiring extensive staff time for data collection and model development. California Department of Fish and Game staff time to contribute to the assessment is problematic at this time, despite the desire and intent to do so; Council staff impacts in handling a large number of assessments is also a concern.

In summary, the Council recommends high priority be given to Pacific whiting, bocaccio, widow rockfish, darkblotched rockfish, black rockfish, and cowcod as NMFS considers stock assessment planning for 2003. If resources exist, the Council recommends additional stock assessments for Pacific ocean perch, yellowtail rockfish, and lingcod.

Regarding assessment reviews preliminary to Council considerations, we would like to work with you in arranging for reasonable scheduling during the upcoming months. We have set whiting OYs for 2003 and do not see urgency in convening an early Stock Assessment Review (STAR) Panel for this species, absent needs that are determined in the upcoming U.S.-Canada negotiations on transboundary fishery management mechanisms. The Council expressed a desire for a spread in the scheduling of the other STAR Panels and update reviews that is responsive to the existing logistical constraints in the spring prior to the May deadline for the June Council meeting briefing book. We also note that a two-day meeting in late April to review four assessment updates may not be sufficient.

The Council appreciates the time you and your staff devote to this matter. Please do not hesitate to contact me with any questions.

Sincerely,

D.O. McIsaac, Ph.D.
Executive Director

MDB:rdh

c: Dr. Elizabeth Clarke
Dr. Rick Methot
Council Members
Scientific and Statistical Committee
Groundfish Management Team
Groundfish Advisory Subpanel
Dr. John Coon
Council Staff Officers

STOCK ASSESSMENT REVIEW (STAR) PANEL PROCESS – REVIEW OF 2002 AND PLANNING FOR 2003

This year's groundfish stock assessment and review process was conducted under the terms of reference in Attachment 1. Assessments were coordinated by the Northwest Fisheries Science Center of the National Marine Fisheries Service (NMFS). The Scientific and Statistical Committee (SSC) was tasked to resolve any disagreements among the Stock Assessment (STAT) Team, the STAR Panel, and the Groundfish Management Team (GMT). A new process was initiated this year with the advent of expedited assessment updates where new information is added to update a previous assessment without modifying model structure or fundamental assumptions. Such an assessment receives SSC review, but not the rigorous review of a STAR Panel. The sablefish stock north of Pt. Conception received the first expedited assessment update.

In September, the Council adopted a prioritized list of groundfish species for assessments in 2003 (Attachment 2). Priorities for stock assessment were based on the relevance to current management measure constraints, length of time since the last assessment, the availability of personnel to do the assessment, and the risk to the stock if an assessment were delayed.

The SSC, GMT, Groundfish Advisory Subpanel (GAP), and interested persons will meet Tuesday, October 29, at 10 a.m. to review the 2002 stock assessment process and plan for the 2003 process. The Council will receive the advice of the SSC, GMT, GAP and public participants on planning the STAR process for next year. The Council should consider these comments and provide relevant guidance on the final planning matters.

Council Task:

1. Provide guidance on the stock assessment review process for 2003.

Reference Materials:

1. Groundfish Stock Assessment and Review Process During 2002 (Exhibit G.4, Attachment 1).
2. Letter from Dr. McIsaac to Dr. Varanasi on stock assessment priorities for 2003 (Exhibit G.4, Attachment 2).

Agenda Order:

a.	Agendum Overview	John DeVore
b.	NMFS Northwest Fisheries Science Center Report	Elizabeth Clarke
c.	Reports and Comments of Advisory Bodies	
d.	Public Comment	
e.	Council Guidance	

Groundfish Fishery Strategic Plan (GFSP) Consistency Analysis

This agenda item is consistent with GFSP goals for science, data collection, monitoring, and analysis (Sec. II.B).

PFMC
10/16/02

Amendment 17

Multi-Year Groundfish Management

November 2002

Table 2.1.1	Process Alternative 1	Process Alternative 2	Process Alternative 3	Process Alternative 4	Process Alternative 5
Annual or Biennial	Annual	Biennial	Biennial	Biennial	Biennial
Council Meetings	September November	April June September	November March/April June	June September November	June September
Fishing Year Start Date	January 1	March 1	January 1	May 1	March 1
Stock Assessments	One-third assessed each year	Two-year science schedule, all assessed every other year	Two-year science schedule, all assessed every other year	Two-year science schedule, all assessed every other year	Two-year science schedule, all assessed every other year

Optimum Yield Duration Alternatives:

OY Duration Alternative 1 (status quo): All OYs for all species or species groups would be set for one-year periods. Each fishing year, the Council would manage each species or species group to achieve but not exceed its one-year OY.

OY Duration Alternative 2 (two-year OYs): All OYs for all species or species groups would be set for two-year periods. The Council would manage to achieve, but not exceed, the biennial OY for each species or species group. At the end of the first year of the fishing cycle, any OY underage or overage from that year would carry over into the second year.

OY Duration Alternative 3 (mix of one-year and two-year OYs): OYs for some species would be set for some species, while others would have two-year OYs. Species with one-year OYs would be managed as under Alternative 1; species with two-year OYs would be managed as under Alternative 2.

Table 4.3.3, abridged	Process Alternative 1	Process Alternative 2	Process Alternative 3	Process Alternative 4	Process Alternative 5
Number of Council meetings needed to develop two years of specifications	4	3	3	3	2
Available time for Council staff & advisors' analysis work	7 months	11-19 months	14 months	9 months	9 months
Time between last Council meeting of the fishing year and start of new fishing period for inseason adjustments.	3 months. Inseason changes for Oct-Dec made in Sept with final check at Nov meeting	3 months. Inseason changes for Dec-Feb made in Nov, no new mtgs until after 3/1 start date	3 months. Inseason changes for Oct-Dec made in Sept with final check at Nov meeting	5 months. Inseason changes for Dec-Apr made in Nov, with final check at Mar meeting	3 months. Inseason changes for Dec-Feb made in Nov, no new mtgs until after 3/1 start date
Process includes a March or April meeting salmon conflict?	No	Yes	Yes	No	No

The Bottom Line – Process Alternatives

	1: Status quo	2: Apr/Jun/Sep with 3/1 start	3:Nov/Apr/Jun with 1/1 start	4: Jun/Sep/Nov with 5/1 start	5: Jun/Sep with 3/1 start
+	•Same 1/1 start date • Fastest science process for at-least 1/3 of assessed stocks	• Ample time for each step of the process • Three-Council process	•Same 1/1 start date • Three-Council process	• Faster science process • Three Council process	•Fastest science process of biennial spex alts. • Swift transition from old to new process
-	•Two-Council process • Annual process time sink, less time for other management needs	•Slowest science process • New 3/1 start date • More conservative ABC/OY setting • Salmon meeting conflict	• Slower science process • More conservative ABC/OY setting • Salmon meeting conflict	• New 5/1 start date with f.gear sable/ whiting/ tribes mgmt conflict • More conservative ABC/OY setting	•Two-Council process •New 3/1 start date •More conservative ABC/OY setting

The Bottom Line – OY Duration Alternatives

	One-year OYs for all species	Two-year OYs for all species	Mix of one-year and two-year OYs
+	• More accountability inseason, easier to ensure that harvest amounts for all species stay on track through two-year process • Fewer fluctuations in management measures to meet two-year harvest goals	• More flexibility for transitioning between Year 1 and Year 2 of management period, carrying overages and underages	• More flexibility for transitioning between Year 1 and Year 2 of management period, carrying overages and underages •More flexibility for varying management guidance by species
-	• Less flexibility for adjusting harvest levels/rates over two-year period	• Could lead to broad fluctuations in landings limits levels for species with two-year OYs • Could require precautionary (conservative) adjustment to ABC/OY • Management measures may be set conservatively for first year in order to hedge against fluctuations in second year.	•Could be confusing to have species with differing OY periods •Could lead to broad fluctuations in landings limits levels for species with two-year OYs •Could require precautionary (conservative) adjustment to ABC/OY • Management measures may be set conservatively for first year in order to hedge against fluctuations in second year.

Transition to Process Alt. 3 (Council preferred with 2 meeting 2004 specifications)

<table>
<tr><td></td><td>Jan '03</td><td>Apr '03</td><td>June '03</td><td>Sept '03</td><td>Nov '03</td><td>Jan '04</td><td>Mar/ Apr '04</td><td>June '04</td><td>Sept '04</td><td>Nov '04</td><td>Jan '05</td></tr>
<tr><td>Stock Assess-ments</td><td colspan="4">Assessments and STAR for '04 due May '03

Assessments and STAR for '05-'06 due Oct '03</td><td></td><td colspan="5">"Off" year for stock assessments. Advanced model development and stock assessment model refinement year.</td><td>"On" year begins</td></tr>
<tr><td>Council Process</td><td colspan="2"></td><td>Proposed '04 Specs</td><td>Final '04 Specs</td><td>Proposed '05-'06 ABC/OY</td><td></td><td>Propose d '05-'06 Specs & manage measur es</td><td>Final '05-'06 Specs & manage measures</td><td colspan="3">First "off" year for Council begins 9/04 and ends 11/05. In 11/05, proposed ABC/OY for '07-'08.</td></tr>
<tr><td>NMFS Process</td><td colspan="2" rowspan="2">Public review and NOAA implementa-tion of Am17</td><td rowspan="2"></td><td colspan="2">'04 Specs via emergency rule for Jan/Feb or carry-over if '03 conservative</td><td rowspan="2"></td><td colspan="2" rowspan="2"></td><td colspan="3" rowspan="2">NMFS sends '05-'06 out for public review via proposed rule and implements via final rule by 01/05</td></tr>
<tr><td colspan="3">'04 Specs proposed rule, public review; final rule for 3/1//04</td></tr>
</table>

Transition to Process Alt. 3 (Council preferred with 3 meeting 2004 specifications)

<table>
<tr><th></th><th>Jan '03</th><th>Apr '03</th><th>June '03</th><th>Sept '03</th><th>Nov '03</th><th>Jan '04</th><th>Mar/ Apr '04</th><th>June '04</th><th>Sept '04</th><th>Nov '04</th><th>Jan '05</th></tr>
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</table>

Transition to Process Alt. 5 (SSC preferred with 2 meeting 2004-2005 specifications)

	Jan '03	Apr '03	June '03	Sept '03	Nov '03	Jan '04	Mar/ Apr '04	June '04	Sept '04	Nov '04	Jan '05
Stock Assess-ments	Assessments and STAR for '04-'05 due May '03					"Off" year for stock assessments. Advanced model development and stock assessment model refinement year.					"On" year begins
Council Process			Proposed '04-'05 Specs Transitional OYs and management measures needed for Jan-Feb '04	Final '04-'05 Specs		First "off" year for Council begins 3/04 and ends 6/05. In 6/05, proposed ABC/OY for '06-'07.					
NMFS Process	Public review and NOAA implementa-tion of Am17			Emergency rule for Jan-Feb '04 specs may be needed even if Jan-Feb '03 used for carry-over because of transition to 3/1 start date '04-'05 Specs proposed rule, public review; final rule due 3/1/04							

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON
AMENDMENT 17 - MULTI-YEAR MANAGEMENT

The Groundfish Advisory Subpanel (GAP) received a presentation from Ms. Yvonne de Reynier of the NMFS Northwest Region regarding final action on Amendment 17 to the Pacific groundfish fishery management plan (FMP) and makes the following recommendations.

The GAP continues to support Alternative 3, which would provide for biennial management with a season start date of January 1st. As the GAP has previously noted, this will provide the advantages of a more relaxed management process, allow the Council to address a variety of issues which it now must delay due to workload imperatives, enable the use of relatively current science, and provide the least economic disruption to participants in the fishery.

The GAP examined the issue of establishing optimum yields (OYs) for either a two-year period (January 1 of year one to December 31 of year 2) or for two consecutive one-year periods. The GAP is cognizant of problems with being able to access up to date harvest data, including, but not limited to, recreational harvest data in some areas, and how the delay in data acquisition could effect both the establishment of OYs and inseason adjustments. The GAP believes that setting a two-year OY would provide the most flexibility for harvest managers and harvesters. However, in order to provide a safety factor to avoid over-harvest and early termination of fisheries; the GAP recommends harvests be managed so that no more than 60% of the OY be attained in the first year. This should ensure sufficient opportunity to achieve OY, as required under the Magnuson-Stevens Act while preventing overfishing and early termination of fishing opportunities in the second year of the biennium.

PFMC
10/30/02

GROUNDFISH MANAGEMENT TEAM STATEMENT ON AMENDMENT 17 - MULTI-YEAR MANAGEMENT

The Groundfish Management Team (GMT) received an update on Amendment 17 at its October meeting from Yvonne deReynier, National Marine Fisheries Service. With regard to the multi-year management cycle, the GMT prefers Alternative 3, a three-meeting biennial process with a January 1 start date for the fishing year and statistical year. This alternative does not use the most current science for the development of management measures, but it does provide for consistency with historic management practices as it reflects the status quo fishing period. This consistency allows fishery managers to compare current statistics with historical data.

The GMT is aware of the desire of industry to maintain a January 1 start date to accommodate established marketing practices. Starting the fishery later in the year (e.g., March or May) could cause additional problems as those start dates could result in inseason adjustments having to be made outside of regularly scheduled Council meetings. It is for these reasons that the GMT is proposing a mid-process "best available science" check on harvest levels.

Multi-year Management Timeline (Alternative 3, Amendment 17)							
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Survey	A	B	C	D	E	F	G
Assessment		A		A-C*		A-E	
Management			A		A-C		A-E
Fishing				A	A	A-C	A-C

Assessments for fishing in Years 6-7 would be complete by October of Year 4. November Council meeting of Year 4 could allow checkpoint for Year 5 harvest levels.* This checkpoint would look at whether the new science/assessments completed in Year 4 were substantially different from harvest levels set by science/assessments from Year 2. The GMT recommends that the Council develop a process for setting trigger standards at which harvest levels for that second fishing year (Year 5) would be revised.

The GMT also believes that a three-meeting process would serve best to provide adequate time for stakeholder involvement in the decision-making process, as well as time needed to review stock assessment and/or rebuilding results, develop management measures, prepare necessary NEPA documents, and make necessary changes to documents prior to the Council taking final action.

The GMT also discussed the trade-offs associated with having a two-year optimum yield (OY) vs. two one-year OYs. The GMT recommends two one-year OYs (status quo) because of the fishing and management implications associated with overharvest in the first year of a two-year OY. If this were to occur it could severely constrain fisheries in the second year. Further, the GMT does not believe that overages should be transferred as this could result in severe fishing and management problems the following year. The GMT also recognizes that transferring underages only could increase the likelihood that cumulative OYs over the long-term will be exceeded. The GMT notes that, under the status quo, overages are accounted for when stock assessment or rebuilding analyses are updated.

PFMC
10/31/02

SCIENTIFIC AND STATISTICAL COMMITTEE STATEMENT ON AMENDMENT 17 - MULTI-YEAR MANAGEMENT

Amendment 17 to the Pacific Coast Groundfish Fishery Management Plan (FMP) (Exhibit G.5, Attachment 1) offers four options, in addition to the *status quo*, to change the Council's process for setting groundfish specifications and management measures from an annual to a biennial cycle. The Council initiated this FMP amendment to: (1) allow for a new legally mandated five month notice and comment period and (2) to reduce workload by streamlining the specifications process. Moving to a biennial process is likely to have both favorable and unfavorable consequences, many of which are difficult to foresee. Of foremost concern to the Scientific and Statistical Committee (SSC) are the potential impacts to the quality of the scientific information the Council uses in its decision-making process.

This subject has been commented upon previously by the SSC (see Exhibit A.5, April 2002 Council Minutes, pp. 42-43). The SSC reiterates that it is most important to base management advice on results from stock assessments that use the most recent data. However, across the four biennial options considered, there is a substantial range in the timeliness of the scientific information that will be used to manage the groundfish fishery. Alternative 5 provides the most current information and is, therefore, the option preferred by the SSC.

It would be useful to evaluate the implications of setting groundfish acceptable biological catches for a number of years into the future based on survey data that are several years old. To some degree this is a feature of the current annual management cycle. However, it will likely be exacerbated under a biennial system and this will increase the level of uncertainty in the scientific advice the Council receives.

PFMC
10/30/02

Exhibit G.5
Attachment 1
November 2002

AMENDMENT 17

TO THE PACIFIC COAST GROUNDFISH FISHERY MANAGEMENT PLAN

(MULTI-YEAR MANAGEMENT AND THE SPECIFICATIONS AND MANAGEMENT MEASURES PROCESS)

DRAFT

INCLUDING DRAFT ENVIRONMENTAL ASSESSMENT

Prepared by the National Marine Fisheries Service for the Pacific Fishery Management Council

Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, OR 97220-1384
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SEPTEMBER 2002

TABLE OF CONTENTS

1.0 PURPOSE AND NEED FOR ACTION

1.1 How this Document is Organized

This document is an Environmental Assessment and Regulatory Impact Review (EA/RIR) for Amendment 17 to the Pacific Coast Groundfish Fishery management Plan (FMP.) Amendment 17 primarily addresses the Council process of setting groundfish specifications and management measures and revisions to that process.

- Chapter 1 provides the "Purpose and Need" for the Council's action and is intended to provide the public with an explanation of why the Council is considering an FMP amendment.
- Chapter 2 describes the alternatives that the Council has considered for revising the groundfish specifications and management measures process.
- Chapter 3 describes the physical, biological, and socio-economic environment of the groundfish and groundfish fisheries that could be affected by Amendment 17.
- Chapter 4 is an analysis of the potential effects of the alternatives considered in Amendment 17 on the human environment.
- Chapter 5 addresses the consistency of Amendment 17 alternatives with the FMP and other applicable law.
- Chapter 6 contains the Regulatory Impact Review.
- Chapter 7 provides a bibliographic reference for this document and lists the documents preparers.
- Appendix A excerpts the portions of the FMP that would be amended by this action and provides alternative amendatory language.
- Appendix B shows sample timelines for making the transition from the status quo annual management process to alternative biennial management processes.

1.2 Purpose and Need

The FMP provides guidance for the Council's groundfish fishery management policies. This FMP covers over 80 species of groundfish (listed in Section 3.0 of the FMP) taken in multi-user fisheries occurring within the Exclusive Economic Zone (EEZ, 3-200 nautical miles offshore) off the coasts of Washington, Oregon, and California. Many of the FMP's guiding policies have been implemented through long-term federal regulations at 50 CFR 660.301-.360. These regulations cover issues ranging from allocations of particular species between different user groups to gear marking requirements to licensing and observer requirements.

In addition to deliberating on long-term groundfish fishery regulations, the Council sets groundfish harvest levels through an annual regulatory process. This annual process establishes harvest "specifications", which are harvest levels or limits such as Acceptable Biological Catches (ABCs,) optimum yields (OYs,) or allocations for different user groups. Management measures, such as trip limits, closed times and areas, and gear restrictions are also set in the annual regulatory process. Management measures are partnered with the specifications in the annual process because these measures are specifically designed to allow the fisheries to achieve, but not to exceed, the specifications harvest levels.

Annual development of specifications and management measures, with regulatory review and implementation by NMFS, is authorized in Section 5.6 of the FMP. Under this section of the FMP, certain management measures have been designated as routine for many of the groundfish species managed under the FMP. The Council annually publishes a list of those management measures designated as routine in its Stock Assessment and Fishery Evaluation (SAFE) Report.

Reconsidering the process by which new management measures are designated as routine is not part of the purpose of the actions analyzed in this document. Instead, the actions analyzed in this document will focus on the larger framework for developing and implementing specifications and management measures.

Since 1990, the Council has annually developed its recommendations for specifications and management measures in a two-meeting process (usually its September and November meetings) followed by a NMFS final action published in the Federal Register and made available for public comment and correction after the effective date of the action. In 2001, NMFS was challenged on this process in Natural Resources Defense Council, Inc. v. Evans, 2001 168 F.Supp. 2d 1149 (N.D. Cal. 2001) and the court ordered NMFS to provide prior public notice and allow public comment on the annual specifications. Because of this court order, the Council needs to amend the FMP's framework for developing annual specifications and management measures to incorporate NMFS publication of a proposed rule for the specifications and management measures, followed by a public comment period and a final rule.

In addition to needing to revise the notice and comment procedure associated with the specifications and management measures, the Council wished to take a new look at efficiency in the annual management process. Groundfish management workload levels have grown in recent years, particularly those associated with setting annual harvest levels for both depleted and healthy stocks. Because of the increasing workload associated with developing specifications and management measures, the Council and NMFS have had less time for addressing many other important groundfish fishery management issues. NMFS has recently asked all of the fishery management councils to consider how they might streamline their processes for developing regulatory recommendations. To meet this NMFS request, the Council has decided that it needs to consider whether specifications and management measures could be published for multi-year, rather than single year, periods.

The Council's purposes in and needs for considering the actions analyzed in this document are to:

- Comply with a court order to provide more opportunity for public comment in the NMFS rule publication process;

- Streamline the process of and reduce the workload associated with developing specifications and management measures so that more Council and NMFS time may be devoted to issues other than specifications and management measures development.

1.3 Public Participation

The court's order in Natural Resources Defense Council, Inc. v. Evans, 2001 168 F.Supp. 2d 1149 (N.D.Cal. 2001) required that NMFS provide prior public notice comment on the annual specifications was issued in August 2001. NMFS also began discussions about streamlining regulatory development and implementation processes with all of the fishery management councils in summer 2001. Because several NMFS Regions and councils use annual specifications and management measures development processes, the efficiency of those processes was an important part of the regulatory streamlining discussions. One suggestion to come out of those discussions was that some councils might consider whether their specifications and management measures could be developed for multi-year periods.

At its November 2001 meeting, the Council discussed the need to incorporate a NMFS public notice and comment period into the specifications and management measures process before implementation of the final rule. The Council decided that it could combine its investigations into how to modify the notice and comment period and into the applicability of multi-year management to groundfish fishery management. To initially scope out these issues, the Council created the Ad-Hoc Groundfish Multi-Year Management Committee (hereinafter, "Committee.") The Committee included representatives from the fishing industry, the conservation community, the three states and NMFS.

The Committee held public meetings in Portland, OR over December 13-14, 2001, and over January 31 - February 1, 2002. During those meetings, the Committee discussed a suite of issues associated with changing the specifications and management measures notice and comment process and with the possibility of making a transition to multi-year management (detailed in Section 3.3.1 of this document.) During these meetings, the Committee developed a suite of options to address the issues discussed in the

Purpose and Need section of this document, above. In March 2002, the Council made these options available for more broad public comment. At its April 2002 meeting, the Council then chose five alternatives for analysis, with the expectation that a draft analysis of these options would be available for public consideration at its June 2002 meeting in Foster City, CA. These alternatives are presented in Section 2.0 of this document. In June, the Council requested an additional analysis of whether and how multi-year management options would make use of multi-year optimum yields (OYs).

1.4 Related NEPA Analyses

1.4.1 Environmental Impact Statement (EIS) for Proposed Groundfish Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2003 Pacific Coast Groundfish Fishery. (In development)

This EIS for the 2003 specifications and management measures will provide an analysis of the effects of implementing the complete package of management measures for 2003. The EIS will provide an example of the type of NEPA analysis needed in developing annual specifications and management measrues. The Council's annual SAFE document will serve as an appendix to this EIS, with information on the history of the fishery's management, stock status for recently assessed species, economic analyses, and other information.

1.4.2 EIS on Overfished Species Rebuilding Plans. (In development.)

The Council is preparing an EIS for what will become Amendment 16 to the FMP, which will set overall guidelines for the contents of overfished species rebuilding plans and which will incorporate rebuilding plans for several species in the FMP. The Amendment 16 EIS is scheduled for concurrent consideration with the specifications and management measures issues discussed in this EA. During discussions on each of these issues, the Council will need to ensure that processes analyzed herein for developing specifications and management measures are compatible with processes for developing and implementing overfished species rebuilding plans.

1.4.3 Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis (EA/RIR/IRFA) for Proposed Groundfish Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2002 Pacific Coast Groundfish Fishery. December 2001.

This EA/RIR/IRFA was prepared for the 2002 specifications and management measures and provides an example of the type of NEPA analysis used for developing the annual specifications and management measures. Similar to the 2003 EIS, the Council's SAFE document serves as an appendix to this EA/RIR/IRFA. This EA/RIR/IRFA was intended to address the effects of the 2002 specifications and management measures on the environment, not the effects of the rulemaking development process on the environment.

1.4.4 EA/RIR for Amendment 13 to the Pacific Coast Groundfish FMP. December 2000.

Among other issues, Amendment 13 provided new flexibility in setting annual management measures, so that those measures could better address the rebuilding needs of overfished species. This NEPA analysis addressed the process by which new management measures are designated as routine. These routine management measures are the management measures developed in the annual specifications process. As mentioned above, the process by which new management measures are designated as routine is not part of the purpose of the Council's current discussions. Nonetheless, the Amendment 13 NEPA analysis may provide relevant additional background on the annual process of developing specifications and management measures.

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 Development of the Alternatives and How the Alternatives are Structured

As discussed above in Section 1.3, the alternatives for revising the specifications and management measures development process were initially discussed in December 2001 and January/February 2002 meetings of the Groundfish Multi-Year Management Committee. The Committee developed six alternatives intended to represent a reasonable range of alternative management regimes for addressing the issues discussed under Section 1.0, Purpose and Need. At its April 2002 meeting, the Council eliminated one alternative from consideration and made the five remaining alternatives available for public review. That eliminated alternative and other alternatives not considered in this document are briefly detailed in Section 2.3 of this document. At its June 2002 meeting, the Council asked for an analysis of a secondary issue relevant to each of the multi-year management alternatives – whether and how multi-year management options would make use of multi-year OYs.

2.2 Issue 1 – Process Alternatives

Each of the five following process alternatives provides the following components:

- Either an annual or biennial framework for setting specifications and management measures.
- The number of Council meetings used in developing specifications and management measures and the months in which those meetings would be held.
- The start date of the fishing year.
- A schedule for conducting new and updated groundfish stock assessments.

Table 2.1.1 Summary of Process Alternatives

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Annual or Biennial	Annual	Biennial	Biennial	Biennial	Biennial
Council Meetings	September November	April June September	November March/April June	June September November	June September
Fishing Year Start Date	January1	March 1	January 1	May 1	March 1
Stock Assessments	one-third assessed each year	Two-year science schedule: one year to develop and refine models, second year to update all assessments and add new assessments.			

Process Alternative 1 (No Action)

The theme of Process Alternative 1 is to continue with the current annual management cycle, giving priority to the specifications and management measures process over other Council activities.

- Specifications and management measures set annually for a one-year period.
- Two Council meetings, with proposed specifications and management available at Meeting 1 and Council final action at Meeting 2.

  **This two-meeting process (usually September and November meetings) was standard for the 1990-2001 specifications and management measures. For the 2002 specifications, the Council adopted a three-meeting process, with proposed specifications available in June, proposed management measures available in September, and final Council action on all items in November. For 2003, the Council has had to revert to a two-meeting process (June, September) to allow a public notice and comment period prior to an expected March 1, 2003 finalization. For the purposes of this analysis, the two-meeting process will be considered the No Action alternative. **
- January 1 fishing year start date.
- Stock assessments for each assessed species are conducted once every three years. In other words, one-third of all assessed stocks receive assessment updates each year

Table 2.1.2 Alternative 1, status quo/no action

1st third of all assessed stocks			2nd third of all assessed stocks			3rd third of all assessed stocks		
Survey	*Assessed*	*Harvest*	*Survey*	*Assessed*	*Harvest*	*Survey*	*Assessed*	*Harvest*
Year 1	Year 2	Year 3						
Year 1	Year 2	Year 4	Years 1-2	Year 3	Year 4			
Year 1	Year 2	Year 5	Years 1-2	Year 3	Year 5	Years 1-3	Year 4	Year 5
Years 2-4	Year 5	Year 6	Years 1-2	Year 3	Year 6	Years 1-3	Year 4	Year 6
Years 2-4	Year 5	Year 7	Years 2-5	Year 6	Year 7	Years 1-3	Year 4	Year 7
Years 2-4	Year 5	Year 8	Years 2-5	Year 6	Year 8	Years 4-6	Year 7	Year 8
Years 5-7	Year 8	Year 9	Years 2-5	Year 6	Year 9	Years 4-6	Year 7	Year 9

Process Alternative 2 (biennial, three-meeting, March 1 start)

The theme of Process Alternative 2 is to maximize time for stock assessment scientists, Council staff, and NMFS staff to prepare documentation needed to implement specifications and management measures. Additionally, biennial management is intended to allow the Council time to focus its work in alternate years on issues other than specifications and management measures.

- Specifications and management measures set biennially for a two-year period.
- Three Council meetings, with proposed specifications available in April (Meeting 1,) proposed management measures available in June (Meeting 2,) and Council final action in September (Meeting 3.)
- March 1 fishing year start date.
- Stock assessments for each assessed species are conducted every year.

Table 2.1.3 Alternative 2

Years in which stock surveys are conducted	Year All Stocks Assessed	Years harvest limits are based on that assessment
Year 1	Years 2-3	Years 4-5
Year 2	Years 4-5	Years 6-7
Year 3	Years 4-5	Years 6-7
Year 4	Years 6-7	Years 8-9
Year 5	Years 6-7	Years 8-9

Process Alternative 3 (biennial, three-meeting, January 1 start)

The theme of Process Alternative 3 is to maximize time for stock assessment scientists, Council staff, and NMFS staff to prepare documentation needed to implement specifications and management measures ***without disrupting historic January 1 season start date.*** *Additionally, biennial management is intended to allow the Council time to focus its work in alternate years on issues other than specifications and management measures.*

- Specifications and management measures set biennially for a two-year period.
- Three Council meetings, with proposed specifications available in November (Meeting 1,) proposed management measures available in March/April (Meeting 2,) and Council final action in June (Meeting 3.)
- January 1 fishing year start date.
- Stock assessments for each assessed species are conducted every other year.

Table 2.1.4 Alternative 3

Years in which stock surveys are conducted	Year All Stocks Assessed	Years harvest limits are based on that assessment
Year 1	Year 2	Years 4-5
Year 2	Year 4	Years 6-7
Year 3	Year 4	Years 6-7
Year 4	Year 6	Years 8-9
Year 5	Year 6	Years 8-9

Process Alternative 4 (biennial, three-meeting, May 1 start)

The theme of Process Alternative 4 is to minimize the time between stock surveys and the years in which those surveys are used in setting harvest limits, ***while also maximizing time for Council staff and NMFS staff to prepare documentation*** *needed to implement specifications and management measures. Additionally, biennial management is intended to allow the Council time to focus its work in alternate years on issues other than specifications and management measures.*

- Specifications and management measures set biennially for a two-year period.
- Three Council meetings, with proposed specifications available in June (Meeting 1,) proposed management measures available in September (Meeting 2,) and Council final action in November (Meeting 3.)
- May 1 fishing year start date.
- Stock assessments for each assessed species are conducted every other year.

Table 2.1.5 Alternative 4

Years in which stock surveys are conducted	Year All Stocks Assessed	Years harvest limits are based on that assessment
Year 1	Year 2	Years 3-4
Year 2	Year 4	Years 5-6
Year 3	Year 4	Years 5-6
Year 4	Year 6	Years 7-8
Year 5	Year 6	Years 7-8

Process Alternative 5 (biennial, two-meeting, March 1 start)

The theme of Process Alternative 5 is to minimize the time between stock surveys and the years in which those surveys are used in setting harvest limits. Additionally, biennial management is intended to allow the Council time to focus its work in alternate years on issues other than specifications and management measures.

- Specifications and management measures set biennially for a two-year period.
- Two Council meetings, with proposed specifications and management measures available in June (Meeting 1) and Council final action in September (Meeting 2.)
- March 1 fishing year start date.
- Stock assessments for each assessed species are conducted every other year.

Table 2.1.6 Alternative 5

Years in which stock surveys are conducted	Year All Stocks Assessed	Years harvest limits are based on that assessment
Year 1	Year 2	Years 3-4
Year 2	Year 4	Years 5-6
Year 3	Year 4	Years 5-6
Year 4	Year 6	Years 7-8
Year 5	Year 6	Years 7-8

Table 2.1.7 Groundfish Multi-Year Management Process Alternatives – Summary of Policy Considerations

Process Alternative	**Science Process** *Stock assessments occur Jan-May needed for all options. Different schedule indicated when more time available.*	**Data/Stock Assessment Use** *May not survey all stocks in all years. Y1 survey data used in Y2 assessment process.*	**Council Process** *Council process and workload more or less burdensome depending on whether 2- or 3-meeting process*	**NMFS Process** * 5 months minimum needed for proposed rule, comment period and response time*	**Industry Needs/Effects** *Where process is 2-years, discipline is needed in 1st fishing year to not push limits higher in Council process – otherwise fewer fish available for 2nd year, possible early closures
1. Status quo, 2-meeting annual process, 1/1 start. Annual process PFMC meets Sept. (proposed) and Nov. (final), Fishing Year starts Jan 1.	• 1/3 of stocks each year (labelled as groups A, B, and C in next box ➜) • STAR process for all assessed species, each year	• Year 1 survey info used in Y3 fishing for stock group A • Y1-2 survey info used in Y4 fishing for stock group B • Y1-3 survey info used in Y5 fishing for stock group C	• 7 months for Council staff and committees work on NEPA/RFA, SAFE documents • Less overall Council time for issues other than specifications	• 2 months for implementation, inadequate • Less overall NMFS time for issues other than specifications	• Start date the same, process same, so little/no industry adjustment • Less Council/NMFS time to work on other industry issues
2. 3-meeting, biennial process, 3/1 start. PFMC meets April (proposed ABC/OY), June (final ABC/OY, proposed management), and Sept (final management) Fishing year starts March 1	• Stock assessments could occur Jan- Mar of following Y • All stocks assessed every other year with STAR or STAR-lite review • Intervening years have STAR process for models, new overfished spp.	• Year 1 survey info used in Y4-5 fishing for all stocks • Y2 survey info used in Y6-7 fishing • Y3 survey info used in Y6-7 fishing	• 11-19 months for Council staff and committees work on NEPA/RFA, SAFE documents • More time for issues other than specifications • Inseason adjustments for last 3 months made at Nov meeting. • Conflict with salmon management schedule	• 5.5 months for implementation, adequate • More NMFS time for issues other than specifications	• Change in fishing year requires business planning changes for industry • 2-year process, possible early closures if limits not controlled • More Council/ NMFS time to work on other industry issues • Fishing based on older data than all other alternatives
3. 3-meeting, biennial process, 1/1 start. PFMC meets Nov (proposed ABC/OY), March/April (final ABC/OY, proposed management), and June (final management) Fishing year starts Jan 1	• Stock assessments occur Jan-Oct • All stocks assessed every other year with STAR or STAR-lite review • Intervening years have STAR process for models, new overfished spp.	• Year 1 survey info used in Y4-5 fishing for all stocks • Y2 survey info used in Y6-7 fishing • Y3 survey info used in Y6-7 fishing	• 14 months for Council staff and committees work on NEPA/RFA, SAFE documents • More time for issues other than specifications • Conflict with salmon management schedule	• 6.5 months for implementation, adequate time • More NMFS time for issues other than specifications	• Start date the same • 2-year process, possible early closures if limits not controlled • Fishing based on older data than Alternatives 1, 4, 5 • More Council/ NMFS time to work on other industry issues

Process Alternative	Science Process *Stock assessments occur Jan-May needed for all options. Different schedule indicated when more time available.*	Data/Stock Assessment Use *May not survey all stocks in all years. Y1 survey data used in Y2 assessment process.*	Council Process *Council process and workload more or less burdensome depending on whether 2- or 3-meeting process*	NMFS Process * 5 months minimum needed for proposed rule, comment period and response time*	Industry Needs/Effects *Where process is 2-years, discipline is needed in 1st fishing year to not push limits higher in Council process – otherwise fewer fish available for 2nd year, possible early closures
4. 3-meeting, biennial process, 5/1 start. PFMC meets June (proposed ABC/OY), Sept. (final ABC/OY, proposed management), and Nov. (final management) Fishing year starts May 1	• All stocks assessed every other year with STAR or STAR-lite review • Intervening years have STAR process for models, new overfished spp. • Database adjusting for change in fishing year	• Year 1 survey info used in Y3-4 fishing for all stocks • Y2 survey info used in Y5-6 fishing • Y3 survey info used in Y5-6 fishing	• 9 months for Council staff and committees work on NEPA/RFA, SAFE documents • More time for issues other than specifications • Inseason adjustments in Nov. and March possibly ill-timed for May 1 fishery start • Re-evaluation of whiting and fixed gear sablefish season management required	• 6 months for implementation, adequate • More NMFS time for issues other than specifications	• Change in fishing year requires business planning changes for industry • 2-year process, possible early closures if limits not controlled • 5/1 fishery start conflicts with current whiting and fixed gear sablefish seasons, tribal groundfish fishery management • More Council/ NMFS time to work on other industry issues
5. 2-meeting, biennial process, 3/1 start. PFMC meets June (proposed) and Sept (final), Fishing Year starts March 1	• All stocks assessed every other year with STAR-lite • Intervening years have STAR process for models, new overfished spp. • Database adjusting for change in fishing year	• Year 1 survey info used in Y3-4 fishing for all stocks • Y2 survey info used in Y5-6 fishing • Y3 survey info used in Y5-6 fishing	• 9 months for Council staff and committees work on NEPA/RFA, SAFE documents • More time for issues other than specifications • Inseason adjustments for last 2-3 months made at Nov meeting	• 5.5 months for implementation, adequate • More NMFS time for issues other than specifications	• Change in fishing year requires business planning changes for industry • 2-year process, possible early closures if limits not controlled • More Council/ NMFS time to work on other industry issues

2.3 Issue 2 – Optimum Yield (OY) Duration Alternatives

Process Alternatives 2-5 feature biennial specifications and management measures processes. The Council has been operating with an annual specifications process (Process Alternative 1) since 1990. In that process, OYs have been set for one year periods. Within a biennial specifications and management measures process, the Council could use two one-year OYs or one two-year OY for each species or species group, or a mix of those alternatives for different species or species groups.

Optimum Yield Duration Alternative 1 (status quo/no action)

All OYs for all species or species group would be set for one-year periods. In biennial management process, each fishing year the Council would manage each species or species group to achieve but not exceed its one-year OY. At the beginning of each fishing year, fishing would begin on new one-year OYs, with no adjustments made for underages or overages in the prior year.

Optimum Yield Duration Alternative 2 (two-year OYs)

All OYs for all species would be set for two-year periods. In biennial management process, the Council would manage each species to achieve but not exceed the biennial OY for that species. At the end of the first year of the fishing cycle, any OY underage or overage from that year would carry over into the second year, affecting the amount of each species that could be taken in that second year. Under this alternative, the Council may wish to develop harvest checkpoints to articulate the percent of each species' OY that could be expected to be taken at different points during the two-year cycle. These harvest checkpoints would be based on historic fishing cycles, would integrate groundfish landings with landings of other species coastwide, and could be used to monitor progress through the two-year period to ensure that no severe underages or overages occur.

Optimum Yield Duration Alternative 3 (mix of one-year and two-year OYs)

OYs for some species would be set for one-year periods, for others OYs would be set for two-year periods. The Council could choose during the development of each new management cycle which species would be managed for one-year OYs and two-year OYs. One-year OYs would allow single year targets for some species within the biennial cycle, which might be appropriate for species that require particularly conservative management, such as overfished species.

2.4 Alternatives Eliminated from Detailed Study

During its initial meetings, the Multi-Year Management Committee discussed several variations on the options listed above:

Multi-Year Management for Periods Longer Than Two Years. Of the five process alternatives listed above, one would continue the annual management cycle and four would move the Council to biennial specifications and management measures. The Committee discussed management cycles ranging from one to five years in duration. These discussions revealed that setting the length of the management cycle would be a delicate balance between ensuring the use of the best and most recently available scientific information and allowing management process participants adequate time to discuss and absorb this scientific information and its implications for management. Under the current annual cycle, processing and review of data must occur at a fairly swift pace, using scientific personnel time and resources that might otherwise be dedicated to stock assessments and advanced modeling. Thus, the annual cycle tends to allow participating scientists to assess about one-third of all assessed stocks in any one year. As a result, each year's management cycle uses the most recently available information for one-third of assessed stocks. Discussions between the Committee and stock assessment scientists about timing of assessments and data availability led the Committee to conclude that a two-year management cycle

would allow participating scientists more time to process and review data from the stock surveys and then more time to complete stock assessments for setting specifications and management measures. Three- to five- year cycles would have lengthened the scientific process further, but the longer cycles would have also resulted in managers using "older" data in setting harvest levels. The Committee determined that the benefits of a longer assessment and analysis period were outweighed by the need to use the best available scientific information in support of the management process.

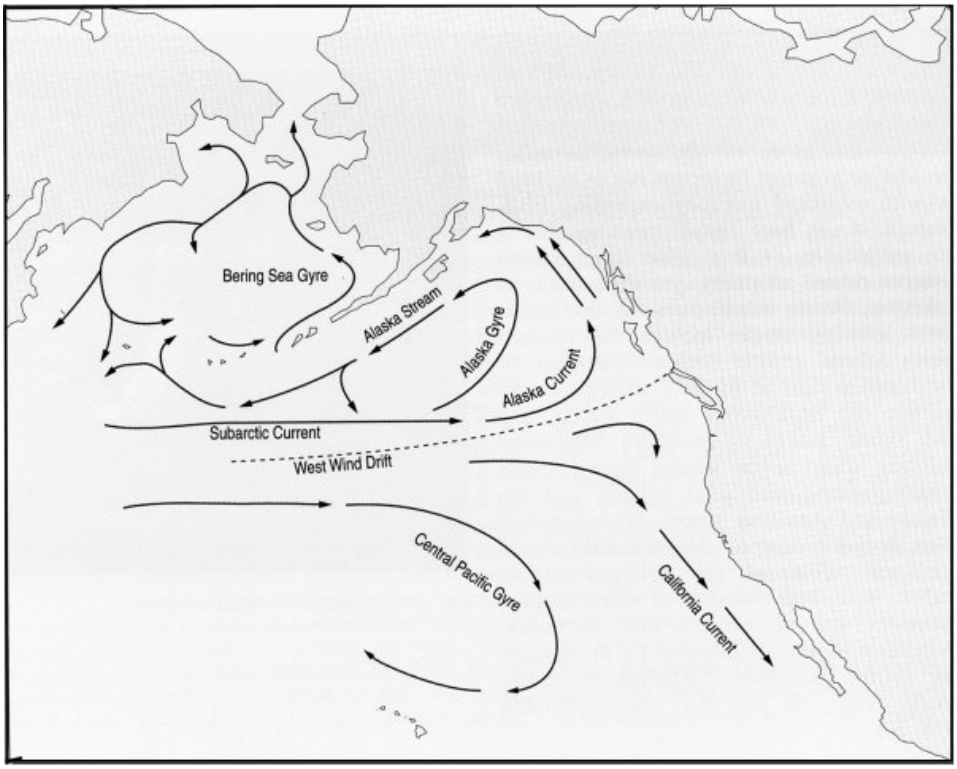
Changing Council Meeting Dates. During its initial discussions, the Committee looked at different ways of addressing the scheduling needs of the scientific process (processing and reviewing data from resource surveys through to completed assessments) and the public notice and comment process (NMFS publication of proposed and final rules in the Federal Register). In addition to considering changing the duration of the management cycle, the fishing year start date, and the Council meetings at which discussion and decision occur, the Committee also looked at changing the dates of Council meetings to better incorporate the scientific process and the notice and comment process. For example, the Committee considered whether the process could be better served by moving the June Council meeting to July, or by moving the September and November meetings to early August and October. Ultimately, the Committee set aside these considerations for two logistical reasons. First, the current Council meeting schedule of five meetings per year held in March, April, June, September, and November is based on the management needs of a variety of fisheries (groundfish, salmon, coastal pelagic species, highly migratory species, halibut). Historically, the September and November meetings have been dominated by groundfish issues, thus the timing of those meetings could have been more flexible with changes to groundfish management needs. March and April meetings, however, are strictly timed with salmon season management and timing for those meetings could not be made flexible to accommodate groundfish management needs. The Committee was uncomfortable with the potential ripple effects of changing Council meeting dates on the management of species other than groundfish. Second, Council meeting dates must be set several years in advance to ensure meeting location reservations adequate for the large number of Council meeting participants. Even if the Committee had wanted to forward an alternative meeting schedule for public consideration, the Council and NMFS would not have been able to fully implement such an alternative for three to four years. The Committee felt that there were sufficient alternatives for addressing their goals in taking a new look at the management process without having to also address the complications of meeting logistics.

3.0 AFFECTED ENVIRONMENT

This section of the document describes the existing fishery and the resources that would be affected by this action. The physical environment is discussed in Section 3.1, the biological characteristics of the groundfish stocks and non-groundfish stocks interacting with the groundfish fishery are discussed in Section 3.2, and the socio-economic environment is discussed in Section 3.3.

3.1 PHYSICAL ENVIRONMENT

California Current System. In the North Pacific Ocean, the large, clockwise-moving North Pacific Gyre circulates cold, sub-arctic surface water eastward across the North Pacific, splitting at the North American continent into the northward-moving Alaska Current and the southward-moving California Current. Along the U.S. West Coast, the surface California Current flows southward through the U.S. West Coast EEZ, the management area for the groundfish FMP. The California Current is known as an eastern boundary current, meaning that it draws ocean water along the eastern edge of an oceanic current gyre. Along the continental margin and beneath the California Current flows the northward-moving California Undercurrent. Influenced by the California Current system and coastal winds, waters off the U.S. West Coast are subject to major nutrient upwelling, particularly off Cape Mendocino (Bakun, 1996). Shoreline topographic features such as Cape Blanco, Point Conception and bathymetric features such as banks, canyons, and other submerged features, often create large-scale current patterns like eddies, jets, and squirts. Currents off Cape Blanco, for example, are known for a current "jet" that drives surface water offshore to be replaced by upwelling sub-surface water (Barth, et al, 2000). One of the better-known current eddies off the West Coast occurs in the Southern California Bight, between Point Conception and Baja California (Longhurst, 1998), wherein the current circles back on itself by moving in a northward and counterclockwise direction just within the Bight. The influence of these lesser current patterns and of the California Current on the physical and biological environment varies seasonally (Lynn, 1987) and through larger-scale climate variation, such as El Niño-La Niña or Pacific Decadal Oscillation (Longhurst, 1998).



Topography. Physical topography off the U.S. West Coast is characterized by a relatively narrow continental shelf. The 200 m depth contour shows a shelf break closest to the shoreline off Cape Mendocino, Point Sur, and in the Southern California Bight and widest from central Oregon north to the Canadian border as well as off Monterey Bay. Deep submarine canyons pocket the EEZ, with depths greater than 4,000 m are common south of Cape Mendocino. See Figure 3.1.2.

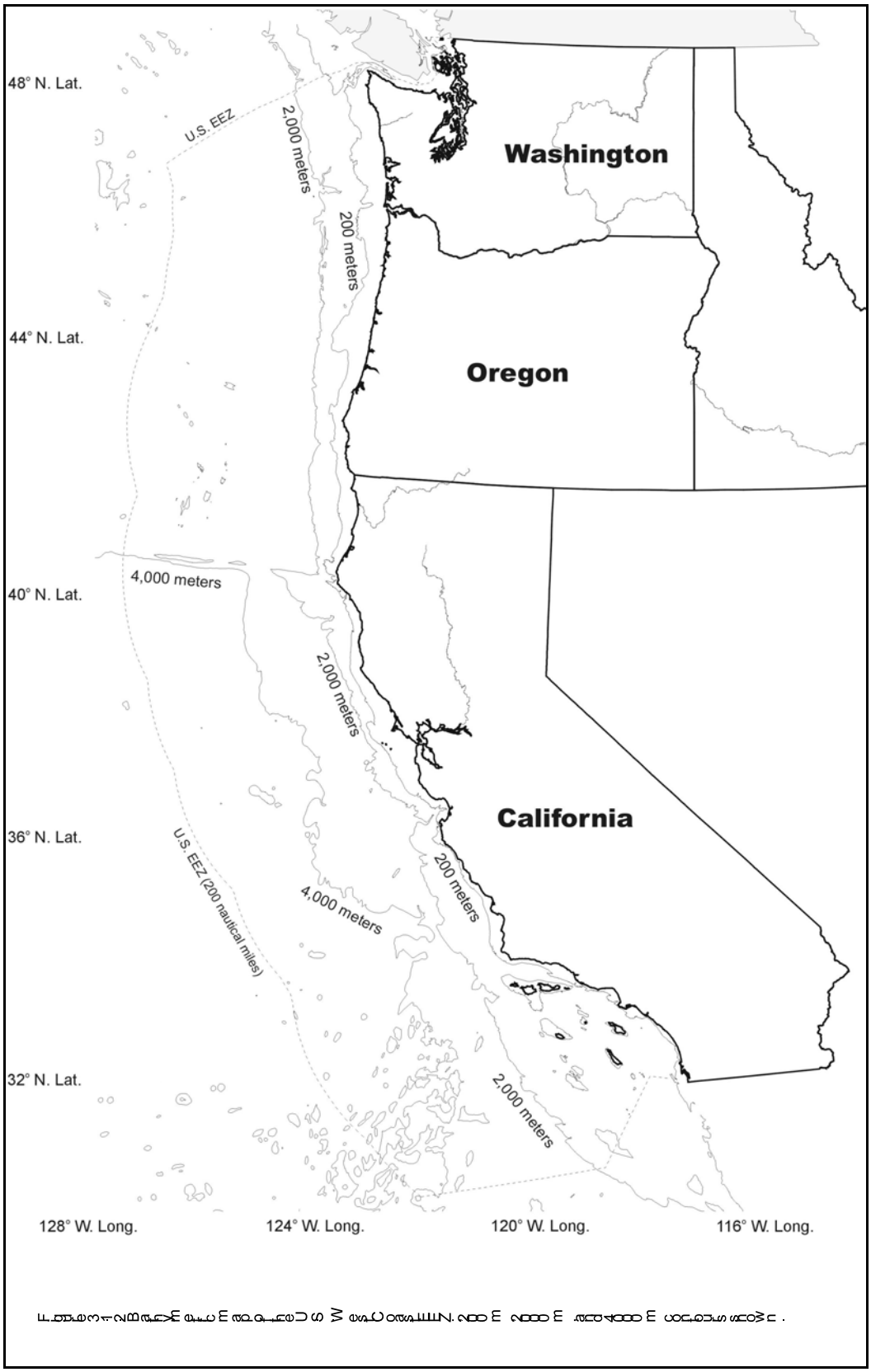


Figure 3.1.2: Pacific U.S. West Coast EEZ, 200 m, 2000 m, and 4000 m contours shown.

Climate Shifts. The physical dynamics and biological productivity of the California Current ecosystem have shown a variety of responses to both short- and long-scale changes in climate. For some groundfish species, these climate shifts may affect recruitment and abundance. El Niños and La Niñas are examples of short-scale climate change, six-month to two-year disruptions in oceanic and atmospheric conditions in the Pacific region. An El Niño is a climate event with trends like a slowing in Pacific Ocean equatorial circulation, resulting in warmer sea surface conditions and decreased coastal upwelling. Conversely, La Niñas are short-scale climate events characterized by cooler ocean temperatures (NOAA, 2002.) Long-scale Pacific Ocean climate shifts of two to three decades in duration are often called "Pacific (inter)Decadal Oscillation" or "PDO" in scientific literature. These long-scale climate shift events tend to show relatively cooler ocean temperatures in the Gulf of Alaska and Bering Sea ecosystems and relatively warmer temperatures in the California Current ecosystem, or a reverse trend of relatively warm temperatures in the north and cooler temperatures in the south (Mantua et al., 1997.)

Periods of warmer or cooler ocean conditions and the event of shifting from warm to cool or vice versa can all have a wide array of effects marine species abundance. Ocean circulation varies during these different climate events, affecting the degree to which nutrients from the ocean floor mix with surface waters. Periods of higher nutrient mixing tend to have higher phytoplankton (primary) productivity, which can have positive ripple effects throughout the food web. In addition to changes in primary production, climate shifts may affect zooplankton (secondary) production in terms of increasing or decreasing abundance of the zooplankton biomass as a whole or of particular zooplankton species. Again, these changes in secondary production ripple in effect through the food web (Francis et al., 1998.) Upper trophic level species depend on different lower order species for their diets, so a shift in abundance of one type of prey species will often result in a similar shift in an associated predator species. This shifting interdependency affects higher order species like groundfish in different ways at different life stages. In other words, some climate conditions may be beneficial to the survival of larvae of a particular species but may have no effect on an adult of that same species.

Population data on some species seems to show a link between climate and recruitment. Pacific whiting, for example, tends to have stronger year classes following an El Niño event than in other years (Hollowed et al., 2001.) There is also some evidence that sablefish recruitment may be affected by PDOs in that stronger year classes of sablefish tend to occur off British Columbia during decade-scale periods when ocean temperatures are relatively warm (King et al., 2000.) Although there are fewer analyses about the effects of climate on rockfish abundance coastwide, localized larval rockfish populations have shown lower survival rates in years when coastal upwelling and plankton production has been reduced by El Niño events (Yoklavich et al., 1996.)

Most of the scientific analysis on long-scale climate shift events has taken place within the past ten years. Recent public awareness of climate events like PDO, coupled with the relatively dramatic El Niño of 1997-1998 may create the perception that climate is the most significant contributor to marine species abundance. In an analysis of marine fish productivity in the Northeast Pacific Ocean, Hollowed, Hare, and Wooster found that links between marine fish recruitment and climate shifts were more clear for conservatively managed species (Hollowed, et al., 2001). For many of the depleted West Coast groundfish species, adult population levels may have a greater effect on the spawning productivity of the overall stock than climate shift events of either the short- or long-scale.

Essential Fish Habitat. The 80+ groundfish species managed by the FMP occur throughout the EEZ and occupy diverse habitats at all stages in their life histories. Some species are widely dispersed during certain life stages, particularly those with pelagic eggs and larvae; the essential fish habitat (EFH) for these species/stages is correspondingly large. On the other hand, the EFH of some species/stages may be comparatively small, such as that of adults of many nearshore rockfishes which show strong affinities to a particular location or type of substrate.

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. Descriptions of groundfish fishery EFH for each of the 80+ groundfish species and their life stages result in over 400 EFH identifications. When these EFHs 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, along the coasts of Washington, Oregon, and California seaward to the boundary of the U.S. EEZ.

The FMP groups the various EFH descriptions into seven major habitat types called "composite" EFHs. This approach focuses on ecological relationships among species and between the species and their habitat, reflecting an ecosystem approach in defining EFH. The seven "composite" EFH identifications are as follows:

1. Estuarine - Those waters, substrates and associated biological communities within bays and estuaries of the EEZ, from mean higher high water level (MHHW, which is the high tide line) or extent of upriver saltwater intrusion to the respective outer boundaries for each bay or estuary as defined in 33 CFR 80.1 (Coast Guard lines of demarcation).

2. Rocky Shelf - Those waters, substrates, and associated biological communities living on or within ten meters (5.5 fathoms) overlying rocky areas, including reefs, pinnacles, boulders and cobble, along the continental shelf, excluding canyons, from the high tide line MHHW to the shelf break (~200 meters or 109 fathoms).

3. Nonrocky Shelf - Those waters, substrates, and associated biological communities living on or within ten meters (5.5 fathoms) overlying the substrates of the continental shelf, excluding the rocky shelf and canyon composites, from the high tide line MHHW to the shelf break (~200 meters or 109 fathoms).

4. Canyon - Those waters, substrates, and associated biological communities living within submarine canyons, including the walls, beds, seafloor, and any outcrops or landslide morphology, such as slump scarps and debris fields.

5. Continental Slope/Basin - Those waters, substrates, and biological communities living on or within 20 meters (11 fathoms) overlying the substrates of the continental slope and basin below the shelf break (~200 meters or 109 fathoms) and extending to the westward boundary of the EEZ.

6. Neritic Zone - Those waters and biological communities living in the water column more than ten meters (5.5 fathoms) above the continental shelf.

7. Oceanic Zone - Those waters and biological communities living in the water column more than 20 meters (11 fathoms) above the continental slope and abyssal plain, extending to the westward boundary of the EEZ.

Life history and habitat needs for the 82 species managed under the FMP are described in the EFH appendix to Amendment 11, which is available online at http://www.nwr.noaa.gov/1sustfsh/efhappendix/page1.html.

3.2 BIOLOGICAL ENVIRONMENT

3.2.1 Groundfish Stock Assessments; Resource Surveys and Biology of the stocks

Data from resource surveys are combined with information derived from life-history studies and commercial landing statistics to calibrate models of groundfish population dynamics. These models are used to generate estimates of current abundance and fishing mortality levels, identify trends in abundance, and predict sustainable annual harvest levels for groundfish populations (Figure 3.2.2). The

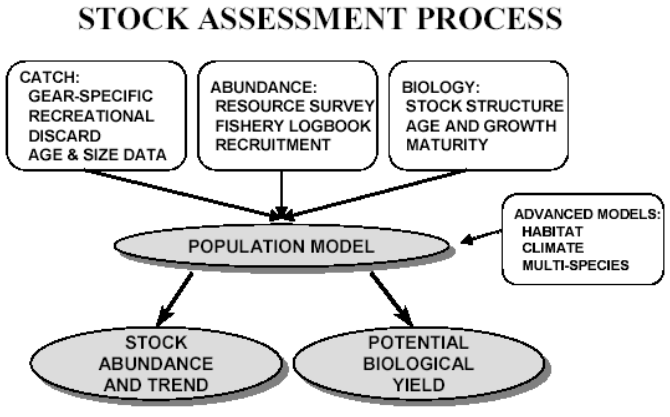
Council considers output from the models when it establishes ABCs and setting annual harvest levels.

Stock Assessments Stock assessments for Pacific Coast groundfish are generally conducted by staff scientists of the California Department of Fish and Game (CDFG), Oregon Department of fish and Wildlife (ODFW), Washington Department of Fish and Wildlife (WDFW), Oregon State University (OSU), University of Washington (UW) and the Southwest, Northwest, and Alaska Fisheries Science Centers of NMFS. The purpose of groundfish stock assessments is to describe the condition or status of a particular stock. The result of a stock assessment is typically a report on the health of the stock, a forecast of biologically sustainable harvest levels, and/or other recommendations that would maintain or restore the stock. If a stock is determined to be in an overfished condition (less than 25% of its unfished biomass), a rebuilding analysis and a rebuilding plan are developed.

Over the past 20+ years, groundfish assessments have primarily been concentrated on important commercial and recreational species. These species account for most of the historical catch and have been the targets of fishery monitoring and resource survey programs that provide basic information for quantitative stock assessments. However, not all groundfish assessments have the same level of information and precision.

Quantitative and non-quantitative assessments are used for groundfish stocks. The stocks with quantitative assessments are those for which there are sufficient data. These stock assessments are conducted by using the life history data to build a biologically realistic model of the fish stock, and calibrating this model so that it reproduces the observed fishery and survey data as closely as possible. During the 1990s, most West Coast groundfish assessments were conducted using the stock synthesis model. Recently there has been development of similar, but more powerful, models using state-of-the-art software tools. Assessment models and results are independently reviewed by the Council's Stock Assessment Review (STAR) panels. It is the responsibility of the STAR panels to review draft stock assessment documents and relevant information to determine if they use the available scientific data effectively to provide a good quality assessment of the condition of the stock. In addition, the STAR panels review the assessment documents to see that they are sufficiently complete and that the research needed to improve assessments in the future is identified. (Table 3.2.1) The STAR process is a key element in an overall process designed to make timely use of new fishery and survey data, to analyze and understand these data as completely as possible, to provide opportunity for public comment, and to assure that the assessment results are as accurate and error-free as possible.

Following review of assessment models by the STAR panels and subsequently the Groundfish Management Team (GMT) and Scientific and Statistical Committee (SSC), the GMT uses the reviewed assessments to recommend preliminary ABCs and OYs to the Council. The SSC comments on the STAR review results and the GMT recommendations. Biomass estimates from an assessment may be for a single year or they may be the average of the present and several future years. In general, an ABC will be calculated by applying the appropriate harvest policy (MSY proxy) to the best estimate of current biomass. ABCs based on quantitative assessments remain in effect until revised by either a full or partial assessment.



Full assessments provide information on the abundance of

the stock relative to historical and target levels, and provide information on current potential yield. Partial assessments do not have enough data to provide for a full assessment. Within the range of full assessments, there is a wide range of data availability and resulting assessment certainty. Approximately ## three to six full assessments ## are conducted each year; ##26## species have been assessed (with varying degrees of completeness and precision). Several species are assessed approximately every three to four years, however some have been assessed only once, and only Pacific whiting is examined annually (both partial and full assessments are used for whiting) .

Stocks with ABCs set by non-quantitative assessments typically do not have a recent, quantitative assessment, but there may be a previous assessment or some indicators of the status of the stock. Detailed biological information is not routinely available for these stocks, and ABC levels have typically been established on the basis of average historical landings. Typically, the spawning biomass, level of recruitment, or the current fishing mortality rates are unknown.

Many species have never been assessed and lack the data necessary to conduct even a qualitative assessment (i.e., is trend up, down or stable?). ABC values have been established for only about ##26 stocks##. The remaining species are incidentally landed and usually are not listed separately on fish landing receipts. Information from fishery independent surveys are often lacking for these stocks, because of their low abundance or they are not vulnerable to survey sampling gear. Precautionary measures continue to be taken when setting harvest levels (the OYs) for species that have no or only rudimentary assessments. Since implementation of the 2000 specifications, ABCs have been reduced by 25 percent to set OYs for species with less rigorous stock assessments, and by 50 percent to set OYs for those species with no stock assessment. At-sea observer data is expected to be available for use in the near future to upgrade the assessment capability or evaluate their overfishing potential for these stocks. Interim ABC values may be established for these stocks based on qualitative information.

The accuracy and reliability of various data used in assessments as well as on the scientific assumptions that the assessments are based on, need to be further analyzed to improve the quality of forecasts. Further analysis of issues such as uncertainty associated with fishery logbook data, calibration of surveys, and accuracy of aging techniques are also needed. In addition, information on ecosystem change and its influence on groundfish abundance is needed. Specific stock assessment areas that have been identified as needing improvement include: develop models to better quantify uncertainty and aid communication/ implementation of precautionary approach; develop models to specifically aid in the assessment of species with limited data; improve standardization of assessment methods and conduct a formal review of these methods so that the subsequent review of each species' assessment can be shortened, which could allow more assessments to be reviewed each year; develop models to better represent spatially-structured populations, e.g., populations with low rates of internal mixing or populations with ontogenetic patterns spanning a range of habitats. ##ecosystem modeling##

Table 3.2.1 Research Needs Identified by Pacific Coast Groundfish Assessment Scientists		
Species	**Assemblage**	**Data needs identified by assessment scientists**
Roundfish		
Lingcod	Shelf	* Improve age structure sample size in all areas *More frequent fishery independent surveys
Pacific Cod	Shelf	
Pacific whiting	Mid-water	* Would benefit from increased survey observations
Sablefish	Deep slope	* Would benefit from increased survey observations * Need understanding of survey gear selectivity and catchability * May benefit from ichthyoplankton surveys * Would benefit from additional tagging surveys * Discard data needed * More biological samples from commercial catches
Flatfish		
Dover sole	Deep slope	* Additional research on age and growth to reduce variability * Need to examine depth strata data * Discard data needed
English sole	Nearshore	* Need more age, maturity and length data * Need recent fecundity data * Additional research on aging needed *More biological samples from commercial catches * Shelf survey designed for rockfish, not flatfish
Petrale sole	Nearshore	* Genetic identity of stock * More biological samples from commercial catches * Need otoliths from juvenile fish take in survey catches * Discard data needed * Need understanding of survey gear selectivity and catchability
Arrowtooth flounder	Shelf, Slope	* Discard data needed * Need reliable measure of abundance * Shelf survey designed for rockfish, not flatfish * Need to validate aging methods
Other flatfish	Nearshore, Shelf, Slope	
Rockfish		
POP	Slope	* Further age analysis * Need further analysis of unfished biomass
Shortbelly	Shelf	* Further work on year class strength and life history needed
Widow	Shelf	* Need reliable measure of abundance * Discard data needed * Genetic identity of stock needed * Need more age, maturity, and length data
Canary	Shelf	* Determine why there is an absence of older females in survey data * Better understanding of survey gear selectivity and catchability * Evaluate spawner-recruit relationships * At-sea observer data needed * Identify habitat and distribution * Expand assessment area to include Canada * Need pre-recruit surveys
Chilipepper	Shelf	* Would benefit from increased survey observations

Table 3.2.1 Research Needs Identified by Pacific Coast Groundfish Assessment Scientists		
Species	**Assemblage**	**Data needs identified by assessment scientists**
Bocaccio	Shelf	* Review natural mortality assumptions * Examine geographic relationships
Splitnose	Slope	* Need more age, maturity and length data * Need at-sea discard data * Commercial fishery landings by species needed
Yellowtail	Shelf	* Age and maturity data need to be updated * Better understanding of survey gear selectivity and catchability * Genetic identity of stocks needed
Shortspine thornyhead	Deep slope	* XXXXXXXX
Longspine thornyhead	Deep slope	* XXXXXXXX
Darkblotched	Slope	* Better commercial fishery landings by species * Discard data needed * Need more age, maturity and length data *Genetic identity of stocks needed * Better understanding of survey gear selectivity and catchability
Yelloweye	Shelf	* Need more age, maturity and length data * Identify habitat and distribution * Develop fishery independent indices * Need reliable method to measure abundance
Cowcod	Shelf	* Need to validate aging methods *Identify habitat and distribution
Remaining Rockfish	All	* XXXXXXXX
Bank	Slope (mid-water)	* Commercial fishery landings by species needed * More commercial fishery age and length data * Need discard data * Better documentation of recreational catch * Need reliable index of recruitment
Black	Nearshore	* XXXXXXXX
Blackgill	Slope	* XXXXXXXX
Other fish	All	

Resource Surveys Normally a resource survey is implemented as a long-term, ongoing index to track natural and anthropogenic changes in fish abundance. In some cases, a single survey or a short time series can be directly calibrated to absolute abundance. An annual survey will most closely track natural biological fluctuations and smooth out apparent fluctuations caused by environmental effects on catchability.

For the purpose of conducting resource surveys, the groundfish species can be roughly broken into six assemblages based upon their adult habitat and co-occurrence in the fishery. *Midwater species* are semipelagic schooling species such as Pacific whiting and shortbelly rockfish. These species can be surveyed with acoustic methods. *Deep slope species* primarily includes sablefish, Dover sole, shortspine thornyhead, longspine thornyhead, and Pacific grenadier. They are found mostly on trawlable habitat on the shelf break and continental slope extending out to at least 1500 m bottom depth. Most of these species recruit on the shelf and gradually move into deeper water as they age. *Shelf species* include 30

rockfish species, lingcod, and Pacific cod. These species occur on the continental shelf. Many species are found over rocky habitat, and some species have significant off-bottom tendencies. *Slope rockfish species* includes nine rockfish species found on the upper continental slope. *Nearshore rockfish species* include13 rockfish species and a few non-rockfish species. These are mostly found in high relief habitat. *Nearshore flatfish species* include 11 flatfish species that are found on trawlable, sand-mud habitat on the continental shelf.

Long term groundfish survey efforts include: 1) *Acoustic and midwater trawl survey* - a coastwide survey that is conducted triennially (1977-2001) for Pacific whiting. Recent surveys have been coordinated with the Canadian acoustic survey to assure adequate coverage in northern areas. 2) *Shelf survey* - a bottom trawl survey conducted triennially (1977-1998#) in midsummer, sufficient coastwide coverage for most target species but did not cover south of Point Conception until ##2000##; survey covers the 30-275 fathoms range of bottom depths using two large (125 foot) chartered vessels. 3) *Slope survey* - a bottom trawl survey conducted annually in mid-autumn, covers 100-700 fathom range of bottom depth. Survey was started in 1998 and 1999. 4) *Nearshore survey* - these are SCUBA and hook-and-line surveys for various nearshore rockfish off California and are conducted by CDFG. 5) *Mark-recapture survey* for black rockfish and lingcod by WDFW. 6) *Shelf rockfish recruitment survey* - midwater trawl survey off Central California by Southwest Fisheries Science Center (SWFSC) for age 0 rockfish. 7) *Multi-speices - multi-disciplinary oceanographic and egg and larvae survey* off southern California (California Cooperative Oceanographic Fisheries Investigation (CalCOFI)) which is currently conducted quarterly. NWFSC has indicated that further development of resource surveys is needed to provide an index of spawning biomass. Increasing the number of surveys and geographic scope would provide information about distribution, abundance, and age structure of many groundfish populations. ##double-check on these with Science Centers##

The West Coast Groundfish Research Plan identifies the following areas where further resources could be used to improve the accuracy and precision of stock assessments: development of survey methods for each of the groundfish assemblages and for each region of the coast; determine potential improvement in survey accuracy by stratifying survey effort on finer habitat features; evaluate alternative survey methodologies including egg and larval, mark recapture, hook-and-line, and visual; improve tracking of natural fluctuations in Pacific whiting abundance and US-Canada distribution by increasing frequency of whiting acoustic survey (currently triennial); improve time series data, and egg and larval surveys may have useful information for some groundfish; direct calibration of surveys; direct observation of fish density using visual and laser methods; investigate catchability characteristics of sampling methods, in particular fish behavior in response to sampling gear, and environmental effects on fish-gear interactions.

Life history and stock distribution Biological data is necessary for accurate stock assessments and other fishery evaluations. This includes basic biological information such as stock structure, age compositions, growth, and reproduction. Currently, stock distribution and movement information for egg, larval, juvenile, and adult life stages is determined from plankton surveys, fishery resource assessment surveys, fishery logbooks, and tagging studies. Genetic characteristics and species' population structure has been investigated for a few major groundfish species using mapping, genetics, morphology, parasites, micro-constituents and other methods. "Production aging" of fishery and survey specimens for major species is done to determine patterns in recruitment and to enable age-based assessment methods. Validation of aging methods include radiometric, tag-recapture, and other techniques.

To further improve the base biological data used in assessments, scientists at the NWFSC have identified the following areas where resources are needed for improvement: age-specific growth and reproduction (maturity and fecundity) for more species; new methods to estimate natural mortality rates; genetic examination of stock structure for more species with high probabilities of having separate distinct populations; degree of mixing between and within populations; temporal and spatial trends in growth and maturation; life-history data on fish health and fitness (e.g., disease, parasite loads, bioenergetic indicators such as lipid and protein content).

Fishery mortality Total fishery catch is needed so that stock assessment models can correctly separate fishing from natural causes or changes in fish abundance, and so that the effectiveness of current regulations may be determined. Data needed on an ongoing basis includes: timely estimates of total commercial and recreational catch for each gear, location and time stratum; information on bycatch, discards, and mortality of discarded bycatch; biological characteristics (age and size composition) of the catch; standardized measurement of fishing effort and catch-per-effort to complement; fishery-independent resource survey data; geographic distribution of catch and effort.

Currently landed commercial catch is monitored shoreside by the states and PSMFC with coastwide data access through the PacFIN data system. The basic program is based upon comprehensive mandatory commercial landings receipts to determine landed catch, and biological samples by port biologists to determine species composition of each market category, and to collect size and age data. The growing nearshore commercial groundfish fisheries, including the live rockfish fishery, are monitored by state programs. Recreational fishery catch is estimated from interviews and other statistical sampling methods. There are state programs and the federal Marine Recreational Fisheries Statistics (MRFSS) program to estimate recreational catch. The catch made by or delivered to the at-sea whiting processors is monitored by observers on commercial vessels to monitor discarded catch, sample for catch composition, and collect biological data.

Trawl logbooks have been used to collect tow-by-tow data on trawl fishing effort and retained catch. Data from the three state programs are now mirrored in PacFIN. Statistical analyses to standardize fishing effort over time and between vessels have been conducted by NMFS and academic researchers. Commercial Passenger Fishing Vessels (head boats) have a logbook program in California that has been used in some stock assessments. Logbooks exist for some nontrawl commercial gears in some states, but there is no computerized database or concentrated effort at standardization or compliance.

3.3.2 Stock Status for Pacific Coast 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 ABCs 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 resource. The ABC may be modified to incorporate biological safety factors and risk assessment due to uncertainty.

The ABC for a species or species group is generally derived by multiplying the harvest rate proxy (F_{MSY} proxy) by the exploitable biomass. When setting the 2002 ABCs, the Council maintained a policy of using a default harvest rate as a proxy for the fishing mortality rate (F_{MSY} proxy) that is expected to achieve the maximum sustainable yield. Harvest rate policies must account for several complicating factors, including the age and size at which individuals in a stock reach maturity, the relative fecundity of mature individuals over time, and the optimal stock size for the highest level of productivity within that stock. Default harvest rate proxies were recommended by the Council's Scientific and Statistical Committee (SSC) in 2001 (66 FR 2338, January 11, 2001) continued to be used in 2002. These recommended harvest rate proxies are: $F_{40\%}$ for flatfish and whting, $F_{50\%}$ for rockfish (including thornyheads,) and $F_{45\%}$ for other groundfish such as sablefish and lingcod.

Harvest levels or OYs are established each year for the species or species groups that the Council proposes to manage. Groundfish species and species groups with OYs include bocaccio, canary rockfish, chilipepper rockfish, cowcod, darkblotched rockfish, Dover sole, lingcod, longspine thornyhead, the minor rockfish complexes (northern and southern for nearshore, continental shelf, and continental slope species,) Pacific cod, Pacific ocean perch, Pacific whiting, sablefish, shortbelly rockfish, shortspine thornyhead, splitnose rockfish, widow rockfish, yelloweye rockfish, and yellowtail rockfish. Numerical OYs are not set for every stock, especially where harvest has been less than ABC.

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 is 25% of the estimated unfished biomass level or 50% of B_{MSY}, if known. Nine groundfish species are below the overfished threshold in 2002: bocaccio, canary rockfish, cowcod (south of Point Conception,) darkblotched rockfish, lingcod, Pacific whiting, Pacific ocean perch, widow rockfish, and yelloweye rockfish.

Table 3.2.1 , Summary of Stock Status for Pacific Coast Groundfish Species, summarizes the biological condition of the Pacific Coast groundfish stocks. More detailed information on the status of each of these species or species groups is available in the stock assessments associated with the annual SAFE report, as well as in the Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis for Proposed Groundfish ABC and OY specifications and management measures for the 2002 Pacific Coast Groundfish Fishery. These documents are available from the Council office.

Table 3.2.2 Summary of Stock Status for Pacific Coast Groundfish Species

Species	Year of Most Recent Stock Assessment	Biomass Estimate (Percent of Unfished)	Did overfishing Occur in 2001? Was the fishing mortality above the MSST[1]?	Is the stock overfished in 2001? Was the Biomass below the MSST threshold?
Roundfish				
Lingcod	2001 revision	15%	No	Yes
Pacific Cod			Unknown	Unknown
Pacific whiting	2002	24%	Yes	Yes
Sablefish	2001	27%-38%	No	No
Flatfish				
Dover sole	2001	29%	No	No
English sole	1993		Unknown	Unknown
Petrale sole	1999	42%	Unknown	Unknown
Arrowtooth flounder	1993		No	No
Other flatfish			Unknown	Unknown
Rockfish				
POP	2000	xxx ? xxx	No	Yes
Shortbelly	1989	>43%	No	No
Widow	2000	24%	No	Yes
Canary	1999	22% North 8% South	No	Yes
Chilipepper	1998	46%-61%	No	No
Bocaccio	1999	2% South	No	Yes
Splitnose	1994		Unknown	Unknown
Yellowtail	2000	63%	No	No

Table 3.2.2 Summary of Stock Status for Pacific Coast Groundfish Species				
Species	Year of Most Recent Stock Assessment	Biomass Estimate (Percent of Unfished)	Did overfishing Occur in 2001? Was the fishing mortality above the MSST[1]?	Is the stock overfished in 2001? Was the Biomass below the MSST threshold?
Shortspine thornyhead	2001	25%-50%	No	No
Longspine thornyhead	1998	>40%	No	No
Darkblotched	2000	12%	No	Yes
Yelloweye	2001	7%	No	Yes
Cowcod	1999	4%-11%	No	Yes
Bank	xxx ? xxx		No	No
Black	1999 & 2001[2]	35%[2]	No	No
Blackgill	1998	51%	Unknown	Unknown
Redstripe			Unknown	Unknown
Sharpchin			Unknown	Unknown
Silvergrey			No	Unknown
Yellowmouth			Unknown	Unknown
Other rockfish			Unknown	Unknown
Other fish			Unknown	Unknown

1) MSST – The minimum stock size threshold (overfished/rebuilding threshold) is the default value of 25% of the estimated unfished biomass level or 50% of B_{MSY}, if known.
2) 2001 update completed for Oregon only.

3.2.3 Groundfish Resources

The Pacific Coast groundfish FMP manages over 80 species which are divided by type as follows: 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

Roundfish

Lingcod (*Ophiodon elongatus*), a top order predator of the family Hexagrammidae, ranges from Baja California to Kodiak Island in the Gulf of Alaska. Lingcod is demersal at all life stages (Allen & Smith 1988, NOAA 1990, Shaw & Hassler 1989). Adult lingcod prefer two main habitat types: slopes of submerged banks 10-70 m below the surface with seaweed, kelp and eelgrass beds and channels with swift currents that flow around rocky reefs (Emmett et al. 1991, Giorgi & Congleton 1984, NOAA 1990, Shaw & Hassler 1989). Juveniles prefer sandy substrates in estuaries and shallow subtidal zones (Emmett et al. 1991, Forrester 1969, Hart 1973, NOAA 1990, Shaw & Hassler 1989). As the juveniles grow they move to deeper waters. Adult lingcod are considered a relatively sedentary species, but there are reports of migrations of greater than 100 km by sexually immature fish (Jagielo 1990, Mathews & LaRiviere 1987, Mathews 1992, Smith et al. 1990).

Mature females live in deeper water than males and move from deep water to shallow water in the winter to spawn (Forrester 1969, Hart 1973, Jagielo 1990, LaRiviere et al. 1980, Mathews & LaRiviere 1987, Mathews 1992, Smith et al. 1990). Mature males may live their whole lives associated with a single rock reef, possibly out of fidelity to a prime spawning or feeding area (Allen & Smith 1988, 298, Shaw & Hassler 1989). Spawning generally occurs over rocky reefs in areas of swift current (Adams 1986, Adams & Hardwick 1992, Giorgi 1981, Giorgi & Congleton 1984, LaRiviere et al. 1980). After the females leave the spawning grounds, the males remain in nearshore areas to guard the nests until the eggs hatch. Hatching occurs in April off Washington but as early as January and as late as June at the geographic extremes of the lingcod range. Males begin maturing at about 2 years (50 cm), whereas females mature at 3+ years (76 cm). In the northern extent of their range, fish mature at an older age and larger size (Emmett et al. 1991, Hart 1973, Mathews & LaRiviere 1987, Miller & Geibel 1973, Shaw & Hassler 1989). The maximum age for lingcod is about 20 years (Adams & Hardwick 1992).

Lingcod are a visual predator, feeding primarily by day. Larvae are zooplanktivores (NOAA 1990). Small demersal juveniles prey upon copepods, shrimps and other small crustaceans. Larger juveniles shift to clupeids and other small fishes (Emmett et al. 1991, NOAA 1990). Adults feed primarily on demersal fishes (including smaller lingcod), squids, octopi and crabs (Hart 1973, Miller & Geibel 1973, Shaw & Hassler 1989). Lingcod eggs are eaten by gastropods, crabs, echinoderms, spiny dogfish, and cabezon. Juveniles and adults are eaten by marine mammals, sharks, and larger lingcod (Miller & Geibel 1973, NOAA 1990)

Pacific Cod (*Gadus macrocephalus*) are widely distributed in the coastal north Pacific, from the Bering Sea to southern California in the east, and to the Sea of Japan in the west. Adult Pacific cod occur as deep as 875 m (Allen & Smith 1988), but the vast majority occurs between 50 and 300 m (Allen & Smith 1988, Hart 1973, Love 1991, NOAA 1990). Along the West Coast, Pacific cod prefer shallow, soft-bottom habitats in marine and estuarine environments (Garrison & Miller 1982), although adults have been found associated with coarse sand and gravel substrates (Palsson 1990, Garrison & Miller 1982). Larvae and small juveniles are pelagic; large juveniles and adults are parademersal (Dunn & Matarese 1987, NOAA 1990). Adult Pacific cod are not considered to be a migratory species. There is however a seasonal bathymetric movement from deep spawning areas of the outer shelf and upper slope in fall and winter to shallow middle-upper shelf feeding grounds in the spring (Dunn & Matarese 1987, Hart 1973, NOAA 1990, Shimada & Kimura 1994).

Pacific cod have external fertilization (Hart 1973, NOAA 1990) and spawning from late fall to early spring. Their eggs are demersal. Larvae may be transported to nursery areas by tidal currents (Garrison & Miller 1982). Half of females are mature by 3 years (55 cm), and half of males are mature by 2 years (45 cm) (Dunn & Matarese 1987, Hart 1973). Juveniles and adults are carnivorous, and feed at night (Allen & Smith 1988, Palsson 1990) with the main part of the adult Pacific cod diet being whatever prey species is most abundant (Kihara & Shimada 1988,Klovach et al. 1995). Larval feeding is poorly understood. Pelagic fish and sea birds eat Pacific cod larvae, while juveniles are eaten by larger demersal fishes, including Pacific cod. Adults are preyed upon by toothed whales, Pacific halibut, salmon shark, and larger Pacific cod (Hart 1973, Love 1991, NOAA 1990, Palsson 1990). The closest competitor of the Pacific cod for resources is the sablefish (Allen 1982).

Pacific Whiting (*Merluccius productus*), also known as Pacific hake, is a semi-pelagic merlucciid (a cod-like fish species) that range from Sanak Island in the western Gulf of Alaska to Magdalena Bay, Baja California Sur. They are most abundant in the California Current System (Bailey 1982, Hart 1973, Love 1991, NOAA 1990). Smaller populations of Pacific whiting occur in several of the larger semi-enclosed inlets of the northeast Pacific Ocean, including the Strait of Georgia, Puget Sound, and the Gulf of California (Bailey et al. 1982, Stauffer 1985). The highest densities of Pacific hake are usually between 50 and 500 m, but adults occur as deep as 920 m and as far offshore as 400 km (Bailey 1982, Bailey et al. 1982, Dark & Wilkins 1994, Dorn 1995, Hart 1973, NOAA 1990, Stauffer 1985). Hake school at depth during the day, then move to the surface and disband at night for feeding (McFarlane & Beamish 1986, Sumida & Moser 1984, Tanasich et al. 1991). Coastal stocks spawn off Baja California in the winter, then

the mature adults begin moving northward and inshore, following food supply and Davidson currents (NOAA 1990). Hake reach as far north as southern British Columbia by fall. They then begin the southern migration to spawning grounds and further offshore (Bailey et al. 1982, Dorn 1995, Smith 1995, Stauffer 1985).

Spawning occurs from December through March, peaking in late January (Smith 1995). Pacific hake are oviparous with external fertilization. Eggs of the Pacific hake are neritic and float to neutral buoyancy (Baily 1981, Bailey et al. 1982, NOAA 1990). Hatching occurs in 5-6 days and within 3-4 months juveniles are typically 35 mm (Hollowed 1992). Juveniles move to deeper water as they get older (NOAA 1990). Females off mature at 3-4 years (34-40 cm,) and nearly all males are mature by 3 years (28 cm). Females grow more rapidly than males after four years; growth ceases for both sexes at 10-13 years (Bailey et al. 1982).

All life stages feed near the surface late at night and early in the morning (Sumida & Moser 1984). Larvae eat calanoid copepods, as well as their eggs and nauplii (McFarlane & Beamish 1986, Sumida & Moser 1984). Juveniles and small adults feed chiefly on euphausiids (NOAA 1990). Large adults also eat amphipods, squid, herring, smelt, crabs, and sometimes juvenile hake (Bailey 1982, Dark & Wilkins 1994, McFarlane & Beamish 1986, NOAA 1990). Eggs and larvae of Pacific hake are eaten by pollock, herring, invertebrates, and sometimes hake. Juveniles are eaten by lingcod, Pacific cod and rockfish species. Adults are preyed on by sablefish, albacore, pollock, Pacific cod, marine mammals, soupfin sharks and spiny dogfish (Fiscus 1979, McFarlane & Beamish 1986, NOAA 1990).

Sablefish (*Anoplopoma fimbria*) are abundant in the north Pacific, from Honshu Island, Japan, north to the Bering Sea, and southeast to Cedros Island, Baja California. There are at least three genetically distinct populations off the West Coast of North America: one south of Monterey characterized by slower growth rates and smaller average size, one that ranges from Monterey to the U.S./Canada border that is characterized by moderate growth rates and size, and one ranging off British Columbia and Alaska characterized by fast growth rates and large size. Large adults are uncommon south of Point Conception (Hart 1973, Love 1991, McFarlane & Beamish 1983a, McFarlane & Beamish 1983b, NOAA 1990). Adults are found as deep as 1,900 m, but are most abundant between 200 and 1,000 m (Beamish & McFarlane 1988, Kendall & Matarese 1987, Mason et al. 1983). Off southern California, sablefish were abundant to depths of 1500 m (MBC 1987). Adults and large juveniles commonly occur over sand and mud (McFarlane & Beamish 1983a, NOAA 1990) in deep marine waters. They were also reported on hard-packed mud and clay bottoms in the vicinity of submarine canyons (MBC 1987).

Spawning occurs annually in the late fall through winter in waters greater than 300 m (Hart 1973, NOAA 1990). Sablefish are oviparous with external fertilization (NOAA 1990). Eggs hatch in about 15 days (Mason et al. 1983, NOAA 1990) and are demersal until the yolk sac is absorbed (Mason et al. 1983). After yolk sac is absorbed, the age-0 juveniles become pelagic. Older juveniles and adults are benthopelagic. Larvae and small juveniles move inshore after spawning and may rear for up to four years (Boehlert & Yoklavich 1985, Mason et al. 1983). Older juveniles and adults inhabit progressively deeper waters. The best estimates indicate that 50% of females are mature at 5-6 years (24 inches), and 50% of males are mature at 5 years (20 inches).

Sablefish larvae prey on copepods and copepod nauplii. Pelagic juveniles feed on small fishes and cephalopods, mainly squids (Hart 1973, Mason et al. 1983). Demersal juveniles eat small demersal fishes, amphipods and krill (NOAA 1990). Adult sablefish feed on fishes like rockfishes and octopus (Hart 1973, McFarlane & Beamish 1983a). Larvae and pelagic juvenile sablefish are heavily preyed upon by sea birds and pelagic fishes. Juveniles are eaten by Pacific cod, Pacific halibut, lingcod, spiny dogfish, and marine mammals, such as Orca whales (Cailliet et al. 1988, Hart 1973, Love 1991, Mason et al. 1983, NOAA 1990). Sablefish compete with many other co-occurring species for food, mainly Pacific cod and spiny dogfish (Allen 1982).

Flatfish

Dover Sole (*Microstomus pacificus*) are distributed from the Navarin Canyon in the northwest Bering Sea and westernmost Aleutian Islands to San Cristobal Bay, Baja California (Hagerman 1952, Hart 1973, NOAA 1990). Dover sole are a dominant flatfish on the continental shelf and slope from Washington to southern California. Adults are demersal and are found from 9-1,450 m, with highest abundance below 200-300 m (Allen & Smith 1988). Adults and juveniles, show a high affinity toward soft bottoms of fine sand and mud. Juveniles are often found in deep nearshore waters. Dover sole are considered to be a migratory species. In the summer and fall, mature adults and juveniles can be found in shallow feeding grounds, as shallow as 55 m off British Columbia (Westrheim & Morgan 1963). By late fall, the Dover sole begin moving offshore into deep waters (400 m or more) to spawn. Although there is an inshore-offshore seasonal migration, little north-south coastal migration occurs (Westrheim & Morgan 1963)

Spawning occurs from November-April off Oregon and California (Hart 1973, NOAA 1990, Pearcy et al. 1977) in waters 80-550 m depth at or near the bottom (Hagerman 1952, Hart 1973, Pearcy et al. 1977). Dover sole are oviparous; fertilization is external. Larvae are planktonic, being transported offshore and to nursery areas by ocean currents and winds for up to two years. Settlement to benthic living occurs mid-autumn to early spring off Oregon, and February-July off California (Markle et al 1992). Juvenile fish move into deeper water with age, and begin seasonal spawning-feeding migrations upon reaching maturity.

Dover sole larvae eat copepods, eggs and nauplii, as well as other plankton. Juveniles and adults eat polychaetes, bivalves, brittlestars and small benthic crustaceans. Dover sole feed diurnally by sight and smell (Dark & Wilkins 1994, Gabriel & Pearcy 1981, Hart 1973, NOAA 1990). Dover sole larvae are eaten by pelagic fishes like albacore, jack mackerel and tuna, as well as sea birds. Juveniles and adults are preyed upon by sharks, demersally feeding marine mammals, and to some extent by sablefish (NOAA 1990). Dover sole compete with various eelpout species, rex sole, English sole, and other fishes of the mixed species flatfish assemblage (NOAA 1990).

English Sole (*Parophrys vetulus*) are found from Nunivak Island in the southeast Bering Sea and Agattu Island in the Aleutian Islands, to San Cristobal Bay, Baja California Sur (Allen & Smith 1988). In research survey data, nearly all occurred at depths <250 m (Allen & Smith 1988). Adults and juveniles prefer soft bottoms composed of fine sands and mud (Ketchen 1956), but also occur in eelgrass habitats (Pearson & Owen 1992). English sole uses nearshore coastal and estuarine waters as nursery areas (Krygier & Pearcy 1986, Rogers et al. 1988**)**. Adults make limited migrations. Those off Washington show a northward post-spawning migration in the spring on their way to summer feeding grounds, and a southerly movement in the fall (Garrison & Miller 1982). Tagging studies have identified separate stocks based on this species' limited movements and meristic characteristics (Jow 1969).

Spawning occurs over soft-bottom mud substrates (Ketchen 1956) from winter to early spring depending on the stock. Eggs are neritic and buoyant, but sink just before hatching (Hart 1973), juveniles and adults are demersal (Garrison & Miller 1982). Small juveniles settle in the estuarine and shallow nearshore areas all along the coast, but are less common in southerly areas, particularly south of Point Conception. Large juveniles commonly occur up to depths of 150 m. Although many postlarvae may settle outside of estuaries, most will enter estuaries during some part of their first year of life (Gunderson et al. 1990). Some females mature as 3-year-olds (26 cm), but all females over 35 cm long are mature. Males mature at 2 years (21 cm).

Larvae are planktivorous. Juveniles and adults are carnivorous, eating copepods, amphipods, cumaceans, mysids, polychaetes, small bivalves, clam siphons, and other benthic invertebrates (Allen 1982, Becker 1984, Hogue & Carey 1982, Simenstad et al. 1079) . English sole feed primarily by day, using sight and smell,and sometimes dig for prey (Allen 1982, Hulberg & Oliver 1979). A juvenile English sole's main predators are probably piscivorous birds such as great blue heron (Ardia herodias), larger fishes and marine mammals. Adults may be eaten by marine mammals, sharks, and other large fishes.

Petrale Sole (*Eopsetta jordani*) are found form Cape St. Elias, Alaska to Coronado Island, Baja California. The range may possibly extend into the Bering Sea, but the species is rare north and west of southeast Alaska and in the inside waters of British Columbia (Garrison & Miller 1982, Hart 1973). Nine separate breeding stocks have been identified, although stocks intermingle on summer feeding grounds (Hart 1973, NOAA 1990). Of these nine, one occurs off British Columbia, two off Washington, two off Oregon and four off California (NOAA 1990). Adults are found from the surf line to 550 m, but their highest abundance is <300 m (NOAA 1990). Adults migrate seasonally between deepwater, winter spawning areas to shallower, spring feeding grounds (NOAA 1990). They show an affinity to sand, sandy mud and occasionally muddy substrates (NOAA 1990).

Spawning occurs over the continental shelf and continental slope to as deep as 550 m. Eggs are pelagic and juveniles and adults are demersal (Garrison & Miller 1982). Eggs and larvae are transported from offshore spawning areas to nearshore nursery areas by oceanic currents and wind. Larvae metamorphose into juveniles at six months (22 cm) and settle to the bottom of the inner continental shelf (Pearcy et al. 1977). Petrale sole tend to move into deeper water with increased age and size. Petrale sole begin maturing at three years. Half of males mature by seven years (29-43 cm) and half of the females are mature by eight years (>44 cm) (Pedersen 1975a, Pedersen 1975b). Near the Columbia River, petrale sole mature one to two years earlier (Pedersen 1975a, Pedersen 1975b).

Larvae are planktivorous. Small juveniles eat mysids, sculpins and other juvenile flatfishes. Large juveniles and adults eat shrimps and other decapod crustaceans, as well as euphausiids, pelagic fishes, ophiuroids and juvenile petrale sole (Garrison & Miller 1982, Hart 1973, 162, NOAA 1990, Pearcy et al. 1977, Pedersen 1975a, Pedersen 1975b). Petrale sole eggs and larvae are eaten by planktivorous invertebrates and pelagic fishes. Juveniles are preyed upon (sometimes heavily) by adult petrale sole, as well as other large flatfishes. Adults are preyed upon by sharks, demersally feeding marine mammals, and larger flatfishes and pelagic fishes (NOAA 1990). Petrale sole competes with other large flatfishes. It has the same summer feeding grounds as lingcod, English sole, rex sole and Dover sole (NOAA 1990).

Arrowtooth Flounder (*Atheresthes stomias*) range from the southern coast of Kamchatka to the northwest Bering Sea and Aleutian Islands to San Simeon, California. Arrowtooth flounder is the dominant flounder species on the outer continental shelf from the western Gulf of Alaska to Oregon. Eggs and larvae are pelagic; juveniles and adults are demersal (Garrison & Miller 1982, NOAA 1990). Juveniles and adults are most commonly found on sand or sandy gravel substrates, but occasionally occur over low-relief rock-sponge bottoms Arrowtooth flounder exhibit a strong migration from shallow water summer feeding grounds on the continental shelf to deep water spawning grounds over the continental slope (NOAA 1990). Depth distribution may vary from as little as 50 m in summer to more than 500 m in the winter (NOAA 1990, Rickey 1995).

Arrowtooth flounder are oviparous with external fertilization (Barry 1996). Spawning may occur deeper than 500 m off Washington (Rickey 1995). Larvae eat copepods, their eggs and copepod nauplii (Yang 1995, Yang & Livingston 1985). Juveniles and adults feed on crustaceans (mainly ocean pink shrimp and krill) and fish (mainly gadids, herring and pollock) (Hart 1973, NOAA 1990). Arrowtooth flounder exhibit two feeding peaks, at noon and midnight

"Other Flatfish" are those species that do not have individual ABC/OYs and include butter sole, curlfin sole, flathead sole, Pacific sand dab, rex sole, rock sole, sand sole, and starry flounder. Life history descriptions of these species may be found in the Essential Fish Habitat West Coast Groundfish which was prepared for amendment 11 to the FMP. This document may be requested from the Council office and is available http://www.nwr.noaa.gov/1sustfsh/efhappendix/page1.html

Rockfish

Pacific ocean perch (*Sebastes alutus*) are found from La Jolla (southern California) to the western boundary of the Aleutian Archipelago (Eschmeyer et al 1983, Gunderson 1971, Ito 1986, Miller & Lea 1972), but are common from Oregon northward (Eschmeyer et al 1983). Pacific ocean perch primarily inhabit waters of the upper continental slope (Dark & Wilkins 1994) and are found along the edge of the continental shelf (Archibald et al. 1983). Pacific ocean perch occur as deep as 825 m, but usually are at 100-450 m and along submarine canyons and depressions (NOAA 1990). Larvae and juveniles are pelagic; subadults and adults are benthopelagic. Adults form large schools 30 m wide, to 80 m deep, and as much as 1,300 m long (NOAA 1990). They also form spawning schools (Gunderson 1971). Juvenile Pacific ocean perch form ball-shaped schools near the surface or hide in rocks (NOAA 1990). Throughout its range, Pacific ocean perch is generally associated with gravel, rocky or boulder type substrate found in and along gullies, canyons, and submarine depressions of the upper continental slope (Ito 1986).

Pacific ocean perch winter and spawn in deeper water (>275 m), then move to feeding grounds in shallower water (180-220 m) in the summer (June-August) to allow gonads to ripen (Archibald et al. 1983, Gunderson 1971, NOAA 1990). Pacific ocean perch are slow-growing and long-lived. The maximum age has been estimated at about 90 years (ODFW, personal communication). Largest size is about 54 cm and 2 kg (Archibald et al. 1983, Beamish 1979, Eschmeyer et al. 1983, Ito 1986, Mulligan & Leaman 1992, NOAA 1990, Richards 1994). Pacific ocean perch are carnivorous. Larvae eat small zooplankton. Small juveniles eat copepods, and larger juveniles feed on euphausiids. Adults eat euphausiids, shrimps, squids, and small fishes. Immature fish feed throughout the year, but adults feed only seasonally, mostly April-August (NOAA 1990). Predators of Pacific ocean perch include sablefish and Pacific halibut.

Shortbelly rockfish (*Sebastes jordani*) are found from San Benito Islands, Baja California, Mexico to La Perouse Bank, British Columbia (Eschmeyer et al 1983, Lenarz 1980). The habitat of the shortbelly rockfish is wide ranging (Eschmeyer et al 1983). Shortbelly rockfish inhabit waters from 50-350 m in depth (Allen & Smith 1988) on the continental shelf (Chess et al. 1988) and upper-slope (Stull & Tang 1996). Adults commonly form very large schools over smooth bottom near the shelf break (Lenarz 1992). Shortbelly rockfish have also been observed along the Monterey Canyon ledge (Sullivan 1995). During the day shortbelly rockfish are found near the bottom in dense aggregations. At night they are more dispersed. (Chess et al 1988). During the summer shortbelly rockfish tend to move into deeper waters and to the north as they grow, but they do not make long return migrations to the south in the winter to spawn (Lenarz 1980).

Shortbelly rockfish are viviparous, bearing advanced yolk-sac larvae (Ralston et al 1996). Shortbelly rockfish spawn off California during January through April (Lenarz 1992). Larvae metamorphose to juveniles at 27 mm and appear to begin forming schools at the surface at that time (Laidig et al. 1991, Lenarz 1980). A few shortbelly rockfish mature at age 2, while 50% are mature at age 3 and nearly all are mature by age 4 (Lenarz 1992). They live to be about 10 years old (Lenarz 1980, MacGregor 1986) with the maximum recorded age being 22 years (Lenarz 1992).

Shortbelly rockfish feed primarily on various life stages of euphausiids and calanoid copepods both during the day and night (Chess et al. 1988, Lenarz et al. 1991). Shortbelly rockfish play a key role in the food chain, as they are preyed upon by chinook and coho salmon, lingcod, black rockfish, hake, bocaccio, chilipepper, pigeon guillemots, western gull, marine mammals, and others (Chess et al. 1988, Eschmeyer et al. 1983, Hobson & Howard 1989, Lenarz 1980).

Widow rockfish (*Sebastes entomelas*) range from Albatross Bank of Kodiak Island to Todos Santos Bay, Baja California (Eschmeyer et al. 1983, 176, Miller & Lea 1972, NOAA 1990). Widow rockfish occur over hard bottoms along the continental shelf (NOAA 1990) Widow rockfish prefer rocky banks, seamounts, ridges near canyons, headlands, and muddy bottoms near rocks. Large widow rockfish concentrations occur off headlands such as Cape Blanco, Cape Mendocino, Pt. Reyes, and Pt. Sur. Adults form dense, irregular, midwater and semi-demersal schools deeper than 100 m at night and disperse during the day

(Eschmeyer et al. 1983, NOAA 1990, Wilkins 1986). All life stages are pelagic, but older juveniles and adults are often associated with the bottom (NOAA 1990). All life stages are fairly common from Washington to California (NOAA 1990). Pelagic larvae and juveniles co-occur with yellowtail rockfish, chilipepper, shortbelly rockfish, and bocaccio larvae and juveniles off central California (Reilly et al 1992).

Widow rockfish are viviparous, have internal fertilization, and brood their eggs until released as larvae (NOAA 1990, Ralston et al 1996, Reilly et al 1992). Mating occurs from late fall-early winter. Larval release occurs from December-February off California, and from February-March off Oregon. Juveniles are 21-31 mm at metamorphosis, and they grow to 25-26 cm over 3 years. Age and size at sexual maturity varies by region and sex, generally increasing northward and at older ages and larger sizes for females. Some mature in 3 years (25-26 cm), 50% are mature by 4-5 years (25-35 cm), and most are mature in 8 years (39-40 cm) (28, NOAA 1990). The maximum age of widow rockfish is 28 years, but rarely over 20 years for females and 15 years for males (NOAA 1990). The largest size is 53 cm, about 2.1 kg (Eschmeyer et al. 1983, NOAA 1990).

Widow rockfish are carnivorous. Adults feed on small pelagic crustaceans, midwater fishes (such as age-1 or younger Pacific hake), salps, caridean shrimp, and small squids (Adams 1987, NOAA 1990). During spring, the most important prey item is salps, during the fall fish are more important, and during the winter widow rockfish primarily eat sergestid shrimp (Adams 1987). Feeding is most intense in the spring after spawning (NOAA 1990). Pelagic juveniles are opportunistic feeders and their prey consists of various life stages of calanoid copepods, and euphausiids (Reilly et al. 1992).

Canary Rockfish (*Sebastes pinniger*) are found between Cape Colnett, Baja California, and southeastern Alaska (Boehlert 1980, Boehlert & Kappenman 1980, Hart 1973, Love 1991,Miller & Lea 1972, Richardson & Laroche 1979). There is a major population concentration of canary rockfish off Oregon (Richardson & Laroche 1979). Canary primarily inhabit waters 91-183 m deep (Boehlert & Kappenman 1980). In general, canary rockfish inhabit shallow water when they are young and deep water as adults (Mason 1995). Adult canary rockfish are associated with pinnacles and sharp drop-offs (Love 1991). Canary rockfish are most abundant above hard bottoms (Boehlert & Kappenman 1980). In the southern part of its range, the canary rockfish appears to be a reef-associated species (Boehlert 1980). In central California, newly settled canary rockfish are first observed at the seaward, sand-rock interface and farther seaward in deeper water (18-24 m).

Canary rockfish are ovoviviparous and have internal fertilization (Boehlert & Kappenman 1980, Richardson & Laroche 1979). Off California, canary rockfish spawn from November-March and from January-March off Oregon and, Washington, (Hart 1973, Love 1991, Richardson & Laroche 1979). The age of 50% maturity of canary rockfish is 9 years; nearly all are mature by age 13 . The maximum length canary rockfish grow to is 76 cm (Boehlert & Kappenman 1980, Hart 1973, Love 1991). Canary rockfish primarily prey on planktonic creatures, such as krill, and occasionally on fish (Love 1991). Canary rockfish feeding increases during the spring-summer upwelling period when euphausiids are the dominant prey and the frequency of empty stomachs is lower (Boehlert et al. 1989).

Chilipepper rockfish (*Sebastes goodei*) are found from Magdalena Bay, Baja California, to as far north as the northwest coast of Vancouver Island, British Columbia (Allen & Smith 1988, Hart 1973, Miller & Lea 1972). Chilipepper have been taken as deep as 425 m, but nearly all in survey catches were taken between 50 and 350 m (Allen & Smith 1988). Adults and older juveniles usually occur over the shelf and slope; larvae and small juveniles are generally found near the surface. In California, chilipepper are most commonly found associated with deep, high relief rocky areas and along cliff drop-offs (Love et al. 1990), as well as on sand and mud bottoms (MBC 1987). They are occasionally found over flat, hard substrates (Love et al. 1990). Love (Love 1981) does not consider this to be a migratory species. Chilipepper may migrate as far as 45 m off the bottom during the day to feed (Love 1981).

Chilipeppers are ovoviviparous, and eggs are fertilized internally (Reilly et al. 1992). Chilipepper school by sex just prior to spawning (MBC 1987). In California, fertilization of eggs begins in October ands spawning

occurs from September to April (Oda 1992) with the peak being December to January (Love et al. 1990). Chilipepper may spawn multiple broods in a single season (Love et al. 1990). Females of the species are significantly larger, reaching lengths of up to 56 cm (Hart 1973). Males are usually smaller than 40 cm (Dark & Wilkins 1994). Males mature at 2 to 6 years of age and 50% are mature at 3 to 4 years. Females mature at 2 to 5 years with 50% mature at 3 to 4 years (MBC 1987). Females may attain an age of about 27 years whereas the maximum age for males is about 12 years (MBC 1987).

Larval and juvenile chilipepper eat all life stages of copepods and euphausiids, and are considered to be somewhat opportunistic feeders (Reilly et al. 1992). In California, adults prey on large euphausiids, squid, and small fishes such as anchovies, lanternfish and young hake (Hart 1973, Love et al. 1990). Chilipepper are found with widow rockfish, greenspotted rockfish, and swordspine rockfish (Love et al. 1990). Juvenile chilipepper compete for food with bocaccio, yellowtail rockfish, and shortbelly rockfish (Reilly et al. 1992).

Bocaccio rockfish (*Sebastes paucispinis*) are found in the Gulf of Alaska off Krozoff and Kodiak Islands, south as far as Sacramento Reef, Baja California (Hart 1973, Miller & Lea 1972). In survey catches, Allen and Smith (1988) found bocaccio to be most common at 100-150 m over the outer continental shelf. Sakuma and Ralston (1995) categorized bocaccio as both a nearshore and offshore species. Larvae and small juveniles are pelagic (Garrison & Miller 1982) and are commonly found in the upper 100 m of the water column, often far from shore (MBC 1987). Large juveniles and adults are semi-demersal and are most often found in shallow coastal waters over rocky bottoms associated with algae (Sakuma & Ralston). Adults are commonly found in eelgrass beds, or congregated around floating kelp beds (Love et al. 1990, Sakuma & Ralston). Young and adult bocaccio also occur around artificial structures, such as piers and oil platforms (MBC 1987). Although juveniles and adults are usually found around vertical relief, adult aggregations also occur over firm sand-mud bottoms (MBC 1987). Bocaccio move into shallow waters during their first year of life (Hart 1973), then move into deeper water with increased size and age (Garrison & Miller 1982).

Bocaccio are ovoviviparous (Garrison & Miller 1982, Hart 1973). Love et al. (1990) reported the spawning season to be protracted and last almost year-round (>10 months). Parturition occurs during January to April off Washington, November to March off northern and central California, and October to March off southern California (MBC 1987). Two or more broods may be born in a year in California (Love et al. 1990). The spawning season is not well known in northern waters. Males mature at 3 to 7 years with 50% mature in 4 to 5 years. Females mature at 3 to 8 years with 50% mature in 4 to 6 years(MBC 1987).

Larval bocaccio often eat diatoms, dinoflagellates, tintinnids, and cladocerans (Sumida & Moser 1984). Copepods and euphausiids of all life stages (adults, nauplii and egg masses) are common prey for juveniles (Sumida & Moser 1984). Adults eat small fishes associated with kelp beds, including other species of rockfishes, and occasionally small amounts of shellfish (Sumida & Moser 1984). Bocaccio are eaten by sharks, salmon, other rockfishes, lingcod and albacore, as well as sea lions, porpoises, and whales (MBC 1987). Bocaccio directly compete with chilipepper and widow, yellowtail, and shortbelly rockfishes for both food and habitat resources (Reilly et al. 1992).

Splitnose rockfish (*Sebastes diploproa*) occur from Prince William Sound, Alaska to San Martin Island, Baja California (Miller & Lea 1972). Splitnose rockfish occur from 0-800 m, with most of survey catches occurring in depths of 100-450 m (Allen & Smith 1988). The relative abundance of juveniles (<21 cm) is quite high in the 91-272 m depth zone and then decreases sharply in the 274-475 m depth zone (Boehlert 1980). Splitnose rockfish have a pelagic larval stage and prejuvenile stage, and a benthic juvenile stage (Boehlert 1977). Benthic splitnose rockfish associate with mud habitats (Boehlert 1980). Young occur in shallow water, often at the surface under drifting kelp (Eschmeyer et al. 1983). The major types of vegetation juveniles are found under are Fucus sp. (dominant), eelgrass, and bull kelp (Schaffer et al 1995). Juvenile splitnose rockfish off southern California are the dominant rockfish species found under drifting kelp (Boehlert 1977).

Splitnose are ovoviviparous and release yolk sac larvae (Boehlert 1977). They may have two parturition seasons, or may possibly release larvae throughout the year (Boehlert 1977). In general, the main parturition season get progressively shorter and later toward the north (Boehlert 1977). Splitnose rockfish growth rates vary with latitude, being generally faster in the north. Splitnose mean sizes increase with depth in a given latitudinal area. Mean lengths of females are generally greater than males (Boehlert 1980). Off California, 50% maturity occurs at 21 cm, or 5 years of age, whereas off British Columbia 50% of males and females are mature at 27 cm (Hart 1973). Adults can achieve a maximum size of 46 cm (Boehlert 1980, Eschmeyer et al. 1983, Hart 1973). Females have surface ages to 55 years and section ages to 81 years.

Adult splitnose rockfish off southern California feed on midwater plankton, primarily euphausiids (Allen 1982). Juveniles feed mainly on planktonic organisms, including copepods and cladocerans during June and August. In October, their diets shift to larger epiphytic prey and are dominated by a single amphipod species. Juvenile splitnose rockfish actively select prey (Schaffer et al. 1995) and are probably diurnally active (Allen 1982). Adults are probably nocturnally active, at least in part (Allen 1982).

Yellowtail rockfish (*Sebastes flavidus*) range from San Diego, California, to Kodiak Island, Alaska (Fraidenburg 1980, Gotshall 1981, Lorz et al. 1983, Love 1991, Miller & Lea 1972, Norton & MacFarlane 1995). The center of yellowtail rockfish abundance is from Oregon to British Columbia (Fraidenburg 1980). Yellowtail rockfish are a common, demersal species abundant over the middle shelf (Carlson 1972, Fraidenburg 1980, Tagert 1991, Weinberg 1994). Yellowtail rockfish are most common near the bottom, but not on the bottom (Love 1991, Stanely et al. 1994). Yellowtail adults are considered semi-pelagic (Stanely et al. 1994, Stein et al. 1992) or pelagic which allows them to range over wider areas than benthic rockfish (Pearcy 1992). Adult yellowtail rockfish occur along steeply sloping shores or above rocky reefs (Hart 1973). They can be found above mud with cobble, boulder and rock ridges, and sand habitats; they are not, however, found on mud, mud with boulder, or flat rock (Love 1991, Stein et al. 1992). Yellowtail rockfish form large (sometimes greater than 1,000 fish) schools and can be found alone or in association with other rockfishes (Love 1991, Pearcy 1992, Rosenthal et al. 1982, Stein et al. 1992, Tagert 1991). These schools may persist at the same location for many years (Pearcy 1992).

Yellowtail rockfish are viviparous (Norton & MacFarlane 1995) and mate from October to December. Parturition peaks in February and March and from November-March off California (Westrheim 1975). Young-of-the-year pelagic juveniles often appear in kelp beds beginning in April and live in and around kelp, in midwater during the day, descending to the bottom at night (Love 1991, Tagert 1991). Male yellowtail rockfish are 34-41 cm in length (5-9 years) at 50% maturity, females are 37-45 cm (6-10 years) (Tagert 1991). Yellowtail rockfish are long-lived and slow-growing; the oldest recorded was 64 years old (Fraidenburg 1981, Tagert 1991). Even though they are slow growing, like other rockfish, they have a high growth rate when compared to other rockfish (Tagert 1991). They reach a maximum size of about 55 cm in approximately 15 years (Tagert 1991). Yellowtail rockfish feed mainly on pelagic animals, but are opportunistic, occasionally eating benthic animals as well (Lorz et al. 1983). Large juveniles and adults eat fish (small hake, Pacific herring, smelt, anchovies, lanternfishes, and others), along with squid, krill, and other planktonic organisms (euphausiids, salps, and pyrosomes) (Love 1991, Phillips 1964, Rosenthal et al. 1982, Tagert 1991).

Shortspine Thornyhead (*Sebastolobus alascanus*) are found from northern Baja California to the Bering Sea and occasionally to the Commander Islands north of Japan (Jacobson & Vetter 1996). They are common from southern California northward (Love 1991). Shortspine thornyhead inhabit areas over the continental shelf and slope (Erickson & Pikitch 1993, Wakefield & Smith 1990). Although they can occur as shallow as 26 m (Eschmeyer et al. 1983), shortspine thornyhead mainly occur between 100 and 1400 m off Oregon and California, most commonly between 100-1000 m (Jacobson & Vetter 1996).

Spawning occurs in February and March off California (Wakefield & Smith 1990). Shortspine thornyhead are thought to be oviparous (Wakefield & Smith 1990), although there is no clear evidence to substantiate this (Erickson & Pikitch 1993). Eggs rise to the surface to develop and hatch. Larvae are pelagic for about

12-15 months. During January to June, juveniles settle onto the continental shelf and then move into deeper water as they become adults (Jacobson & Vetter 1996). Off California, they begin to mature at 5 years; 50% are mature by 12-13 years; and all are mature by 28 years (Owen & Jacobson 1992). Although it is difficult to determine the age of older individuals, Owen and Jacobson (Owen & Jacobson 1992) report that off California, they may live to over 100 years of age. The mean size of shortspine thornyhead increases with depth and is greatest at 1000-1400 m (Jacobson & Vetter 1996).

Benthic individuals are sit-and-wait predators that rest on the bottom and remain motionless for extended periods of time (Jacobson & Vetter 1996). Off Alaska, shortspine thornyhead eat a variety of invertebrates such as shrimps, crabs, and amphipods, as well as fishes and worms (Owen & Jacobson 1992). Longspine thornyhead are a common item found in the stomachs of shortspine thornyhead. Cannibalism of newly settled juveniles is important in the life history of thornyheads (Jacobson & Vetter 1996).

Longspine Thornyhead (*Sebastolobus altivelis*) are found from the southern tip of Baja California to the Aleutian Islands (Eschmeyer et al. 1983, Jacobson & Vetter 1996, Love 1991, Miller & Lea 1972, Smith & Brown 1983) but are abundant from southern California northward (Love 1991). Juvenile and adult longspine thornyhead are demersal and occupy the sediment surface (Smith & Brown 1983). Off Oregon and California, longspine thornyhead mainly occur at depths of 400-1400+ m, most between 600 and 1000 m in the oxygen minimum zone (Jacobson & Vetter 1996). Thornyhead larvae (Sebastolobus spp.) have been taken in research surveys up to 560 km off the California coast (Cross 1987, Moser et al. 1993). Juveniles settle on the continental slope at about 600-1200 m (Jacobson & Vetter 1996). Longspine thornyhead live on soft bottoms, preferably sand or mud (Eschmeyer et al. 1983, Jacobson & Vetter 1996, Love 1991). Longspine thornyheads neither school nor aggregate (Jacobson & Vetter 1996).

Spawning occurs spawn in February and March at 600-1000 m (Jacobson & Vetter 1996, Wakefield & Smith 1990). Longspine thornyhead are oviparous and are multiple spawners, spawning 2-4 batches per season (Love 1991, Wakefield & Smith 1990). Eggs rise to the surface to develop and hatch. Floating egg masses can be seen at the surface in March, April, and May (Wakefield & Smith 1990). Juveniles (<5.1 cm long) occur in midwater (Eschmeyer et al. 1983). After settling, longspine thornyhead are completely benthic (Jacobson & Vetter 1996). Longspine thornyhead can grow to 38 cm (Eschmeyer et al. 1983, Jacobson & Vetter 1996, Miller & Lea 1972) and live more than 40 years (Jacobson & Vetter 1996). Longspine thornyhead reach the onset of sexual maturity at 17-19 cm TL (10% of females mature) and 90% are mature by 25-27 cm (Jacobson & Vetter 1996).

Longspine thornyhead are sit-and-wait predators (Jacobson & Vetter 1996). They consume fish fragments, crustaceans, bivalves, and polychaetes and occupy a tertiary consumer level in the food web. Pelagic juveniles prey largely on herbivorous euphausiids and occupy a secondary consumer level in the food web (Love 1991, Smith & Brown 1983). Longspine thornyhead are commonly seen in shortspine thornyhead stomachs. Cannibalism in newly settled longspine thornyhead may occur because juveniles settle directly onto adult habitat (Jacobson & Vetter 1996). Sablefish commonly prey on longspine thornyhead.

Darkblotched rockfish (Sebastes crameri) are found from Santa Catalina Island off southern California to the Bering Sea (Miller & Lea 1972, Richardson & Laroche 1979). Off Oregon, Washington, and British Columbia it is primarily an outer shelf/upper slope species (Richardson & Laroche 1979). Distinct population groups have been found off the Oregon coast between lat. 44 30' and 45 20'N (Richardson & Laroche 1979). Adults occur in depths of 25-600 m and 95% are between 50 and 400 m (Allen & Smith 1988). Off central California, young darkblotched rockfish recruit to soft substrate and low (<1 m) relief reefs (Love et al. 1991). Darkblotched rockfish make limited migrations after they have recruited to the adult stock (Gunderson 1997).

Darkblotched rockfish are viviparous (Nichol & Pickitch 1994). Insemination of female darkblotched rockfish occurs from August to December, fertilization and parturition occurs from December to March off Oregon and California, primarily in February off Oregon and Washington (Hart 1973, Nichol & Pickitch 1994, Richardson & Laroche 1979). Females attain 50% maturity at a greater size (36.5 cm) and age (8.4

years) than males (29.6 cm and 5.1 years) (Nichol & Pickitch 1994). Adults can grow to 57 cm (Hart 1973). Pelagic young are food for albacore (Hart 1973).

Yelloweye rockfish (Sebastes ruberrimus) range from the Aleutian Islands, Alaska to northern Baja California; they are common from central California northward to the Gulf of Alaska (Eschmeyer et al. 1983, Hart 1973, Love 1991, Miller & Lea 1972, O'Connell & Funk 1986). Yelloweye rockfish occur in water 25-550 m deep; 95% of survey catches occurred from 50 to 400 m (Allen & Smith 1988). Yelloweye rockfish are bottom dwelling, generally solitary, rocky reef fish, found either on or just over reefs (Eschmeyer et al. 1983, Love 1991, O'Connell & Funk 1986). Boulder areas in deep water (>180 m) are the most densely-populated habitat type and juveniles prefer shallow-zone broken-rock habitat (O'Connell & Carlile 1993). They also reportedly occur around steep cliffs and offshore pinnacles (Rosenthal et al. 1982). The presence of refuge spaces is an important factor affecting their occurrence (O'Connell & Carlile 1993).

Yelloweye rockfish are ovoviviparous and give birth to live young in June off Washington (Hart 1973). The age of first maturity is estimated at 6 years and all are estimated to be mature by 8 years (Echeverria 1987). Yelloweye rockfish can grow to 91 cm (Eschmeyer et al. 1983, Hart 1973). Males and females probably grow at the same rates (Love 1991, O'Connell & Funk 1986). The growth rate of yelloweye rockfish levels off at approximately 30 years of age (O'Connell & Funk 1986). Yelloweye rockfish can live to be 114 years old (Love 1991, O'Connell & Funk 1986). Yelloweye rockfish are a large predatory reef fish that usually feeds close to the bottom (Rosenthal et al. 1988). They have a widely varied diet, including fish, crabs, shrimps and snails, rockfish, cods, sand lances and herring (Love 1991). Yelloweyes have been observed underwater capturing smaller rockfish with rapid bursts of speed and agility. Off Oregon the major food items of the yelloweye rockfish include cancroid crabs, cottids, righteye flounders, adult rockfishes, and pandalid shrimps (Steiner 1978). Quillback and yelloweye rockfish have many trophic features in common (Rosenthal et al. 1988).

Cowcod (Sebastes levis) occur from Ranger Bank and Guadalupe Island, Baja California to Usal, Mendocino County, California (Miller & Lea 1972). Cowcod range from 21 to 366 m (Miller & Lea 1972) and is considered to be parademersal (transitional between a midwater pelagic and benthic species). Adults are commonly found at depths of 180-235 m and juveniles are most often found in 30-149 m of water (Love et al. 1990). MacGregor (MacGregor 1986) found that larval cowcod are almost exclusively found in southern California and may occur many miles offshore. Adult cowcod are primarily found over high relief rocky areas (Allen 1982); they are generally solitary, but occasionally aggregate (Love et al. 1990). Solitary subadult cowcod have been found in association with large white sea anemones on outfall pipes in Santa Monica Bay (Allen 1982). Juveniles occur over sandy bottom and solitary ones have been observed resting within a few centimeters of soft-bottom areas where gravel or other low relief was found (Allen 1982). Although the cowcod is generally not migratory; it may move to some extent to follow food (Love 1980). Cowcod are ovoviviparous, and large females may produce up to three broods per season (Love et al. 1990). Spawning peaks in January in the Southern California Bight (MacGregor 1986). Cowcod grow to 94 cm (Allen 1982). Larvae are extruded at about 5.0 mm (MacGregor 1986). Juveniles eat shrimp and crabs and adults eat fish, octopus, and squid (Allen 1982).

Bank rockfish (*Sebastes rufus*) are found from Newport, Oregon, to central Baja California, most commonly from Fort Bragg southward (Love 1992). Bank rockfish occur offshore (Eschmeyer et al. 1983) from depths of 31 to 247 m (Love 1992), although adults prefer depths over 210 m (Love et al. 1990). Observations of commercial catches indicate juveniles occupy the shallower part of the species range (Love et al. 1990). Bank rockfish are a midwater, aggregating species that is found over hard bottom (Love 1992), over high relief or on bank edges (Love et al. 1990), and along the ledge of Monterey Canyon (Sullivan 1995). It also frequents deep water over muddy or sandy bottom (Miller & Lea 1972). Spawning ranges from December to May (Love et al. 1990). Peak spawning in the Southern California Bight is January, in central and northern California it is February. Off California, bank rockfish are multiple brooders (Love et al. 1990). Females grow to a larger maximum size (50 cm) than males (44 cm), but grow at a slightly slower rate (Cailliet et al. 1996). Males reach first maturity at 28 cm, 50% maturity at 31

cm, and 100% at 38 cm. Females reach first maturity at 31 cm, 50% at 36 cm, and 100% maturity at 39 cm (Love et al. 1990). Bank rockfish are midwater feeders, eating mostly gelatinous planktonic organisms such as tunicates, but also preying on small fishes and krill (Love 1992).

Black rockfish (*Sebastes melanops*) are found from southern California (San Miguel Island) to the Aleutian Islands (Amchitka Island), and they occur most commonly from San Francisco northward (Hart 1973, Miller & Lea 1972, Phillips 1957, Stein & Hassler 1989). Black rockfish occur from the surface to greater than 366 m, however they are most abundant at depths less than 54 m (Stein & Hassler 1989). Off California, black rockfish are found along with the blue, olive, kelp, black-and-yellow, and gopher rockfishes (Hallacher & Roberts 1985) Adults are usually observed well up in the water column (Hallacher & Roberts 1985). The abundance of black rockfish in shallow water declines in the winter and increases in the summer (Stein & Hassler 1989). Densities of black rockfish decrease with depth during both the upwelling and non-upwelling seasons (Hallacher & Roberts 1985, PFMC 1996). Off Oregon larger fish seem to be found in deeper water (20-50 m) (Stein & Hassler 1989). Black rockfish off the northern Washington coast and outer Strait of Juan de Fuca exhibit no significant movement. However, fish appear to move from the central Washington coast southward to the Columbia River, but not into waters off Oregon. Movement displayed by black rockfish off the northern Oregon coast is primarily northward to the Columbia River (Culver 1986). Black rockfish form mixed sex, midwater schools, especially in shallow water (Hart 1973, Stein & Hassler 1989). Black rockfish larvae and young juveniles (<40-50 mm) are pelagic but are benthic at larger sizes (Laroche & Richardson 1980).

Black rockfish have internal fertilization and annual spawning (Stein & Hassler 1989). Parturition occurs from February-April off British Columbia, January-March off Oregon, and January-May off California (Stein & Hassler 1989). Spawning areas are unknown, but spawning may occur in offshore waters because gravid females have been caught well offshore (Dunn & Hitz 1969, Hart 1973, Stein & Hassler 1989). Black rockfish can live to be more than 20 years in age. The maximum length attained by the black rockfish is 60 cm (Hart 1973, Stein & Hassler 1989). Off Oregon, black rockfish primarily prey on pelagic nekton (anchovies and smelt) and zooplankton such as salps, mysids, and crab megalops. Off central California, juveniles eat copepods and zoea, while adults prey on juvenile rockfish, euphausiids, and amphipods during upwelling periods; during periods without upwelling they primarily consume invertebrates. Black rockfish feed almost exclusively in the water column (Culver 1986). Black rockfish are known to be eaten by lingcod and yelloweye rockfish (Stein & Hassler 1989).

Blackgill rockfish (Sebastes melanostomus) are distributed from Washington to Punta Abreojos (Love 1991, Moser & Ahlstom 1978). Adult blackgill rockfish are found offshore at depths of 219-768 m (Eschmeyer et al. 1983). Blackgill rockfish usually inhabit rocky or hard bottom habitats, along steep drop-offs, such as the edges of submarine canyons and over seamounts (Love 1991). However, they may also occur over soft-bottoms (Eschmeyer et al. 1983). Blackgill rockfish are a transitional species, occupying both midwater and benthic habitats (Love et al. 1990), although they are rarely taken at more than 9 m above the bottom (Love 1991). Blackgill are considered an aggregating species (Love 1991).

Blackgill rockfish spawn from January-June (peaking in February) off southern California, and in February off central and northern California (Love 1991, Love et al. 1990, Moser & Ahlstom 1978). The largest blackgill rockfish on record is 61 cm (Eschmeyer et al. 1983, Love 1991, Love et al. 1990). Blackgill rockfish primarily prey on such planktonic prey as euphausids and pelagic tunicates, as well as small fishes (e.g., juvenile rockfishes and hake, anchovies and lantern fishes) and squid (Love et al. 1990).

Redstripe rockfish (Sebastes proriger) occur from San Diego, California to the Bering Sea (Allen & Smith 1988, Hart 1973, Miller & Lea 1972). Redstripe rockfish inhabits the outer shelf and upper slope and are most common between 100 and 350 m (Allen & Smith 1988). Adults are semi-demersal, while larvae and juveniles are pelagic to semi-demersal (Garrison & Miller 1982). Young redstripe rockfish can occur in estuaries (Kendall & Lenarz 1986). Redstripe rockfish are generally found slightly off the bottom over both high and low relief rocky areas (Starr et al. 1996). Redstripe rockfish are very sedentary, exhibiting little or no movement from a home habitat or range (Matthes et al. 1986).

Redstripe rockfish are ovoviviparous (Garrison & Miller 1982). Off Oregon, larvae are released between April and July, but later off northern and central California, during July through September (Kendall & Lenarz 1986). Redstripe rockfish may grow to reach 61 cm (Hart 1973). Larvae and juveniles of this species were found to feed primarily on copepods, their eggs, and copepod nauplii, as well as all stages of euphausiids (Kendall & Lenarz 1986). Food of adult redstripe rockfish consists of small fish such as anchovies, herring and early stages of other groundfish, as well as squid (Starr et al. 1996). Redstripe rockfish may compete for food and habitat resources with widow, squarespot , shortbelly, and canary rockfishes, as well as lingcod and spiny dogfish (Erickson et al. 1991).

Sharpchin rockfish (Sebastes zacentrus) occur from San Diego, California, to the Aleutian Islands, Alaska (Allen & Smith 1988). Sharpchin rockfish occur from 25 to 475 m, but about 96% occur from 100 to 350 m (Allen & Smith 1988). Sharpchin rockfish can occur over soft bottoms (Eschmeyer et al. 1983), but they apparently prefer mud and cobble substrate and are associated with boulder and cobble fields (Stein et al. 1992). Parturition occurs from March through July off Oregon and from May through June off northern and central California (Echeverria 1987). Shortratker rockfish can grow to 33 cm (Miller & Lea 1972).

Silvergrey Rockfish (Sebastes brevispinis) are found from Santa Barbara Island, southern California, to the Bering Sea (Allen & Smith 1988, Hart 1973). Silvergray rockfish are included in the shelf rockfish assemblage (Hart 1973, Nagtegaal 1983) and inhabit the outer shelf-mesobenthal zone (Allen & Smith 1988). They occur in depths from 0 to 375 m with 95% of survey catches taken in depths of 100 to 300 m (Allen & Smith 1988). Off Oregon young are probably released in late spring or summer (Hart 1973, Allen & Smith 1988). Off Washington young are released in June (Hart 1973). They achieve a maximum size of 71 cm (Hart 1973).

Yellowmouth rockfish (Sebastes reedi) occur from Sitka, Alaska to Point Arena, California. Yellowmouth rockfish occupy a depth range from 137-366 m (Miller & Lea 1972)) usually 275-366 m over rough bottom (Kramer et al. 1995). Off Oregon, yellowmouth rockfish release their young from February through June (150). Yellowmouth females mature at 33 cm or larger (9 years old), and males mature at lengths greater than 31 cm (9 years old). They grow to 54 cm and can live to 34 years of age (Hart 1973).

"Other Rockfish" are those rockfish species that do not have individual ABC/OYs. Life history descriptions of these species may be found in the Essential Fish Habitat West Coast Groundfish which was prepared for amendment 11 to the FMP. This document may be requested from the Council office and is available http://www.nwr.noaa.gov/1sustfsh/efhappendix/page1.html

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3.2.4 Endangered Species

West Coast marine species listed as endangered or threatened under the Endangered Species Act (ESA) are discussed below in sections 3.2.5 (Marine Mammals,) 3.2.6 (Seabirds,) 3.2.7 (Sea Turtles,) and 3.2.8 (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. The following species are subject to the conservation and management requirements of the ESA:

Table 3.2.3 West Coast Endangered Species
Marine Mammals
Threatened: • Steller sea lion (*Eumetopias jubatus*) Eastern Stock, • Guadalupe fur seal (*Arctocephalus townsendi*), and • Southern sea otter (*Enhydra lutris*) California Stock.
Seabirds
Endangered: • Short-tail albatross (*Phoebastria (=Diomedea) albatrus*), • California brown pelican (*Pelecanus occidentalis*), and • California least tern (*Sterna antillarum browni*). Threatened: • Marbled murrelet (*Brachyramphs marmoratus*).
Sea Turtles
Endangered: • Green turtle (*Chelonia mydas*) • Leatherback turtle (*Dermochelys coriacea*) • Olive ridly turtle (*Lepidochelys olivacea*) Threatened: • Loggerhead turtle (*Caretta caretta*)
Salmon
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

3.2.5 Marine Mammals

The waters off Washington, Oregon, and California (WOC) support a wide variety of marine mammals. Approximately thirty species, including seals and sea lions, sea otters, and whales, dolphins, and porpoise, occur within the EEZ. Many marine mammal species seasonally migrate through West Coast waters, while others are year round residents.

There is limited information documenting the interactions of groundfish fisheries and marine mammals, but marine mammals are probably affected by many aspects of groundfish fisheries. The incidental take of marine mammals, defined as any serious injury or mortality resulting from commercial fishing operations, is reported to NMFS by vessel operators. In the West Coast groundfish fisheries, incidental take is

infrequent and primarily occurs in trawl fisheries (Forney *et al.* 2000). Indirect effects of groundfish fisheries on marine mammals are more difficult to quantify due to a lack of behavioral and ecological information about marine mammals. However, marine mammals may be affected by increased noise in the oceans, change in prey availability, habitat changes due to fishing gear, vessel traffic in and around important habitat (i.e., areas used for foraging, breeding, raising offspring, or hauling-out), at-sea garbage dumping, and diesel or oil discharged into the water associated with commercial fisheries.

The Marine Mammal Protection Act (MMPA) and the ESA are the federal legislation that guide marine mammal species protection and conservation policy. Under the MMPA on the West Coast, NMFS is responsible for the management of cetaceans and pinnipeds, while the U.S. Fish and Wildlife Service (FWS) manages sea otters. Stock assessment reports review new information every year for strategic stocks (those whose human-caused mortality and injury exceeds the potential biological removal [PBR]) and every three years for non-strategic stocks. Marine mammals whose abundance falls below the optimum sustainable population (OSP) are listed as "depleted" according to the MMPA.

Fisheries that interact with species listed as depleted, threatened, or endangered may be subject to management restrictions under the MMPA and ESA. NMFS publishes an annual list of fisheries in the Federal Register separating commercial fisheries into one of three categories, based on the level of serious injury and mortality of marine mammals occurring incidentally in that fishery. The categorization of a fishery in the list of fisheries determines whether participants in that fishery are subject to certain provisions of the MMPA, such as registration, observer coverage, and take reduction plan requirements. The WOC groundfish fisheries are in Category III, indicating a remote likelihood of, or no known serious injuries or mortalities, to marine mammals.

Of the marine mammal species incidentally caught in WOC groundfish fisheries, the Steller sea lion is listed as threatened under the ESA, the northern elephant seal may be within their OSP range, and there is insufficient data to determine the status of the harbor seal, California sea lion, Dall's porpoise, and Pacific white-sided dolphin relative to their OSP. None of these species are classified as strategic stocks under the MMPA. Based on its Category III status, the incidental take of marine mammals in the WOC groundfish fisheries does not significantly impact marine mammal stocks.

3.2.6 Seabirds

Over sixty species of seabirds occur in waters off the coast of WOC within the EEZ. These species include: 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 commercial fishing areas; fishing also occurs near the breeding colonies of many of these species.

Interactions between seabirds and fishing operations are wide-spread and have led to conservation concerns in many fisheries throughout the world. Abundant food in the form of offal (discarded fish and fish processing waste) and bait attract birds to fishing vessels. Of the gear used in the groundfish fisheries on the West Coast, seabirds are occasionally taken incidentally by trawl and pot gear, but they are most often taken by longline gear. Around longline vessels, seabirds forage for offal and bait that has fallen off hooks at or near the water's surface and are attracted to baited hooks near the water's surface during the setting of gear. If a bird becomes hooked while feeding on bait or offal, it can be dragged underwater and drowned. Of the incidental catch of seabirds by longline groundfish fisheries in Alaska, northern fulmars represented about 66% of the total estimated catch of all bird species, gulls contributed 18%, Laysan albatross 5%, and black-footed albatross about 4% (Stehn *et al.* 2001). Longline gear and fishing strategies in Alaska are similar to some, but not all, of those used in WOC longline fisheries.

Besides entanglement in fishing gear, seabirds may be indirectly affected by commercial fisheries in various ways. Change in prey availability may be linked to directed 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. The FWS is the primary federal agency responsible for seabird conservation and management. Under the Magnuson-Stevens Act, NMFS is required to ensure fishery management actions comply with other laws designed to protect seabirds. NMFS is also required to consult with FWS if fishery management plan actions may affect seabird species listed as endangered or threatened.

3.2.7 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 WOC 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 WOC groundfish fisheries, the expected take of sea turtles by groundfish gear is minimal. The management and conservation of sea turtles is shared between NMFS and FWS.

Sea turtles may be also indirectly affected by commercial fisheries. Sea turtles are vulnerable to collisions with vessels and can be killed or injured when struck, especially if struck with an engaged propeller. Entanglement in abandoned fishing gear can also cause death or injury to sea turtles by drowning or loss of a limb. The discard of garbage at sea can be harmful for sea turtles, because the ingestion of such garbage may choke or poison them. Sea turtles have ingested plastic bags, beverage six-pack rings, styrofoam, and other items commonly found aboard fishing vessels. The accidental discharge of diesel and oil from fishing vessels may also put sea turtles at risk, as they are sensitive to chemical contaminates in the water.

3.2.8 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.

Chinook or king salmon (*Oncorhynchus tshawytscha*) and coho or silver salmon (*O. kisutch*) are the main species caught in Council-managed ocean salmon fisheries. In odd-numbered years, catches of pink salmon (*O. gorbuscha*) can also be significant, primarily off Washington and Oregon. Ocean salmon are caught with commercial and recreational troll gear. No other gears are allowed to take and retain salmon in the ocean fisheries. Small amounts of rockfish and other groundfish are taken as incidental catch in salmon troll fisheries.

NMFS issued Biological Opinions 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, California coastal), coho salmon (Central California coastal, southern Oregon/northern California coastal, Oregon coastal), chum salmon (Hood Canal, 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).

3.2.9 Nongroundfish Species Interactions

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 in the northeastern Pacific 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.

CPS are taken incidentally in the groundfish fishery. Incidental take is well documented in the at-sea and shore-based whiting fishery. Preliminary data for 2001 indicates approximately 321mt of jack mackerel, 469 mt of Pacific mackerel, and 55 mt of squid was incidentally taken in the at-sea whiting fishery. There is little information on the incidental take of CPS by the other segments of the fishery, however given CPS are not associated with the ocean bottom, the interaction is expected to be minimal.

Dungeness Crab The Dungeness crab (*Cancer magister*) is 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. Although it is found at times on mud and gravel, this crab is most abundant on sand bottoms; frequently it occurs among eelgrass. The Dungeness crab, which are typically harvested using traps (crab pots), ring nets, by hand (scuba divers) or dip nets, are incidentally taken or harmed unintentionally by groundfish gears.

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. Thus, it is shrimp trawlers that commonly take groundfish in association with shrimp, rather than the reverse.

Pacific Halibut Halibut (*Hippoglossus stenolepis*) belong to a family of flounders called Pleuronectidae. Halibut are usually found in deep water (40 to 200 m). The International Pacific Halibut Commission (IPHC) report, "Incidental Catch and Mortality of Pacific Halibut, 1962-2000" contains estimates of the incidental catches of halibut in the coastal trawl fisheries (groundfish and shrimp trawls). Estimates of incidental catches of halibut, based on the at-sea observer data collected in the Enhanced Data Collection Program conducted from 1995 through 1998, results in an estimated mortality level of legal-sized halibut incidentally taken in shrimp and groundfish trawl fisheries will be 254 mt (560,000 pounds) in 2002.

Forage Fish Forage fish are small, schooling fish which serve as an important source of food for other fish species, birds and marine mammals. Examples of forage fish species are herring (*Clupea harengus pallasi*), smelt (*Osmeridae*), anchovies, and sardine. Many species of fish feed on forage fish. Major predators of herring include Pacific cod (42% of diet), whiting (32%), lingcod (71%), halibut (53%), coho (58%), and chinook salmon (58%) (Environment Canada 1994). Many species of seabirds depend heavily on forage fish for food as well. Marine mammals consuming forage fish include: harbor seals, California

sea lions, Stellar sea lions, harbor porpoises, Dall's porpoises, and Minke whales (Calambokidis and Baird 1994). Forage fish are most commonly found in nearshore waters and within bays and estuaries, although some do spend of their lives in the open ocean where they may be incidentally taken by groundfish gears, particularly in trawls. Preliminary data from the 2001 at-sea whiting fishery indicates the fishery encounters very minor amounts of forage fish species (Pacific herring less than 5 mt and less than 1 mt of smelt and sardines combined). There is little information on the incidental take of forage fish by the other segments of the fishery, however given they are not associated with the ocean bottom, the interaction is expected to be minimal.

Miscellaneous Species Little information is available on nongroundfish species incidentally captured in the groundfish fishery. Other than those species mentioned above, documentation from the whiting fishery indicates species such as American shad and walleye pollock are taken incidentally. American shad, introduced in 1885, have flourished throughout the lower Columbia River, producing a record run of 2.2 million fish in 1988 (ODFW and WDFW 1989). American shad was also taken in the shore-based whiting fishery. Walleye pollock are found in the waters of the Northeastern Pacific Ocean from the Sea of Japan, north to the Sea of Okhotsk, east in the Bering Sea and Gulf of Alaska, and south in the Northwestern Pacific Ocean along the Canadian and U.S. West Coast to Carmel, California.

3.3 HUMAN ENVIRONMENT

3.3.1 History of Management Via Annual Specifications and Management Measures

Washington, Oregon, and California have been managing groundfish fisheries off of their coasts since the early 20th century. Then, as now, many fisheries straddled state borders, with vessels operating offshore of their home states and offshore of neighboring states. Congress recognized the West Coast need for a coordinating body that would ensure compatible management and regulation between states in 1947 by forming the Pacific States Marine Fisheries Commission (PSMFC). Since then, PSMFC has served in a coordinating role for fisheries management issues in common between the three West Coast states, Alaska, and Idaho. The Fishery Conservation and Management Act (now amended and renamed as the Magnuson-Stevens Fishery Conservation and Management Act) went into effect in 1977, extending exclusive economic zones (EEZs) out to 200 nautical miles offshore and forming fishery management councils to manage the fisheries occurring within EEZ waters. From 1977 through 1982, the three states coordinated groundfish management through the Pacific Fishery Management Council (Council,) during which time the Council also developed its initial FMP for groundfish. (Council, March 1998)

In September 1982, the groundfish FMP went into effect. Under the FMP, the Council was authorized to set annual optimum yields (OYs) for Pacific whiting, Pacific ocean perch (POP,) shortbelly rockfish, widow rockfish, and sablefish. These particular species were the first chosen for OY harvest limitations due to their contributions to foreign catch (Pacific whiting and shortbelly rockfish) or to their importance to domestic harvest (sablefish and widow rockfish.) In the case of POP, which had been overfished by the foreign fisheries in the 1960s and 1970s, an OY was needed to set the species on a rebuilding schedule. Federal groundfish fishery regulations intended to keep the harvest of these species within their OYs and of other groundfish within their Acceptable Biological Catches (ABCs) were relatively brief and simple. These regulations were published in the *Federal Register*, to be modified if and when the fisheries approached an ABC or OY for a managed species.

By 1987, the Council had realized that its relatively simple and straightforward FMP was too inflexible to allow regular adjustments to harvest levels and regulatory restrictions. For example, the FMP had to be amended each time the Council wished to set an OY for a species that had not previously been managed with OYs. Amendment 4 to the FMP was intended to address some of the inefficiencies of the initial FMP by creating processes by which the Council would discuss and make decisions on long-term permanent changes to regulations, on annual specifications of ABCs and OYs and management measures to implement those specifications, and on inseason actions to change the annual management measures.

Amendment 4 gave the FMP a new procedure for developing and implementing annual specifications and their allocations between different fishery sectors:

> "The Council will develop preliminary recommendations at the first of two meetings (usually in September) based upon the best stock assessment information available to the Council at the time and consideration of public comment. After the first meeting, the Council will provide a summary of its preliminary recommendations and their basis to the public through its mailing list as well as providing copies of the information at the Council office and to the public upon request. The Council will notify the public of its intent to develop final recommendations at its second meeting (usually November) and solicit public comment both before and at its second meeting.
>
> At its second meeting, the Council will again consider the best available stock assessment information which should be contained in the recently completed SAFE (Stock Assessment and Fishery Evaluation) report and consider public testimony before adopting final recommendations to the Secretary (of Commerce.) Following the second meeting, the Council will submit its recommendations along with the rationale and supporting information to the Secretary for review and implementation.
>
> Upon receipt of the Council's recommendations, supporting rationale and information, the Secretary will review the submission and, if approved, publish a notice in the *Federal Register* making the Council's recommendations effective January 1 of the upcoming fishing year." (Council, August 1990)

The Council used this "two-meeting process" followed by the publication of a single *Federal Register* notice to implement the Council's recommendations from 1991-2001. Through that process, the Council could set harvest levels (such as ABCs and OYs) for managed species and management measures intended to allow the fisheries to achieve those harvest levels (trip limits or bag limits, size limits, etc.) Overall federal regulations were amended to include a list of species that could be managed via the annual process and the particular management measures that could be used with those species, called the "routine" management measures. Over time, the Council added new species and new management measures to this list by amending federal regulations when new routine measures were needed.

For both commercial and recreational fisheries, routine management measures have been intended to keep groundfish landings within annual harvest levels. In the commercial fisheries, trip landing and frequency limits were applied as routine management measures for the following reasons: to extend the fishing season; to minimize disruption of traditional fishing and marketing patterns; to reduce discards; to discourage target fishing while allowing small incidental catches to be landed; to allow small fisheries to operate outside the normal season; and, for the open access fishery only, to keep landings at the historical proportions of the 1984-88 window period. Size limits could also be applied as routine management measures in the commercial fisheries, either to protect juvenile fish or to extend the fishing season. For the recreational fisheries, bag limits have been applied as routine management measures to spread the available catch over a large number of anglers, to avoid waste, or for consistency with state regulations. Size limits could also be applied as routine management measures in the recreational fisheries, either to protect juvenile fish, to enhance the quality of the recreational fishing experience, or for consistency with state regulations. (FMP at 6.2.1)

With Amendment 13 to the FMP, the Council set up a two-meeting process for designating new routine management measures that set publication of the routine management measures in its annual SAFE document, rather than in federal regulations. The Council built this additional flexibility into the FMP so that it could act more swiftly on new information about management changes needed to protect overfished species. Under the Amendment 13 revisions to the FMP, routine management measures could be added or changed, "in cases where protection of an overfished or depleted stock is required..." (FMP at 6.2) Amendment 13 also added to the types of routine management measures available to the Council, "In cases where protection of an overfished or depleted stock is required, the Council may impose limits that

differ by gear type, or establish closed areas or seasons."

Table 3.3.1 Management Measures Classified as Routine, as of 2002

Commercial fisheries:	Recreational fisheries:
• Differential limits by gear type may be set for overfished species or for fisheries in which overfished species are caught incidentally. • For all FMP-managed rockfish species, whether individually or within a species group/complex, trip landing and frequency limits may be set. Off California, time/area closures may be set. • For all FMP-managed flatfish species, whether individually or within a species group/complex, trip landing and frequency limits may be set. • For cowcod, time/area closures may be set. • For sablefish and lingcod, trip landing and and frequency limits and size limits may be set. And, for lingcod, time/area closures may be set. • For whiting, trip landing and frequency limits may be set for the offseason. Directed whiting season start dates may be set. • For all groundfish species, separately or in any combination, trip landing and frequency limits may be set for any open access fishery, including exempted trawl fisheries.	• For lingcod off Washington, and Oregon, bag limits, size limits, and closed seasons may be set. For lingcod, cabezon, and kelp greenling off California, bag limits, size limits, boat limits, hook limits, closed areas, and dressing/fileting requirements may be set. • For rockfish off Washington and Oregon, bag limits and size limits may be set. For rockfish off California, bag limits, size limits, boat limits, hook limits, closed areas, and dressing/fileting requirements may be set.

In 2001, NMFS was challenged on the two-meeting annual specifications and management measures process in Natural Resources Defense Council, Inc. v. Evans, 2001 168 F.Supp. 2d 1149 (N.D. Cal. 2001) Part of the court's ruling in that case required NMFS to provide a *Federal Register* notice-and-comment period as part of the annual specifications and management measures process. To meet the court's requirement for the 2002 specifications and management measures, NMFS published a proposed (67 FR 1555, January 11, 2002) and final rule (67 FR 10490, March 7, 2001) for the overall 2002 specifications and management measures, and an emergency rule to implement management measures for January-February 2002 (67 FR 1540, January 11, 2002). If the agency had not published January-February management measures for 2002, the management measures from January-February 2001 would have remained in effect for that period. NMFS published the emergency rule for the first two months of 2002 because some of the management measures from January-February 2001 were not conservative enough to adequately address rebuilding needs of overfished species. For the 2003 specifications and management measures, the Council will develop its initial specifications and management measures recommendations at its June 2002 meeting, with final recommendations at its September 2002 meeting, to be followed by a NMFS proposed and final rule for the 2003 season.

Protecting Overfished Species Within the Specifications and Management Measures Process
The major goal of management of the groundfish fishery throughout the 1990's was to prevent overfishing while achieving the OYs and providing year-round fisheries for the major species or species groups. One of the primary goals of the Pacific coast groundfish FMP is to keep the fishery open throughout the entire year for most segments of the fishery (See FMP goals and objectives at section 2.0). Harvest rates are constrained by annual harvest guidelines, two-month or one-month cumulative period landings limits, individual trip limits, size limits, species-to-species ratio restrictions, bag limits in the recreational fisheries and other measures, all designed to control effort so that the allowable catch is taken at a slow rate that will stretch the season out to a full year. Cumulative period catch limits are set by comparing current or previous landings rates with the year's total available catch. Landings limits have been used to slow the pace of the fishery and stretch the fishing season out over as many months as possible, so that the overall harvest target is not reached until the end of the year.

By 2000, lower OYs and growing awareness of reduced productivity of the groundfish resource had made it apparent that the goal of a year-round fishery was no longer achievable for a number of species. In addition, new legislative mandates under the Magnuson-Stevens Act gave highest priority to preventing overfishing and rebuilding overfished stocks to their MSY levels. The National Standard Guidelines at 50 CFR 600.310 interpreted this as "weak stock management," which means that harvest of healthier stocks

must be curtailed to prevent overfishing or to rebuild overfished stocks. To meet initial rebuilding requirements for the three species declared overfished in 1999, bocaccio, lingcod, POP, the Council developed a new management strategy that diverts effort off the sea floor of the continental shelf, where many of the overfished species are found. Overfished species protection measures initially applied in 2000 included more restrictive trip limits for continental shelf species, reduced seasons for commercial hook-and-line gear and recreational fisheries off central and southern California, and trawl gear restrictions limiting the species and quantities of groundfish that could be taken with trawl nets using footropes of greater than 8 inches in diameter.

These 2000 restrictions were relatively severe when compared against allowable landings limits in the 1990s. At the urging of their coastal communities, the governors of the three West Coast states asked the Secretary of Commerce, through NMFS, to declare the West Coast groundfish fishery a commercial fishery failure. At the time, NMFS estimated that allowable landings limits in 2000 would reduce the commercial harvest value of West Coast groundfish by 25% from 1999 harvest levels. NMFS did declare the groundfish fisheries to be a commercial fishery failure in January 2000 (Dalton, 2000). In its declaration, NMFS cited the potential causes of the fishery resource disaster to be declining productivity in groundfish stocks associated with recently discovered oceanic regime shifts, advancements in scientific information about West Coast rockfish productivity that showed West Coast rockfish stocks to be generally less productive than many similar rockfish species worldwide.

Since 2000, management measures intended to eliminate directed catch and minimize incidental catch of overfished species have increased in number and in restrictiveness. Although year-round groundfish landings opportunities continue to be available to some gears in some areas, fishing opportunities have been eliminated for many vessels.

Table 3.3.2: Timetable of management measures implemented to protect overfished species through the annual specifications and management measures process

Year	Species Declared Overfished	Management Measures to Protect Overfished Species
1999	lingcod, bocaccio, POP	• These three species were declared overfished in March 1999, after the specifications and management measures had been set for that year.
2000	canary rockfish, cowcod (Management measures to protect lingcod, bocaccio, POP continue.)	• Targeting opportunities for overfished stocks eliminated • Shelf rockfish targeting reduced for hook-and-line gear and for large and small footrope trawl, particularly for healthy stocks closely associated with overfished species (e.g. chilipepper rockfish with bocaccio) • Commercial hook-and-line and recreational fisheries off central and southern California closed 4 months for nearshore and shelf rockfish with rockfish recreational bag limits also reduced • All commercial fisheries closed 6 months coastwide for lingcod with recreational season closures and reduced bag limits for lingcod varying by state.
2001	widow rockfish, darkblotched rockfish (Management measures to protect lingcod, bocaccio, POP, canary rockfish, cowcod continue.)	• Targeting opportunities for overfished stocks eliminated • Shelf rockfish targeting further reduced for hook-and-line gear and for large and small footrope trawl with minimal targeting allowed for midwater trawl gear • Flatfish landings restricted to reduce incidental catch of protected rockfish • Commercial hook-and-line and fisheries off California closed or depth restricted 7 months (central CA) or 5 months (southern CA) for nearshore and shelf rockfish • Recreational fisheries off California closed or depth restricted 6 months (central CA) or 4 months (southern CA) for nearshore and shelf rockfish with overall rockfish recreational bag limits same as in 2000 but species-specific limits reduced for overfished species • All commercial fisheries closed 6 months, except that central CA hook-and-line closed 8 months, for lingcod • Recreational season closures and continued reduced bag limits for lingcod varying by state • Cowcod Conservation Areas introduced to Southern California Bight waters, closed to all fishing for groundfish • Cowcod retention prohibited in all fisheries • Pink shrimp trawlers using fish excluder devices (state-managed fishery)
2002	yelloweye rockfish, whiting (Management measures to protect lingcod, bocaccio, POP, canary rockfish, cowcod, widow rockfish, darkblotched rockfish continue.)	• Targeting opportunities for all overfished stocks except whiting eliminated. Whiting OY reduced by 20% from 2001 • New bycatch analysis used to determine co-occurrence ratios between healthy species and overfished species, allowing more precise setting of healthy species limits to better reduce incidental catch of overfished species • Shelf rockfish targeting further reduced for hook-and-line gear and for all trawl gears • Flatfish landings further restricted to reduce incidental catch of protected rockfish • Commercial hook-and-line and recreational fisheries off California closed or depth restricted10 months (central CA) or 4 months (southern CA) for nearshore and shelf rockfish Commercial hook-and-line and recreational fisheries off central and southern California closed 4 months for nearshore and shelf rockfish with rockfish recreational bag limits also reduced • Commercial hook-and-line fisheries closed 6 months, except that central CA hook-and-line closed or depth restricted 8 months, for lingcod • Recreational season closures and continued reduced bag limits for lingcod varying by state • Cowcod Conservation Areas continue, cowcod retention continues to be prohibited • Yelloweye rockfish and canary rockfish retention prohibited in commercial hook-and-line fisheries, reduced or prohibited in recreational fisheries, reduced in trawl fisheries. • Pink shrimp trawlers using fish excluder devices (state-managed fishery) • Pacific halibut sport fishery closed area expanded to protect co-occurring yelloweye rockfish (state-managed fishery)

Figure 3.3.1

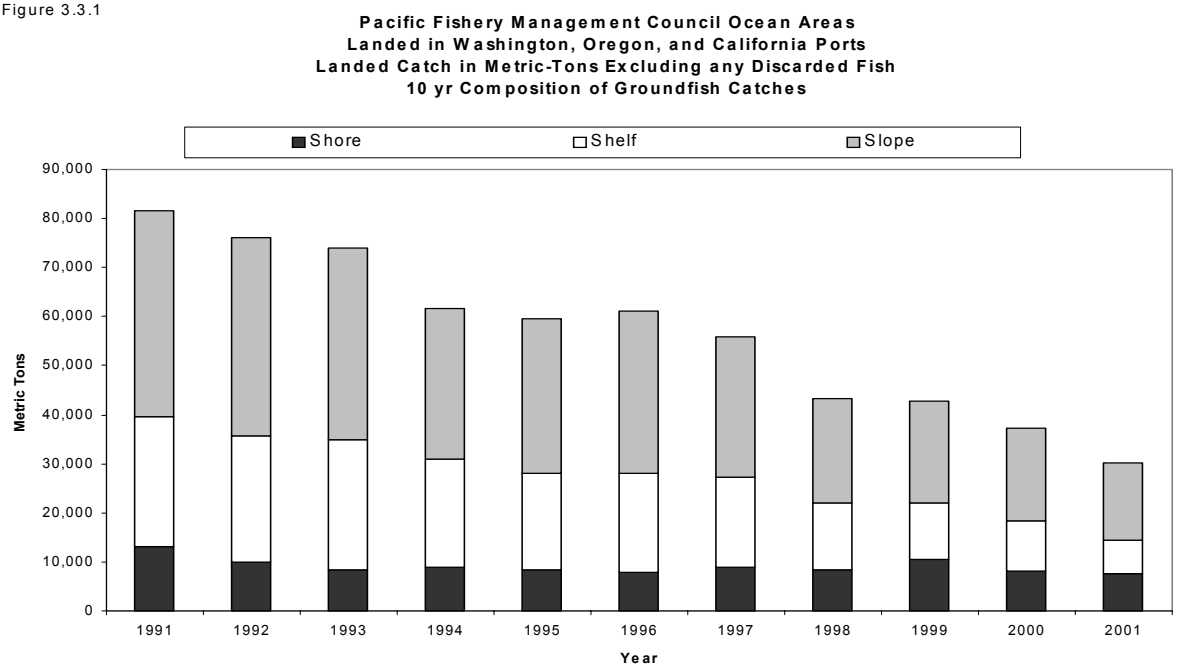
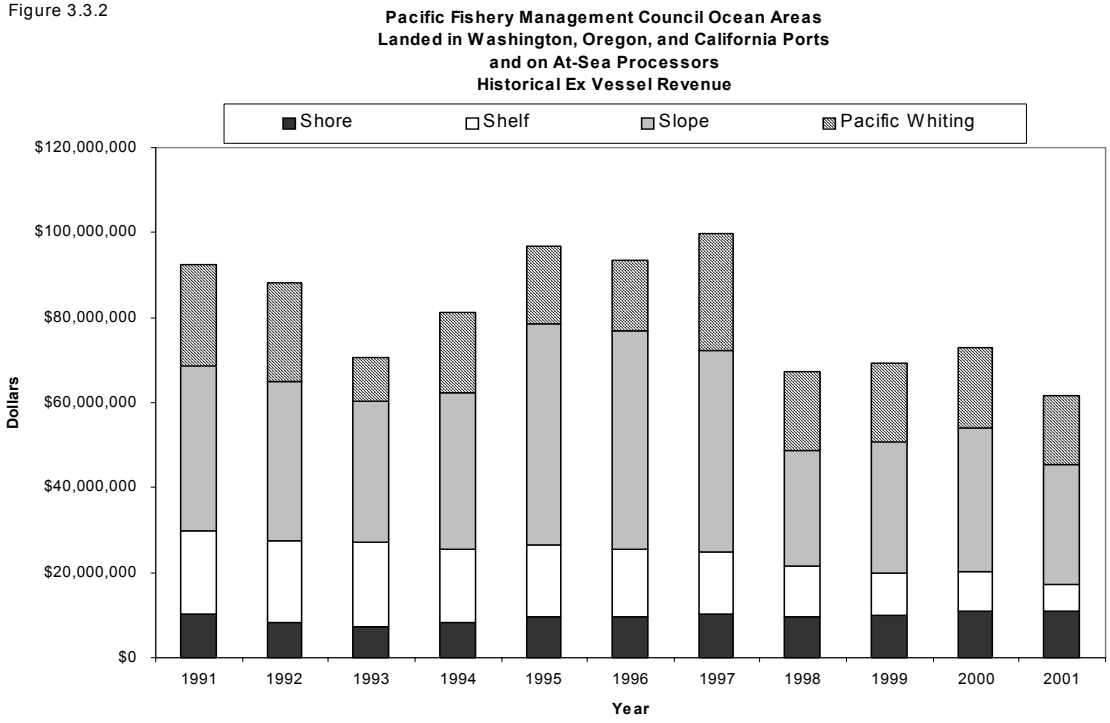


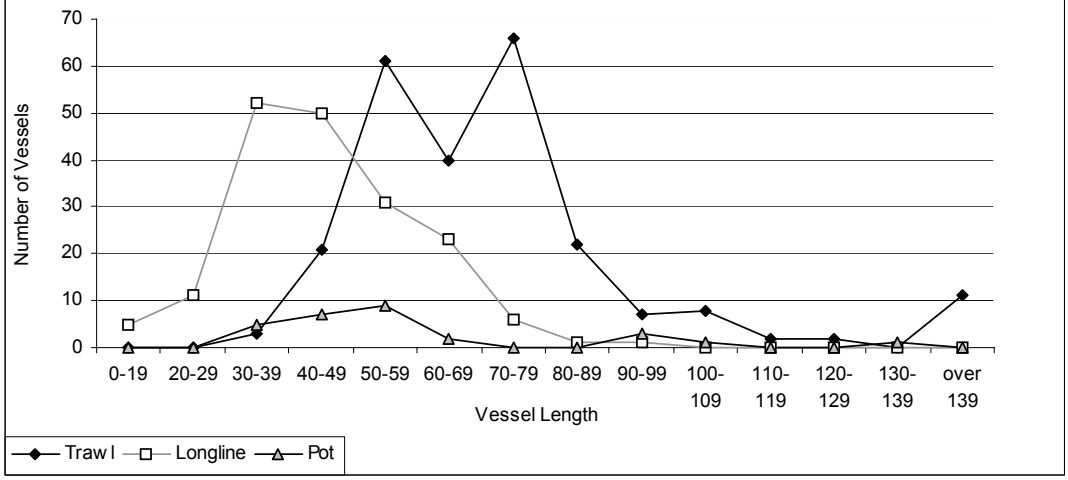
Figure 3.3.2



3.3.2 Profile of the Commercial Limited Entry (Non-Tribal) Groundfish Fisheries

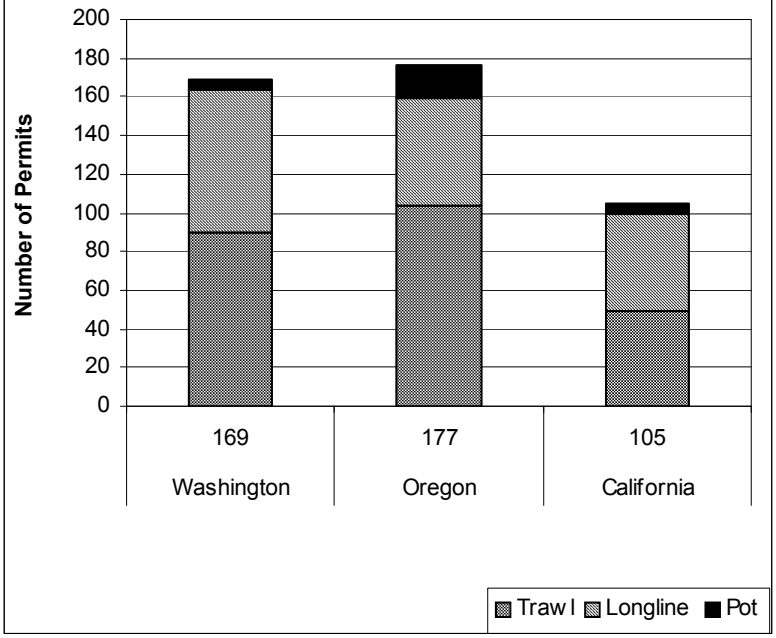
The Pacific coast groundfish fishery is a year-round, multi-species fishery that takes place off the coasts of Washington, Oregon, and California. Most of the Pacific coast non-tribal, commercial groundfish harvest is taken by the limited entry fleet. The groundfish limited entry program was established in 1994 for trawl, longline, and trap (or pot) gears. There are also several open access fisheries that take groundfish incidentally or in small amounts; participants in those fisheries may use, but are not limited to longline, vertical hook-and-line, troll, pot, setnet, trammel net, shrimp and prawn trawl, California halibut trawl, and sea cucumber trawl. Open access fisheries are described below at Section 3.3.3. In addition to these non-tribal commercial fisheries, members of the Makah, Quileute, Hoh, and Quinault tribes participate in commercial, and ceremonial and subsistence fisheries for groundfish off the Washington coast. Tribal groundfish fisheries are described below at Section 3.3.4.

Figure 3.3.3 Limited Entry Vessel Lengths, By Gear Type



In 1994, NMFS implemented Amendment 6 to the 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 through that program specify the gear type that a permitted vessel may use to participate in the limited entry fishery, and the vessel length associated with the permit. A vessel may only participate in the fishery with the gear designated on its permit(s) and may only be registered to a permit appropriate to the vessel's length. Since 1994, the Council has created further license restrictions for the limited entry fixed gear (longline and fishpot gear) fleet that restrict the number of permits useable in the primary sablefish fishery (Amendment 9) and that allow up to three

Figure 3.3.4 Limited Entry Permits, by State and Gear

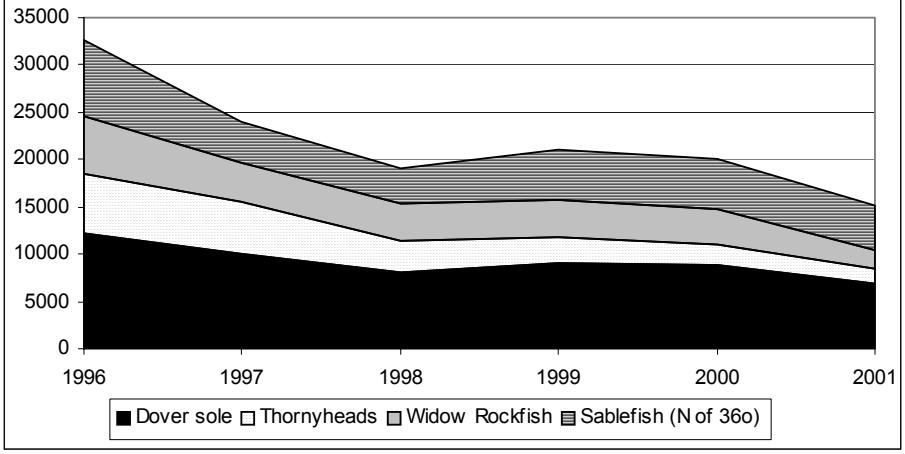


sablefish-endorsed permits to be used per vessel (Amendment 14.)

As of March, 2002, there were 450 vessels with Pacific Coast groundfish limited entry permits, of which approximately 54 percent were trawl vessels, 40 percent were longline vessels, 6 percent were trap vessels. The number of vessels registered for use with limited entry permits has decreased since the 2001 implementation of the permit stacking program for sablefish-endorsed limited entry fixed gear permits. Of the approximately 164 sablefish-endorsed permits, 83 are held by vessels registered with more than one sablefish-endorsed permit. Of the vessels that are registered with multiple sablefish-endorsed permits, 25 are registered with two permits and 11 are registered with three permits.

Limited entry permits may be sold and leased out by their owners, so the distribution of permits between the three states often shifts. In 2002, roughly 23 percent of the limited entry permits were assigned to vessels making landings in California, 39 percent to vessels making landings in Oregon, and 37 percent to vessels making landings in Washington. In 1999, this division of permits was approximately 41 percent for California, 37 percent for Oregon, and 21 percent for Washington. This change in state distribution of limited entry permits may also be due to the implementation of the permit stacking program. Vessels operating from northern ports may have purchased or leased sablefish-endorsed permits from vessels that had been operating out of California ports.

Figure 3.3.5 Groundfish Landings (Selected Species) 1996-2001, in metric tons



Limited entry fishers focus their efforts on many different species, with the largest landings by volume (other than Pacific whiting) from the following species: Dover sole, arrowtooth flounder, petrale sole, sablefish, thornyheads, and yellowtail rockfish. There are 55+ rockfish species managed by the Pacific coast groundfish FMP, of which seven species have been declared overfished in the past four years. Protective fisheries regulations intended to reduce the directed and incidental catch of overfished rockfish and other depleted species have significantly reduced the harvest of rockfish in recent years.

By weight, Pacific whiting represents the vast majority of West Coast groundfish landings. The whiting mid-water trawl fishery is a distinct component from the trawl groundfish trip limit fisheries. In 2001, whiting accounted for about 85 percent, by weight, of all commercial shore-based groundfish landings. Whiting is taken by treaty tribe catcher vessels delivering to a mothership (17.5% of total OY in 2002,) by non-tribal catcher vessels delivering to shore-based processing plants (42% of non-tribal OY,) by non-tribal catcher-vessels delivering to motherships (24% of non-tribal OY,) and by non-tribal catcher-processor vessels (34% of the non-tribal OY.) In 2001, 29 catcher vessels delivered whiting to shore-based processing plants. This number is down from previous years, when the number of participating vessels was in the mid- to upper-30s. Some vessels move between the West Coast and Alaska fisheries; some remain entirely off Washington, oregon, and California. In 2001, the v ast majority of whiting (about 73%) was landed in Oregon; Washington landigns represented 24% of the total and California landings represented about 3.1%. Approximately 20 catcher vessels delivered to five motherships in 2001, and seven catcher-processor vessels participated in the whiting fishery. Also in 2001, four tribal catcher vessels delivered whiting to one mothership.

Figure 3.3.6a Groundfish Trawl Vessel Participation in Non-Groundfish Fisheries

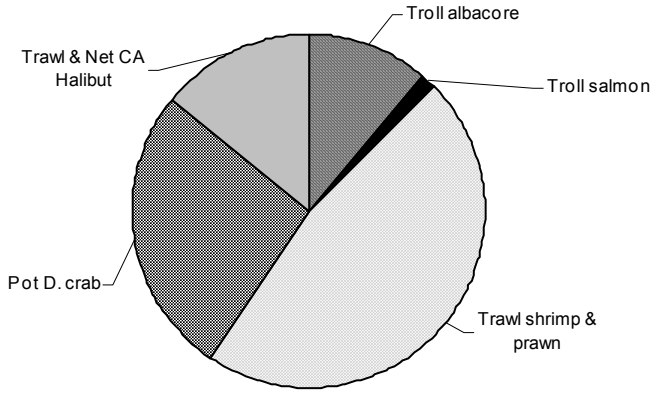


Figure 3.3.6b Groundfish Hook-and-Line (Includes Open Access) Vessel Participation in Non-Groundfish Fisheries

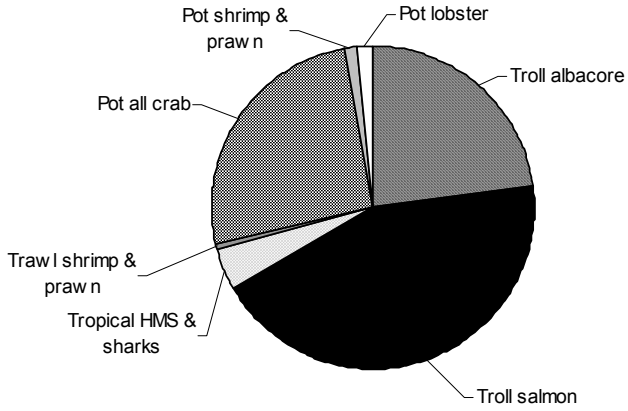
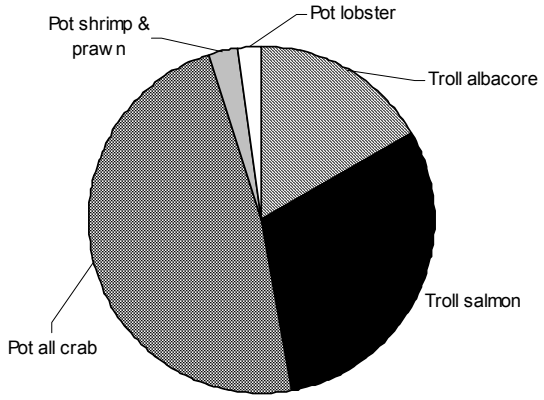


Figure 3.3.6c Groundfish Pot (Including Open Access) Vessel Participation in Non-Groundfish Fisheries



Catcher vessel owners and captains employ a variety of strategies to fill out a year of fishing. Fishers from the northern ports may fish in waters off of Alaska, as well as in the West Coast groundfish fishery. Others may change their operations throughout the year, targeting on salmon, shrimp, crab, or albacore, in addition to various high-value groundfish species, so as to spend more time in waters close to their communities. Factory trawlers and motherships fishing for or processing Pacific whiting off of the West Coast usually also participate in the Alaska pollock seasons, allowing the vessels and crews to spend a greater percentage of the year at work on the ocean. Commercial fisheries landings for species other than groundfish vary along the length of the coast. Dungeness crab landings are particularly high in Washington state, squid, anchovies, and other coastal pelagics figure heavily in California commercial landings, with salmon, shrimp, and highly migratory species like albacore more widely distributed, and varying from year to year.

Figures 3.3.6a-c show the approximate concentration of groundfish vessels in fisheries for non-groundfish West Coast species, 1994-1998. These pie charts exclude some non-groundfish fisheries where participation by groundfish vessels was so minimal that a viewer could not reasonably see the corresponding portion of the pie chart. Data for these charts came from an ongoing Council staff project to create a socio-economic profile of groundfish fishery participants.

It is clear from these three charts that there is some degree of gear loyalty for groundfish vessels participating in non-groundfish fisheries. For example, a notable proportion of the non-groundfish fishery participation by groundfish trawl vessels occurs in the shrimp and prawn trawl fisheries. Similarly, the hook-and-line groundfish fisheries show high participation in the troll albacore and troll salmon fisheries. And, while all three gear groups participate in pot fisheries for crab, groundfish pot vessels show the greatest percentage of gear group participation in pot fisheries for crab and other crustaceans.

3.3.3 Profile of the Commercial Open Access (Non-Tribal) Groundfish Fisheries, Directed and Incidental

Unlike the limited entry sector, the open access fishery has unrestricted participation and is comprised of vessels targeting or incidentally catching groundfish with a variety of gears, excluding groundfish trawl gear. 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 provisions that have affected participation in groundfish fisheries.

The commercial open access groundfish fishery consists of vessels that do not necessarily depend on revenue from the fishery as a major source of income. Many vessels that predominately fish for other species inadvertently catch and land groundfish. Or, in times and areas when fisheries for other species are not profitable, some vessels will transition into the groundfish open access fishery for short periods. The commercial open access fishery for groundfish is split between vessels targeting groundfish (*directed fishery*) and vessels targeting other species (*incidental fishery*). The number of unique vessels targeting groundfish in the open access fishery between 1995-1998 coastwide was 2,723, while 2,024 unique vessels landed groundfish as incidental catch (1,231 of these vessels participated in both) (SSC's Economic Subcommittee, 2000).

In the directed open access fishery, fishers target groundfish in the "dead" and/or "live" fish fishery using a variety of gears. The terms dead and live fish fisheries refers to the state of the fish when they are landed. The dead fish fishery has historically been the most common way to land fish. The dead fish fishery made up 80% of the directed open access landings by weight coastwide in 2001. More recently, the market value for live fish has increased landings of live groundfish. The other component of the open access fishery is the incidental catch of groundfish in fisheries targeting other species (e.g., shrimp, salmon, highly migratory species, squid). Combining both the directed and incidental fisheries, the commercial groundfish open access fishery is potentially very large and includes a variety of gear types.

Landings, Revenue, and Participation by State Fisheries are generally distributed along the coast in patterns governed by factors such as location of target species, location of ports with supporting marine supplies and services, and restrictions/regulations of various state and federal governments. For the open access directed groundfish fishery, the majority of landings by weight that target groundfish occur off California. Oregon's directed groundfish open access fishery has the next highest landings, followed by Washington's. In the incidental groundfish fisheries, Oregon and California both have similar landings in their open access fisheries. Washington again has the lowest landings by weight of incidental groundfish (PFMC 2001e). Participation in "both directed and bycatch components of the open access fishery is much greater in California than in Oregon and Washington combined. For instance, in 1998, 779 California boats, 232 Oregon boats and 50 Washington boats participated in the directed fishery. In that same year, 520 California boats, 305 Oregon boats and 40 Washington boats participated in the bycatch fishery" (SSC's Economic Subcommittee, 2000).

Open access fisheries have been examined for their landings in the years 1996 and 2001, two randomly chosen years following the implementation of the limited entry program. Overall and in each individual state, open access landings decreased between 1996 and 2001. Federally, open access landings limits were sharply reduced between 1996 and 2001. Ex-vessel value for open access groundfish fisheries also decreased coastwide between 1996 and 2001. The directed fishery decreased from over $7 million in 1996 to under $5 million in 2001 and the incidental fishery decreased by half, from roughly $800,000 in 1996 to roughly $400,000 in 2001. (##Hastie 2001 tables, cite somehow)

Table 3.3.3: Estimated Open Access Fishery Landings in 1996 and 2001, by state, weight and value		
Open Access Sector	*1996 landings by weight*	*2001 landings by weight*
Coastwide Directed	3,291 mt	1,086 mt
Coastwide Incidental	802 mt	197 mt
Washington Directed	225 mt	66 mt
Washington Incidental	296 mt	28 mt
Oregon Directed	458 mt	237 mt
Oregon Incidental	384 mt	98 mt
California Directed	2,608 mt	776 mt
California Incidental	122 mt	70 mt

Directed Fishery The directed open access fishery for groundfish primarily targets rockfish, sablefish, lingcod, cabezon and flatfish. A vessel is considered to target groundfish in the open access fishery during a fishing trip if it is fishing with any gear other than groundfish trawl and if over 50% of the revenue from landings in that trip were from groundfish species. Participation in the directed fishery has decreased from 1,357 vessels in 1994 to 1,032 in 1999 (##PFMC 2001d). Reasons for this trend could include movement from the groundfish open access sector into other more profitable fisheries, or movement out of fishing all together.

As previously mentioned, the open access directed groundfish fishery consists of landings in both the dead and live fish categories. In the directed fishery, gears used to target and land dead groundfish include: vertical hook and line, rod/reel, pot, longline, troll/dinglebar, jig, sculpin trawl, setnet, and drifted (fly gear). Essentially all of the groundfish species managed under the FMP are targeted by various gears in the directed open access dead fishery. Increasingly, the live fish trade is gaining landings, due to a growing market value for live fish. In 2001, the live fish directed open access fishery accounted for 20% of the coastwide directed open access landings by weight, compared to only 6% in 1996. Gear used to target live groundfish include: pot, stick, and rod/reel. While Washington has prohibited live fish landings since 1999, both Oregon and California have live fish fisheries targeting groundfish. Currently, Oregon and California are drafting nearshore fishery management plans (FMPs) that could transition some species of groundfish landed in the live fish fishery from federal to state management.

In the directed open access fishery, certain gears are used to target specific species. Hook-and-line gear, the most common gear type, is generally used to target sablefish, rockfish and lingcod, while pot gear generally targets sablefish and some thornyheads and rockfish. In southern and central California, setnet gear targets rockfish, including chilipepper, widow, bocaccio, yellowtail and olive rockfish, and to a lesser extent vermillion rockfish.

Incidental Fisheries Fisheries that catch and land groundfish incidentally include: pink shrimp, spot prawn, ridgeback prawn, California and Pacific halibut, Dungeness crab, salmon, sea cucumber, coastal pelagic species, California sheephead, highly migratory species and the gillnet complex. Some of the gears in the incidental groundfish fishery include: non-groundfish trawl, pot, pole/line, longline, round haul, setnet, driftnet, purse seine, harpoon, gillnet, and troll. Not all of these fisheries have significant incidental groundfish catch. Open access fisheries with greater incidental groundfish catch are reviewed herein. For further information see ##Goen.##

Pink Shrimp Pink shrimp, also known as ocean shrimp, range from the Aleutian Islands in Alaska to San Diego, California, at depths from 150 to 1200 feet. They are targeted with shrimp trawl gear off

Washington, Oregon, and California. The pink shrimp fishery is managed by the states, with incidental catch limits imposed as trip limits in the federal open access groundfish fishery under "exempted trawl." Vessels targeting pink shrimp also land groundfish species, including rockfish, lingcod, sablefish, thornyheads, and flatfish. Between 1990 and 2001, coastwide landings of groundfish in the pink shrimp fishery reached a high in 1993 of 896 metric tons, 8 % of the total landing with shrimp (Hastie, Table NGF1). Many groundfish species are caught incidentally in the pink shrimp fishery due in part to the indiscriminate nature of trawl gear. Efforts are underway to reduce the incidence of groundfish bycatch, by requiring bycatch reduction devices (BRDs) and no-fishing buffer zones above the seafloor. In 2001, Washington and Oregon instituted mandatory BRDs in pink shrimp trawl nets, effective August 1, 2001, to reduce finfish take, including canary rockfish, an overfished species. Historically, about 71% of the canary rockfish landed annually by Pacific Coast shrimpers was landed in Oregon (ODFW 2002). For 2002, Washington and Oregon are not requiring BRDs unless implemented through temporary emergency rule if canary rockfish landings reach a certain level, similar to 2001. California requires BRDs for all vessels landing shrimp in California ports.

In Washington, 15 vessels participated in the pink shrimp fishery in 1998 and 14 on a regular basis in 1999. In Oregon, only 84 vessels landed shrimp in 2001 (74 double-rig; 10 single-rig) compared to 108 in 2000, 121 in 1999 and 109 vessels in 1998 (ODFW 2002, PSMFC 1997). Despite lower landings in recent years, Oregon generally has the largest volume by weight of landings. In 1999, Oregon landed more pink shrimp than California, Washington, British Columbia and Alaska combined. In California, an average of 88 vessels participated per season from 1983 through 1999 (Collier and Hannah 2001).

Pacific Halibut Pacific halibut range from the Hokkaido, Japan to the Gulf of Anadyr, Russia on the Asiatic Coast and from Nome, Alaska to Santa Barbara, California on the North American (Pacific) Coast. The Pacific halibut fishery is managed by the International Pacific Halibut Commission (IPHC) with implementing regulations set by the federal governments of Canada and the United States (US) in their respective waters. A license from the IPHC is required to participate in the non-treaty commercial Pacific halibut fishery. The commercial sector off the Pacific Coast, IPHC Area 2A, has both a treaty and non-treaty sector. For the non-treaty commercial sector, harvest is divided between the directed halibut fishery and the incidental catch of halibut in the salmon troll fishery. When the Area 2A total allowable catch is above 900,000 lbs, as it has been in recent years, halibut may be retained in the limited entry primary sablefish fishery north of Point Chehalis, Washington (46˚53'18" N. lat.).

The non-treaty directed commercial fishery in Area 2A is confined to south of Point Chehalis, Washington, Oregon, and California. Area 2A licenses, issued for the directed commercial fishery, have decreased from 428 in 1997 to 320 in 2001. For 2001, the directed commercial licenses also allow longline vessels to retain halibut caught incidentally north of Point Chehalis during the primary sablefish season. Area 2A licenses issued for the incidental salmon troll fishery increased from 275 in 1997 to 345 in 2001. In Area 2A, the incidental salmon troll fishery was allowed to retain 1 halibut per 5 chinook, plus 1 extra halibut, with a maximum of 35 incidental halibut landed. Groundfish are caught in the Pacific halibut fishery coastwide. Rockfish and sablefish are commonly intercepted, as they are found in similar habitat to Pacific halibut and are easily caught with longline gear. The recent overfished species designation of yelloweye rockfish, which is commonly caught with Pacific halibut, has caused the Council some concern about the effects of Pacific halibut fisheries on overfished rockfish species.

Salmon Salmon are targeted with troll gear off all three West Coast states. The ocean commercial salmon fishery, both non-treaty and treaty, is under federal management with a suite of seasons and total allowable harvest. The Council manages commercial fisheries in the Exclusive Economic Zone (3-200 miles offshore), while the states manage commercial fisheries in state waters (0-3 miles). Beside troll gear, salmon are also targeted with gillnets and/or tanglenets in the mouths of rivers. Although the gillnet/tanglenet fishery does not technically occur in Council-managed waters, it may have some impact on groundfish that migrate through that area during part of their life cycle.

The majority of chinook and coho were landed in California in 1999 with Washington and Oregon both

having significantly fewer landings. The salmon troll fishery does have an incidental catch of Pacific halibut and groundfish, including yellowtail rockfish. Halibut are caught incidentally off Washington and Oregon, while groundfish are caught off all three states. The California salmon fisheries primarily harvest chinook or king salmon. Coho or silver salmon are observed in small numbers but are presently under a no-retention catch policy. Occasionally in odd-numbered years, pink salmon are landed. In 1983, California implemented a limited entry program that capped the fishery at just over 4,600 commercial salmon vessels. ##need info on gf inc. catch##

Gillnet Complex ##more from CDFG?## The gillnet or driftnet complex is managed by the state of California and made up of California halibut, white seabass, white croaker and sharks. These species are targeted solely with driftnet gear off California, since the setnet fishery for white seabass was prohibited in 1994. White seabass may also be caught with commercial hook-and-line gear in the early spring, when large seabass are available. White croaker, an abundant nearshore species, is predominately caught off central California in the driftnet fishery, although they range from Vancouver Island, British Columbia to Magdalena Bay, Baja California (but are not abundant north of Point Reyes, California). The entrance of Southeast Asian refugees (mainly Vietnamese) into this fishery, in part caused a shift in fishing effort from southern to central California (Moore and Wild 2001, p.234).

3.3.4 Profile of the Tribal Groundfish Fisheries, Directed and Incidental

In 1994, the U.S. government formally recognized that the four Washington Coastal Tribes (Makah, Quileute, Hoh, and Quinault) have treaty rights to fish for groundfish, and concluded that, in general terms, the quantification of those rights is 50 percent of the harvestable surplus of groundfish available in the tribes' usual and accustomed (U and A) fishing areas (described at 60 CFR 660.324). West Coast treaty tribes have formal allocations for sablefish, black rockfish, and Pacific whiting. Members of the four coastal treaty tribes participate in commercial, ceremonial, and subsistence fisheries for groundfish off the Washington coast. Participants in the tribal commercial fisheries operate off Washington and use similar gear to non-tribal fishers. Groundfish caught in the tribal commercial fishery pass through the same markets as non-tribal commercial groundfish catch.

In 2002, tribal sablefish longline fisheries were allocated 10% of the total catch OY (436.7 mt) and then were discounted 3% of that allocation for discard mortality, for a landed catch allocation of 424 mt. For the commercial harvest of black rockfish off Washington State, the treaty tribes have a harvest guideline of: 20,000 lb (9,072 kg) north of Cape Alava (48°09'30" N. lat.) and 10,000 lb (4,536 kg) between Destruction Island (47°40'00" N. lat.) and Leadbetter Point (46°38'10" N. lat.). In 1999 and 2000 32,500 mt of whiting was set aside for treaty Indian tribes on the coast of Washington state, resulting in a commercial OY of 199,500 mt for 2000. In 2001 and 2002 the landed catch OY declined to 190,400 mt and 129,600 mt, respectively, and the tribal allocations for those years were also reduced to 27,500 mt and 22,680 mt, respectively.

There are several groundfish species taken in tribal fisheries for which the tribes have no formal allocations. For some species on which the tribes have a modest harvest, no specific allocation has been determined. Rather than try to reserve specific allocations of these species, the tribes annually recommend trip limits for these species to the Council that accommodate modest tribal fisheries. Tribal trip limits for groundfish species without tribal allocations are usually intended to constrain direct catch and incidental retention of overfished species in the tribal groundfish fisheries.

The bulk of tribal groundfish landings occur during the March-April halibut and sablefish fisheries. Most continental shelf species taken in the tribal groundfish fisheries are taken during the halibut fisheries and most slope similarly taken during the tribal sablefish fisheries. Approximately one-third of the tribal sablefish allocation is taken during an open competition fishery, in which member vessels from the sablefish tribes all have access to this portion of the overall tribal sablefish allocation. The open competition portion tends to be taken during the same period as the major tribal commercial halibut fisheries in March and April. The remaining two-thirds of the tribal sablefish allocation are split between

the sablefish tribes according to a mutually agreed-upon allocation scheme. Tribe-specific sablefish allocations are managed by the individual sablefish tribes, beginning in March and lasting into the autumn, depending on vessel participation management measures used. Participants in the halibut and sablefish fisheries tend to use hook-and-line gear, as required by the International Pacific Halibut Commission.

In addition to these hook-and-line fisheries, the Makah tribe annually harvests a whiting allocation using mid-water trawl gear. Since 1996, a portion of the U.S. whiting OY has been allocated to the Pacific Coast treaty tribes. The tribal allocation is subtracted from the whiting OY before allocation to the nontribal sectors. Since 1999, the tribal allocation has been based on a framework that is a sliding scale related to the U.S. whiting OY. To date, only the Makah tribe has fished on the tribal whiting allocation.

Table 3.3.4 Tribal Framework for Whiting Allocation, Adopted in 1999	
U.S. Optimum Yield	Tribal Allocation
Up to 145,000 mt	17.5% of the U.S. OY
145,001 mt to 175,000 mt	25,000 mt
175,001 mt to 200,000 mt	27,500 mt
200,001 mt to 225,000 mt	30,000 mt
225,001 mt to 250,000 mt	32,500 mt
Over 250,000 mt	35,000 mt

Makah vessels fit with mid-water trawl gear have also been targeting widow and yellowtail rockfish with mid-water gear in recent years.

Table 3.3.5 Treaty Tribe Groundfish Landings, 1995-2001. In pounds, except for whiting, which is in mt.

Species	1995	1996	1997	1998	1999	2000	2001
Lingcod	2,162	1,616	1,555	3,477	4,086	4,054	6,757
Rockfish (general)	110,673	38,105	48,969	54,638	41,379	32,827	131
Rockfish (red)	211	137	87	619	1,067	431	2,141
Widow Rockfish					73	2,012	8,445
Yellowtail Rockfish	734	1,087	2,528	10,370	29,281	71,124	150,254
Shortspine thornyhead	15,476	7,408	12,483	4,916	7,984	8,705	11,008
Sablefish	1,177,704	1,128,795	1,078,875	634,512	812,511	958,490	907,399
Whiting (in metric tons)		15,000	24,840	24,509	25,844	6,251	6,080

Twelve western Washington tribes possess and exercise treaty fishing rights to halibut, including the four tribes that possess treaty fishing rights to groundfish. Specific halibut allocations for the treaty Indian tribes began in 1986. The tribes did not harvest their full allocation until 1989, when the tribal fleet had developed to the point that it could harvest the entire Area 2A TAC. In 1993, judicial confirmation of treaty halibut rights occurred and treaty entitlement was established at 50 percent of the harvestable surplus of halibut in the tribes' combined U&A fishing grounds. In 2000, the courts ordered an adjustment to the

halibut allocation for 2000-2007, to account for reductions in the tribal halibut allocation from 1989-1993. For 2000 through 2007, the non-tribal fisheries will be transferring at least 25,000 lb per year to the tribal fisheries, for a total of 200,000 lb to be transferred to the tribal fisheries over that period. Tribal allocations are divided into a tribal commercial component and the year-round ceremonial and subsistence (C&S) component.

Tribal commercial halibut fisheries have historically started at the same time as Alaskan and Canadian commercial halibut fisheries, generally in mid-March. The tribal halibut allocation is divided so that approximately 80–85% of allocation is taken in brief open competition derbies, in which vessels from all halibut tribes compete against each other for landings. In 2002, three of these "unrestricted" openings were held in the spring: a 48-hour opening on March 18th, a 24-hour opening on April 2nd, and a 36-hour opening on April 30th. In addition to these unrestricted openings, 15-20% of the tribal halibut allocation is reserved for "restricted" fisheries, in which participating vessels are restricted to a per trip and per day poundage limit for halibut. Two restricted opening opportunities were available in 2002, from March 20th through April 19th and from May 5th through 9th. Similar to the unrestricted openings, these restricted openings are available for vessels from all halibut tribes.

Table 3.3.6 Treaty Tribe Halibut Allocations and Catches, Dressed Weight, 1992-2001

Year	Commercial Allocation	Commercial Catch	C & S Allocation	C & S Catch
1992	152,500	154,200	10,000	14,200
1993	136,000	136,200	14,000	15,800
1994	176,500	187,700	16,000	10,900
1995	171,000	176,400	11,000	14,200
1996	168,000	166,200	14,000	15,000
1997	230,000	228,500	15,000	14,800
1998	272,000	296,600	15,000	10,500
1999	256,000	271,500	10,000	10,500
2000	305,000	300,100	10,500	17,500
2001	406,500	411,600	17,500	16,000

3.3.5 Profile of the Recreational Fisheries

Seger information for 2003 specifications EIS## Data on where seasons strongest and when for effects on recreational fisheries of closures at different times of years? Participation in salmon charter industry as indicator of potential groundfish participants, possibly more data on salmon sector? Discuss halibut recreational fishery, particularly as it affects yelloweye rockfish?##

3.3.6 Profile of the Processing Sector

Shorebased Sector. # Seger information for 2003 specifications EIS## Estimates of # of processors (shorebased and at-sea,) where located. Processors that have closed in recent years? What spp. (groundfish and non-groundfish) processed at what times of year? Davis & Radtke on OR, sources for CA and WA? Connections with processors off AK and BC?##

Whiting has been processed into surimi, sold in headed and gutted form, filleted, and converted to meal and oil. Other, higher quality fish like Petrale sole are dressed and rushed to fresh, local markets as quickly as possible, while most sablefish is frozen and sent to foreign markets. The quantity of groundfish caught off of the West Coast is just a small percent of the amount of groundfish caught in federal waters off Alaska, so West Coast groundfish moves through many of the same markets as Alaska groundfish, taking prices set by the northern fleet.

With the exception of the portion of Pacific whiting catch that is processed at sea, all other Pacific coast groundfish catch is processed in shore-based processing plants along the Pacific coast. By weight, 1998 commercial groundfish landings were distributed among the three states as follows: Washington, 13%; Oregon, 69%; California, 18%. By value, commercial groundfish landings are distributed among the three states as follows: Washington, 15%; Oregon, 43%; California, 41% (PFMC, October 1999.) The discrepancies between the Oregon and California portions of the landings are expected because Oregon processors handle a relatively high percent of the shore-based whiting landings, a high volume, low value fishery. Conversely, California fishers land more of the low volume, high value species as a proportion of the total state-wide catch than Oregon fishers.

At-Sea Sector. There are two classes of vessels in the at-sea processing sector of the whiting fishery, catcher-processors that harvest and process their own catch, and mothership vessels that process unsorted catch received from smaller catcher vessels. The processing vessels are large (>250 ft in length) and carry crews of 65-200, who mostly work in shifts to keep the factories operating day and night.

The first year of implementation of a license limitation program in the Pacific groundfish fishery was 1994. Vessels that did not initially qualify for a permit had to buy or lease one from qualifying vessels to gain access to the fishery. To harvest whiting, all at-sea catcher-processors had to purchase or lease permits. This changed the composition of the at-sea processing fleet considerably, increasing the number of motherships, because permits are not required for vessels that only process (PFMC 1998). Unlike catcher/processors and catcher vessels, motherships do not have permits to harvest groundfish in the WOC.

In 2001, 20 catcher vessels delivered whiting to 5 non-tribal mothership processors and 4 tribal catcher vessels delivered whiting to a single tribal mothership. Some vessels may deliver catch exclusively to motherships off Alaska and the West Coast, but in recent years, about half of the non-tribal vessels also delivered whiting to shore-based processing facilities in Washington, Oregon and California. Similarly, the tribal mothership also processes whiting in the non-tribal sector before the start of the tribal fishery. In 2001, 7 catcher/processors participated in the whiting fishery.

Since May 1997, when the Department of Justice approved allocation of whiting shares among the members of the Whiting Conservation Cooperative, the catcher-processor fishery has operated as a voluntary quota share program where each of the catcher-processor companies has agreed to take a specific share of the harvest. With harvests assured, the catcher-processors are able to operate more cautiously to avoid areas of salmon and rockfish abundance. The motherships, however, operate under more competitive conditions (first come first served) for their sector's allocation. The U.S. whiting allocation has been fully utilized by domestic processors since 1992.

Whiting is a high volume species, but it commands a relatively low price per pound. The at-sea processing vessels have onboard surimi production capacity and were initially designed to fish for pollock in the groundfish fisheries off Alaska. Because whiting is a similar species to pollock, harvesting and processing technology and equipment used in the Alaskan fisheries is also used for whiting. In addition, to surimi, most of these vessels have the capacity to produce frozen fillet blocks and have fish meal plants to process small whiting, incidentally caught groundfish species and fish offal.

4.0 ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES

How This Section is Organized

This Section examines the environmental consequences that could be expected to result from adoption of each of the alternatives to both the specifications and management measures process issue and to the optimum yield duration issue. As discussed in Section 1.0, Purpose and Need for Action, the purposes in and needs for considering these alternatives are to:

- Comply with a court order to provide more opportunity for public comment in the NMFS rule publication process
- Streamline the process of and reduce the workload associated with developing specifications and management measures so that more Council and NMFS time may be devoted to issues other than specifications and management measures development.

Therefore, this section will consider the environmental effects of the specifications and management measures process and of the potential alternatives to that process, as well as considering the environmental effects of alternative OY durations. The specific effects of the specifications and management measures adopted for 2002 were analyzed in the EA/RIR/IRFA for the 2002 ABC and OY specifications and management measures (Council 2001.) Concurrent to this FMP amendment, the Council is also considering Amendment 16, an FMP amendment on rebuilding overfished species. The NEPA analysis for Amendment 16 and for the overfished species rebuilding plans associated with Amendment 16 will evaluate the alternatives for rebuilding overfished species and how rebuilding measures that are part of the specifications and management measures process affect the human environment.

This section forms the analytic basis for the comparison of issues across alternative specifications and management measures processes and alternative OY durations. The potential of each alternative to affect one or more components of the human environment is discussed in this section; direct and indirect effects of the alternatives are discussed in this analysis. Direct effects are caused by an action and occur at the same time and place as the action, while indirect effects occur later in time and/or further removed in distance from the direct effects (40 CFR 1508.27). Direct effects of some of the alternatives include the effects of a potential change in the start date of the fishery management period on the Council's management process. Indirect effects from a change in fishery start date could include increased or decreased fishing pressure on particular groundfish stocks at different times of the year.

4.1 Physical Impacts of the Alternatives

Physical impacts generally associated with fishery management actions are effects resulting from changes in the physical structure of the benthic environment as a result of fishing practices (e.g. gear effects and fish processing discards). Although groundfish fishing activity affects the physical environment, the process of implementing specifications and management measures does not have an effect on the physical environment. Discussions of the effects on the physical environment of the specifications and management measures for a particular year are found within the appropriate NEPA analyses for that year's specifications and management measures. Concurrent to this Amendment 17, NMFS is also drafting an Environmental Impact Statement on the effects of groundfish fishing on EFH. The effects on the physical environment of the full suite of groundfish management measures and policies will be considered within that EIS.

4.2 Biological Impacts of the Alternatives

The biological impacts generally associated with fishery management actions are effects resulting from: 1) harvest of fish stocks that may result in changes in food availability to predators, changes in population structure of target fish stocks, and changes in community structure; 2) entanglement and/or entrapment of

non-target organisms in active or inactive fishing gear; 3) major shifts in the abundance and composition of the marine community as a result of fishing pressure.

In this section, alternative specifications and management measures processes and alternative OY durations are examined for their potential effects on the biological environment. The primary areas where the process itself could affect the environment are: 1) the effect of potential fishing effort shifts caused by changes to the fishing season start date on target and non-target species; 2) the effect of the management process on the age of the resource surveys and assessments used in setting harvest specifications; and 3) the effect of the management process on the ability of the scientific process to describe and analyze the status of groundfish stocks and to estimate the harvestable surpluses of those stocks. Amendment 17 is administrative in nature and is not expected to have significant effects on the biological environment. If, at the beginning of a fishery management cycle, the Council sets suitably conservative harvest management measures, the season start date would not have any effect on the biological environment. In 2000 and 2001, however, management measures set at the beginning of the management cycle (January 1) were not conservative enough to maintain a year-round fishery for all species and all fishing sectors. If the fishery closures in the latter halves of these two years are indicative of future management challenges, the fishery season start date may have an effect on the biological environment, discussed below. Amendment 17 would also effect the scientific process for developing stock assessments that supports the Council's management process. The timing of the scientific process may have indirect effects on the quality of data and scientific analyses used in setting specifications and management measures. Table 4.2 provides these effects in a matrix format.

Table 4.2.1 Summary of the Potential Biological Impacts of Alternative Specifications and Management Measures Processes and Alternative OY Durations

BIOLOGICAL ISSUES	Effects on marine communities from fishing effort shifts due to season changes	Effects on the age of the resource surveys and assessments used in setting harvest specifications	Effects on data availability (Fishery and mortality data, age, size, growth & recruitment data, resource surveys)	Effects on advanced models (Stock assessments, multi-species interactions, habitat, climate)
Threshold	If this specifications and management measures process results in a time-shift in fishing effort, how might it affect when specific stocks and stock mixes are taken?	"Best available data" and "most recently available data" are two different concepts. How would this specifications and management measures process affect the use of the most recently available data?	Could this specifications and management measures process result in more and better catch, abundance, and biological data being available to stock assessment modelers and the public?	Could this specifications and management measures process provide more opportunities to develop, review and refine scientific models to improve the "best available science?"
Process Alternative 1, status quo, no action: 2-meeting annual process (Sept & Nov,) Jan 1 start date	Status quo/no action alternative tends to result in early attainment of harvest allocations and fishing closures during Oct-Dec. Although this schedule decreases fishing pressure during early winter flatfish spawning aggregation months of Nov-Dec, fishing pressure is heavy again during later flatfish spawning aggregation months of Jan-March. Bycatch of protected rockfish species in flatfish fisheries tends to be lower during winter flatfish spawning aggregation periods. This schedule also leaves open fishing opportunities during summer months, when flatfish tend to move to more shallow depths and when bycatch of protected slope rockfish species is higher in fisheries targeting healthier slope rockfish and DTS stocks. Because Alternative 1 is an annual process, all OYs are one-year OYs, although a particular species may have the same one-year OY for several years at a time, depending upon stock assessment timing.	Under status quo/no action, resource surveys are conducted annually. Stock assessments are conducted triennially, with one-third of all assessed stocks receiving assessment updates each year. For some species, data from a resource survey in Year 1 is assessed in Year 2 and fishing occurs on that assessment in Year 3. At the other extreme, data from a resource survey in Year 1 is not assessed until Year 4, with fishing occurring on that assessment in Year 5. For all alternatives, resource surveys occur in summer/autumn months. Assessments based on those surveys are generally not available until May 1 of the following year. Duration of OYs, whether one-year, two-year, or mixed would not affect data availability.	No measurable effect on data gathering and availability. Availability of data used to assess stock status and potential biological yields tends to be most dependent on financial commitments that agencies & other interested parties make to data gathering. Catch data needed for inseason monitoring least available/ reliable early in fishing year. Jan 1 fishing year start could result in more in-year management fluctuations for species with heavier fishing pressure during Jan-Apr (DTS complex, flatfish.) Duration of OYs, whether one-year, two-year, or mixed would not affect data availability.	Status quo/no action alternative uses annual updates of one-third of all assessed stocks, with STAR processes that review both models used and data sources that contribute to models. Status quo STAR process increases workload for stock assessment authors who are annually preparing both models and data sources used in models for STAR review. Duration of OYs, whether one-year, two-year, or mixed would not affect advanced modelling.
Process Alternative 2: 3-meeting biennial process (April, June & Sept,) Mar 1start date	Given closure trends under status quo, March 1 start date would likely result in early allocation attainment and closures during Dec-Feb. Alternative 2 could thus reduce fishing pressure on flatfish during winter spawning aggregation months, but could also result in greater fishing pressure on healthy flatfish stocks in periods when bycatch of protected rockfish stocks is higher. Like Alternative 1, summer fishing months would continue open. If this alternative were implemented with some or all species managed with two-year OYs, as opposed to one-year OYs, early attainment and closure period could lengthen, possibly to Oct-Feb of second year in two-year fishing period. With two-year OYs, management measures would need to be more conservative at the start of the two-year fishing period to hedge against early closures during the second year in the fishing period.	Biennial management process would allow a biennial scientific process. Additional financial resources devoted to groundfish resource surveys should allow for biennial or annual surveys. Under this 3-meeting process, a resource survey would occur in Year 1, stock assessments in Year 2, management deliberations in Year 3, and fishing based on the Year 2 stock assessments would occur in Years 4 and 5. This alternative allows roughly the same newness of data use as the status quo alternative for two-thirds of assessed stocks, with *later* data use for one-third of assessed stocks. Duration of OYs, whether one-year, two-year, or mixed would not affect data availability.	No measurable change in data gathering and availability over Alternative 1. Alternative 2 has March 1 start date, which could result in more in-year management fluctuations for species with heavier fishing pressure during Mar-Jun (DTS complex & flatfish for Mar/ Apr; widow & yellowtail rockfish taken in pelagic trawls, all species taken in small boat hook-and-line fisheries during warmer May/June period.) Duration of OYs, whether one-year, two-year, or mixed would not affect data availability.	Improvement in model development and data use over Alternative 1. Biennial management process would allow biennial scientific process, with model development and review occurring in one year, then stock assessments that plug data into developed models occurring in alternate years. Biennial process could be expected to improve quality & variety of models used, to improve use of already-collected data on unassessed stocks, and to allow more time for exploring habitat and ecosystem modeling. Duration of OYs, whether one-year, two-year, or mixed would not affect advanced modelling.

BIOLOGICAL ISSUES	Effects on marine communities from fishing effort shifts due to season changes	Effects on the age of the resource surveys and assessments used in setting harvest specifications	Effects on data availability (Fishery and mortality data, age, size, growth & recruitment data, resource surveys)	Effects on advanced models (Stock assessments, multi-species interactions, habitat, climate)
Process Alternative 3: 3-meeting, biennial process (Nov, March/April & June,) Jan 1 start date	If biennial process sets annual harvest allocations against biennial OYs, this alternative should have no measurable changes over Alternative 1. If this alternative were implemented with some or all species managed with two-year OYs, as opposed to one-year OYs,early attainment and closure period could lengthen over Alternative 1, possibly to Aug-Dec of second year in two-year fishing period. With two-year OYs, management measures would need to be more conservative at the start of the two-year fishing period to hedge against early closures during the second year in the fishing period.	Same as Alternative 2 with respect to both annual specifications process and OY duration issues.	No measurable change over Alternative 1 with respect to either annual specifications process or OY duration issues.	Same as Alternative 2 with respect to both annual specifications process and OY duration issues.
Process Alternative 4: 3-meeting, biennial process (June, Sept & Nov,) May 1 start date	Given closure trends under status quo, May 1 start date would likely result in early allocation attainment and closures during Feb-Apr period. Alternative 4 would thus allow fishing pressure on flatfish during winter spawning aggregation months, when bycatch of protected rockfish stocks is lower. The major biological disadvantage of this alternative is that fishery data availability would be lowest during summer months of first year of the two-year fishing period. Pleasant weather summer months tend to have greater vessel participation and tend to show higher bycatch of protected rockfish stocks in fisheries targeting healthier stocks. If this alternative were implemented with some or all species managed with two-year OYs, as opposed to one-year OYs,early attainment and closure period could lengthen over Alternative 1, possibly to Dec-Apr of second year in two-year fishing period. With two-year OYs, management measures would need to be more conservative at the start of the two-year fishing period to hedge against early closures during the second year in the fishing period.	Biennial management process would allow a biennial scientific process. Additional financial resources devoted to groundfish resource surveys should allow for biennial or annual surveys. Under this 3-meeting process, a resource survey would occur in Year 1, stock assessments and management deliberations in Year 2, and fishing based on those assessments would occur in Years 3 and 4. This combination of a 3-meeting process with Years 3 and 4 use of data is possible because of the May 1 fishing period start date. This alternative allows roughly the same newness of data use as the status quo alternative for two-thirds of assessed stocks, with *earlier* data use for one-third of assessed stocks. Duration of OYs, whether one-year, two-year, or mixed would not affect data availability.	No measurable change in data gathering and availability over Alternative 1 with respect to both annual specifications process and OY duration issues. Alternative 4 has May 1 start date, which could result in more in-year management fluctuations for species with heavier fishing pressure during May-Aug (widow & yellowtail rockfish taken in pelagic trawls; all species taken in small boat hook-and-line fisheries in warm months.)	Same as Alternative 2 with respect to both annual specifications process and OY duration issues.
Process Alternative 5: 2-meeting, biennial process (June & Sept,) March 1 start date	Same as Alternative 2 with respect to both annual specifications process and OY duration issues..	Same as Alternative 4 with respect to both annual specifications process and OY duration issues. However, earlier use of data is possible with this alternative because it is a 2-meeting process. Of the four biennial alternatives, this alternative provides the shortest time between resource survey and fishing activity.	Same as Alternative 2 with respect to both annual specifications process and OY duration issues..	Same as Alternative 2 with respect to both annual specifications process and OY duration issues..

4.2.1 Biological Effects of Changing the Fishing Season Start Date and of Differing OY Durations

With the specifications and management measures process, fishery managers set annual harvestable amounts for each groundfish species or species group and try to construct trip limits for those species that will allow the harvest of the OYs of healthy stocks without allowing total catch of overfished and depleted stocks to exceed their OYs. Setting a year of trip limits is a delicate balancing act that requires consideration of when groundfish stocks and non-groundfish stocks are most available, when healthy and depleted stocks mix in a way that makes clean harvesting of healthy stocks more likely, and when different sectors of the fishing fleet are most likely to fish with which type of gear and in what waters. Ideally, managers would like to set a trip limit structure at the beginning of the fishing year that perfectly predicts all of these variables. In reality, however, fish stocks and the fishing fleet often behave in ways that are not predicted by the harvest models used in setting the year's management measures. As fishery scientists and managers track the fishery through the year, landings levels may be higher or lower than predicted at the beginning of the year. At within-year analyses of landings levels, usually at the Council's April, June, and September meetings, managers will make inseason adjustments to trip limit levels to either accelerate or decelerate landings rates. Under the current management structure (status quo/no action alternative,) managers have historically allowed more fishing during the warm weather months, with the expectation that landings of some species may be restricted or shut down toward the end of the calendar/fishing year.

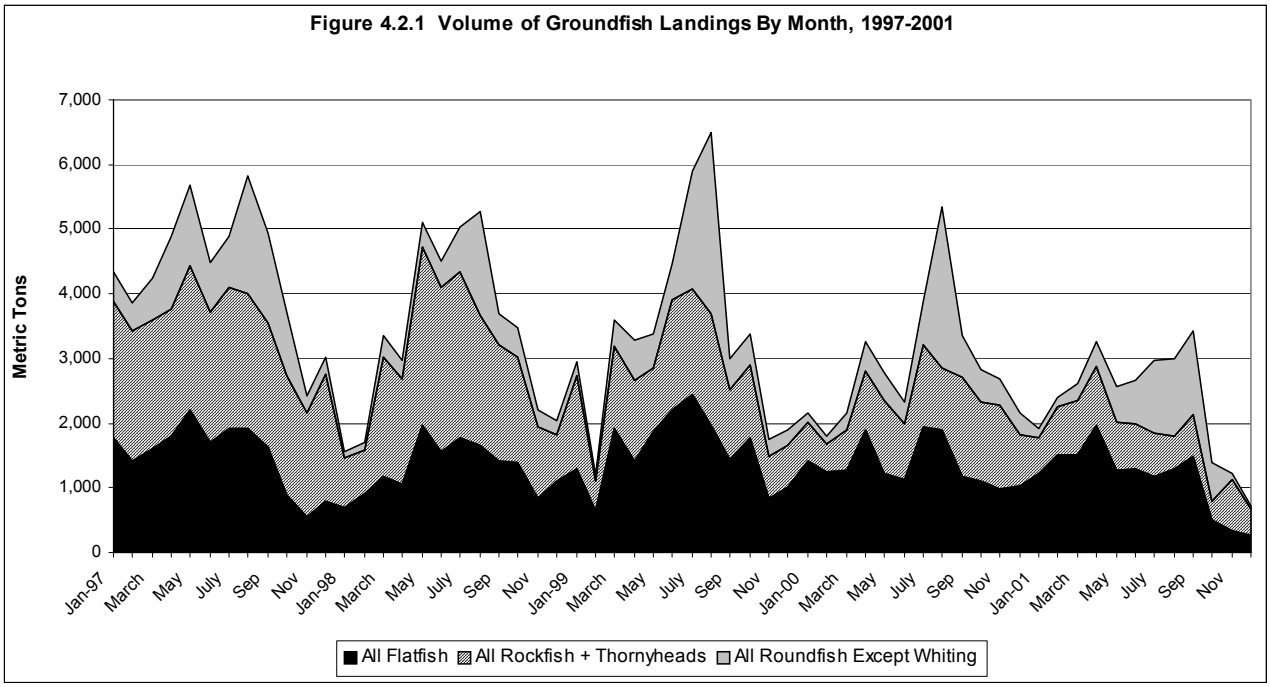
For many years, the Council has managed the groundfish fishery with the aim of maintaining a year round fishery, as articulated in Goal 3 and Objective 7 of the FMP:

> Goal 3: "Achieve the maximum biological yield of the overall groundfish fishery, promote year-round availability of quality seafood to the consumer, and promote recreational fishing opportunities"
>
> Objective 7: "Identify those sectors of the groundfish fishery for which it is beneficial to promote year-round marketing opportunities and establish management policies that extend those sectors fishing and marketing opportunities as long as practicable during the fishing year."

The Council has historically interpreted Goal 3 and Objective 7 to mean that all sectors of the fishery should be open year round, with the exception of the primary whiting and primary sablefish seasons. Maintaining a year round fishery has become more difficult in recent years, due to the need to reduce the effects of the different sectors of the fishery on overfished species. Commercial and recreational hook-and-line fisheries off California south of 40°10' N. lat., for example, have had shortened seasons in 2001 and 2002. In both of these years, many groundfish fishery sectors have been also shut down or notably reduced in the latter half of the year. These fishery closures and reductions were needed largely because managers had set management measures underestimating the level of fishery participation in the first half of the year.

Amendment 17 contemplates changing the process for setting specifications and management measures, not the standards by which they are set or the goals for managing the fishery. Whether the majority of fishery sectors continue to operate year round is a factor of management measures developed at the beginning of the fishing period, not a factor of when that fishing period begins. Because the fishing period start date will not affect the overall amount of each target species taken within the fishing period, there is no discernable difference between the effects of the different fishing period start dates on targeted groundfish stocks. If fishery managers were able to perfectly predict fishing effort for all sectors at all times during the year, the different fishing period start dates would also have no effect on the bycatch of overfished and depleted stocks. If, however, the pattern of late-season closures continues, the effect of the fishery on incidentally taken overfished and depleted species will vary according to the times of year when fishing effort is strongest. These effects could be even stronger if the Council should decide to use two-year OYs for some (Issue 2, Alternative 3) or all (Alternative 2) managed species. Without adequately conservative initial management measures, the closure period could become a 6-7 month closure at the end of the second fishing year, rather than two 3-4 month closures at the end of each fishing year.

Figure 4.2.1 shows groundfish landings by month, for 1997-2001. Over this five year period, there has



been a notable decline in overall groundfish landings, particularly for rockfish species. In each year, roundfish landings spiked during the summer sablefish seasons. In all years, landings of all groundfish were higher in the March-September period than in the winter months. This same trend was also evident in 2001, although the year-end decline in 2001 was due to regulatory restrictions rather than to either market restrictions or fisher disinclination to operate during winter weather. Each year also shows a spike of higher landings in January, at the new opening of the fishing years. Although the year-round fishery policy is evident in that groundfish landings are being made in every month, the greatest volume of groundfish landings has occurred during the summer months.

Figures 4.2.2-5, below, show the estimated bycatch rates of overfished species taken incidentally in DTS complex (Dover sole, thornyheads, sablefish) and flatfish trawl fisheries north and south of 40°10' N. lat. [Note: Figures 4.3.2 and 4.3.3, for north of 40°10', show a bycatch rate percentage scale of up to 5% of target landings amounts. Figures 4.3.4 and 4.3.5, for south of 40°10', show a bycatch rate percentage scale of up to 2% of target landings amounts.] For most of the overfished species, these figures show higher bycatch rates in bimonthly periods 3 (May-June) and 4 (July-August). These estimated bycatch rates were provided by James Hastie of the NMFS Northwest Fisheries Science Center and will be used in the Environmental Impact Statement for the 2003 specifications and management measures and by the Council in its deliberations concerning that management action.

Under Process Alternative 1 (status quo/no action,) harvest allocations tend to be attained by late fall, with restrictions or closures occurring in the October through December period. This schedule tends to reduce pressure on flatfish stocks during the early part of their spawning season; however, spawning is usually still occurring when the fishery re-opens January 1. The advantage of allowing heavier fishing pressure on flatfish stocks during their spawning season is that they tend to be most aggregated then, less mixed with other groundfish stocks like rockfish. The disadvantage of allowing fishing on spawning aggregations that occur during the early part of the management period is that the fish are so readily available for harvest that a significant proportion of the year's harvestable surplus for a particular species may be taken in the

first few months of the fishery. In a fishery managed by an FMP that puts a priority on year-round harvest availability, a significant harvest of healthy flatfish stocks early in the year could jeopardize the availability of flatfish or co-occurring protected stocks later in the year. A January 1 fishing period start date also usually ensures that the fishery will be open during the summer months. Hook-and-line fisheries do not tend to target flatfish stocks, but do pursue sablefish and rockfish during the summer. Status quo fixed gear sablefish management allows a small daily or weekly trip limit fishery for the limited entry and open access fisheries throughout the year and the larger limited entry tiered sablefish fishery. Sablefish stock health is more likely affected by possible discard in the daily/weekly trip limit fisheries and possible highgrading discard in the tiered fisheries than by any particular overall fishing period start date.

Figure 4.2.2 Flatfish Fishery North of 40°10', Bycatch Rates of Overfished Species

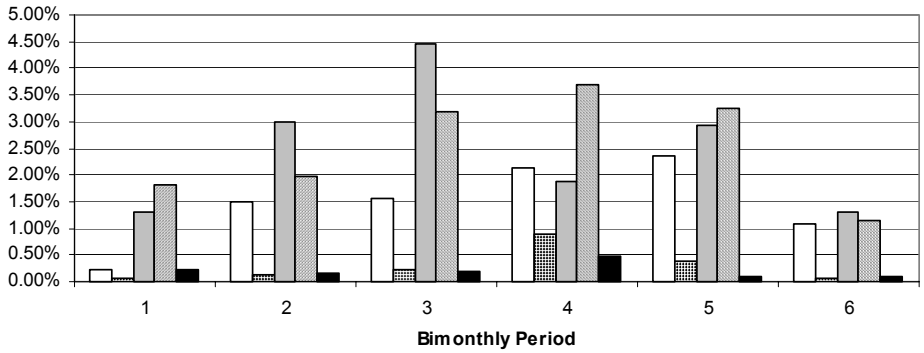
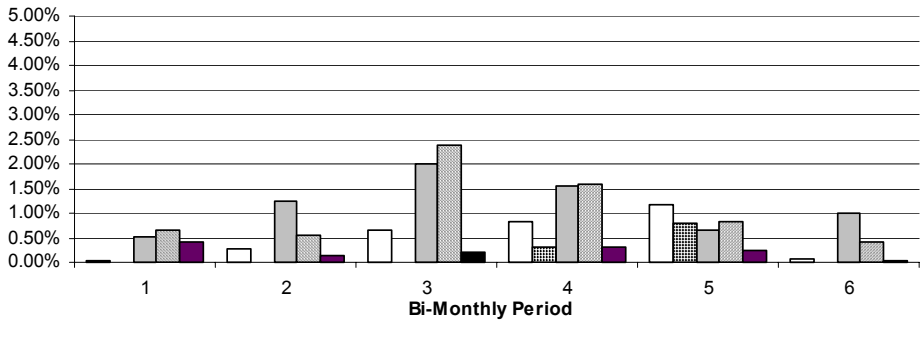


Figure 4.2.3 DTS Fishery North of 40°10', Bycatch Rates of Overfished Species



Like the status quo alternative, Process Alternative 3 also has a January 1 fishing period start date. Process Alternative 3, however, is a biennial process. This process alternative allows consideration of the OY duration alternatives (Issue 2). Specifications, such as ABCs, could be set for two years without affecting fishery participation. If harvest allocations or OYs are set in two-year increments, fishing pressure could be fairly consistent for the first 18 months of the two-year period, with significant restrictions and closures in the final six months of the period. To protect against this possibility, the Council would have to set particularly conservative management measures during the early part of the first fishing year in the period.

For both Process Alternative 1 and Process Alternative 3, the October-December slow period tends to fall in months when bycatch of overfished species occurs at relatively lower rates. The Council first analyzed the bycatch rates of overfished species in particular target fisheries for its 2002 specifications and management measures. That analysis was used to concentrate fisheries targeting healthy stocks in the months when bycatch of overfished species tends to be lower. Unanticipated landings of darkblotched rockfish south of 40°10' in the commercial fishery and unexpectedly high bocaccio landings in the recreational fishery south of 40°10' led to early closures of fisheries affecting both of these stocks. The start date of the fishery does not affect the bycatch rates of overfished species taken in fisheries targeting

healthier stocks. However, if fishery landings have outcomes that were unexpected when management measures were set, as happened in 2002, fishery slowings and closures would occur toward the end of the management period. If Process Alternative 3 were combined with two-year OYs (OY Duration Alternatives 2 or 3,) fishery slowings and closures would likely occur during the second half of the second year of the management period.

Figure 4.2.4 Flatfish Fishery South of 40°10', Bycatch Rates of Overfished Species

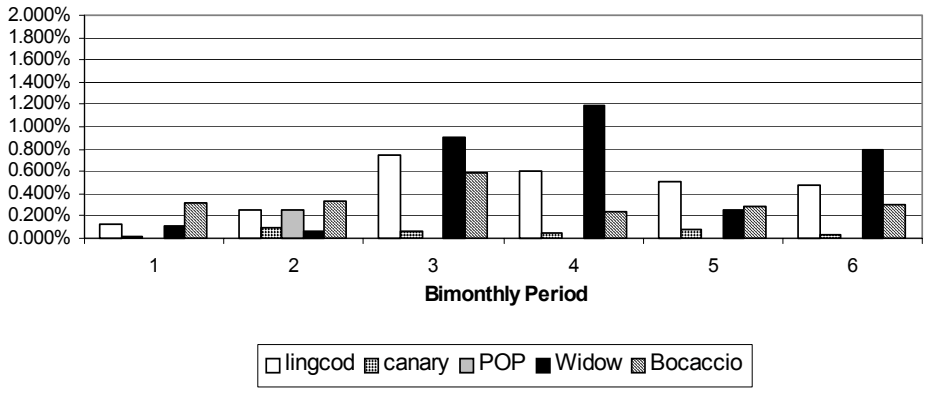
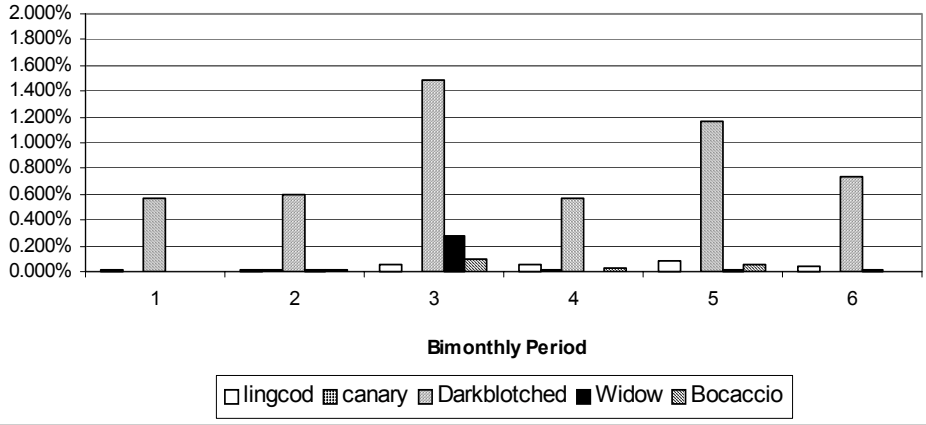


Figure 4.2.5 DTS Fishery South of 40°10', Bycatch Rates of Overfished Species



For some fisheries, landings data may not be available for use in data analysis until several months after the landings have been made. In general, the states of Oregon and Washington have fairly swift commercial fishery data availability, while the commercial landings made in California may not be available in a coastwide database until 3-5 months after the landings have been made. Recreational fisheries data, primarily the Recreational Fisheries Information Network (RecFIN) database, is usually not considered an accurate picture of landings until a full year of fishing has occurred and data from that year has been analyzed. Given these commercial and recreational fisheries data delay situations, a January 1 fishing period start date may not allow stock assessment authors working in January-April to use all of the data from the prior fishing year in their assessments.

Process Alternatives 2 and 5 are biennial processes with March 1 fishing period start dates. A March 1 start date, with a corresponding February 28/29 ending date could push the restriction and closure period from the status quo October-December to a new December-February. For flatfish fishing on spawning aggregations, this change in slow periods may or may not affect incidental catch rates of overfished species. Vessels that have traditionally targeted flatfish during the January-February period could instead target flatfish during November-December, although that strategy change could mean forgoing Dungeness crab fishing opportunities. Similar to Process Alternatives 1 and 3, Process Alternatives 2 and 5 would ensure open fisheries during the summer months, which have traditionally been stronger for hook-and-line fisheries. Also like Process Alternative 3, these two biennial processes could have the management challenge of stronger effort in the first year and a half of the two-year management period with restrictions and closures for possibly 4-6 months of the second year. These longer closures during the second year of

the management period would be more likely if the Council were to use two-year OYs (OY Duration Alternatives 2 and 3) instead of one-year OYs (OY Duration Alternative 1.) Changing the fishing period start date to March 1 from January 1 would not change the amounts of either targeted or incidentally taken stocks that are harvested in the groundfish fishery. As discussed above for Process Alternatives 1 and 3, however, the fishing period start date could affect the months of the period-end fishery slowings and closures. Under Process Alternatives 2 and 5, the expected slow months of October-February tend to have the lowest incidental catch rates of overfished species. Regardless of which fishing period start date is chosen, annual landings of targeted healthy stocks could be increased if landings levels were concentrated during the winter months to take advantage of the lower overfished species bycatch rates during those months. With a March 1 fishing year start date and the typical January-April stock assessment schedule, commercial and recreational fishery data used in stock assessments would be less up to date than it would be under Process Alternatives 1 and 3. Stock assessment scientists would be working with data from about two-thirds of the prior fishing year, whereas the January 1 start date would allow data use from about three-quarters of the prior fishing year.

Process Alternative 4 is a biennial process with a May 1 start date. A May 1 start date, with a corresponding April 30 ending date could push the restriction and closure period from the status quo October-December to a new February-April. The advantage of this start date is that it would leave open some of the stronger months for targeting healthy stocks with lower incidental catch of overfished species. Unfortunately, the notable biological disadvantage of a May 1 start date is that fishery data availability would be lowest during the summer months of the first year of the two-year fishing period. Summer weather tends to allow greater fishery participation and the summer months tend to show higher incidental catch rates for overfished stocks taken in fisheries targeting healthy stocks. In order to protect against unpredictable harvest spikes, managers would have to severely restrict early summer fishing in at least the first year of the two-year fishing period. Without those restrictions, landings in those early months could quickly eat up allocations of both healthy and protected stocks. With respect to bycatch of overfished species, this process alternative is similar to all of the others in that it could result in fishery slowings and closures occurring during months when the bycatch rates of overfished species tend to be lower. And, as with all other process alternatives, choosing an OY duration alternative that would allow two-year OYs could result in a longer slowing and closure period at the end of the two-year cycle if the management measures set at the start of the cycle are not adequately conservative. With a May 1 fishing year start date and the typical January-April stock assessment schedule, commercial and recreational fishery data used in stock assessments would be less up to date than it would be under all other alternatives. Stock assessment scientists would be working with data from about one-half of the prior fishing year under this alternative.

Many of the potential biological effects of shifting the fishing year start date and of setting two-year OYs should more properly be considered effects of the Council's year-round fishery policy, rather than effects of the start date of a management period. If, for example, the trawl flatfish fisheries were managed with a four month season of November through February, allocations of those flatfish stocks could be taken entirely during periods when bycatch of overfished stocks is relatively low.

4.2.2 Biological Effects of Changing to the Management Process on "Best Available Science" and Stock Assessment Timeliness

At National Standard 2, the Magnuson-Stevens Act requires that conservation and management measures be based on the best available scientific information (16 U.S.C. 1826). Table 4.2.1, above, briefly analyzes the effects of changing the specifications and management measures process on the:

- Age of the resource survey and stock assessments used in setting harvest specifications
- Availability and quality of more and better catch, abundance, and biological data
- Availability and quality of advanced scientific models used to assess stock and ecosystem health

Section 3.2.1 discusses the scientific process and the types of information and tools needed for that process. In considering the biological effects of the management process on the environment, we must look at the quality of the scientific information that we use in that management process. The Magnuson-Stevens Act and other legislation commonly call for the use of the "best available science," but that concept is often confused with "most recently available science." For example, data from a resource survey conducted in 2002 may be the most recently available data for informing the harvestable surplus of a particular species in 2003, but without a stock assessment for that species, using that data for the 2003 fishing season could not be considered using the best available science.

Data availability from resource surveys and other sources is generally dependent upon the financial resources that scientific agencies devote to gathering data. For many years, NMFS has conducted triennial West Coast groundfish resource surveys. A recent strengthening of Congressional interest in scientific information about West Coast groundfish has provided the agency with the resources to conduct biennial or annual resource surveys. These increased data gathering resources would be available under any of the process alternatives. Therefore, this document discusses the effect of all of the process alternatives on best available science with the assumption that all alternatives, including status quo, include annual or biennial resource surveys. While the specifications and management measures process should not affect the availability and quality of data used as the basis for stock assessments and other scientific analyses, that process can affect when the data is used and the scientific process by which it is used. Resource survey timing and use of data from those surveys would be affected by the process alternatives as follows:

Table 4.2.2 Data Availability and Use in the Management Process

	Alternative 1			Alternative 2	Alternative 3	Alternative 4	Alternative 5
Resource Survey Conducted	Year 1			Year 1	Year 1	Year 1	Year 1
Stock Assessment Conducted	1st/3rd stocks, Year 2, using Year 1 data	2nd/3rd stocks, Year 3, using Years 1-2 data	3rd/3rd stocks, Year 4, using Years 1-3 data	Year 2	Year 2	Year 2	Year 2
Management Process Occurs	1st/3rd stocks, Year 2	2nd/3rd stocks, Year 3	3rd/3rd stocks, Year 4	Year 3	Year 3	Year 2	Year 2
Fishing on Year 1 Resource Survey Occurs	1st/3rd stocks, Years 3-5 on Year 1 data	2nd/3rd stocks, Years 4-6 on Years 1-2 data	3rd/3rd stocks, Years 5-7 on Years 1-3 data	Years 4/ 5*	Years 4/ 5	Years 3/4*	Years 3/4*
Time Gain/Loss of "Most Recently Available Data" Over Other Alternatives	Data is used sooner than all other alternatives for at least 1/3rd of assessed stocks each year. However, assessments for all stocks occur on less frequent basis than all biennial alternatives, which means that data is also used for the *longest* period under this alternative.			Data use oldest in this alt., as fishing occurs in Years 4/5 and fishing year begins March 1.	Data use older than Alts. 4 and 5, but slightly more recent than Alt. 2 due to January 1 start.	Data use newer than Alt. 2 by 10 months and newer than Alt. 3 by 8 months.	Data use newest in this alt. Newer than Alt. 2 by a year, than Alt. 3 by 10 months, and than Alt. 4 by 2 months.

*For Process Alternatives 2 and 5, the "year" in which fishing would occur would be March 1 through February 28/29. For Process Alternative 4, the "year" would be May 1 through April 30.

In addition to affecting the timing of resource survey data use, the management process can also affect the quality and type of scientific analysis conducted on that data. An annual specifications and management measures process does not allow contributing scientific agencies enough time to conduct stock assessments on all assessed species each year. As a result, the status quo stock assessment process is to update stock assessments for one-third of all assessed species each year. Stock assessment authors will also try to add new stocks to the list of assessed species every year, although the addition of new species sometimes results in the delay of stock assessments for other species (See Section 3.2.1). Under a biennial management process (Process Alternatives 2-5,) the scientific process would also become biennial, with one year spent on developing and evaluating stock assessment models

and the second year spent on analyzing resource survey and other data. The major benefits of allowing more time for model exploration and development would be more rigorously analyzed stock assessments and overfished species rebuilding models for currently assessed stocks, new assessment models for unassessed stocks for which data already exists, and new modeling efforts on multi-species interactions, habitat use, or ecosystem/climate models.

Stock assessments are conducted to determine the abundance of fish stocks and to project the level of future catch that will achieve the target harvest policy. These determinations cannot be made with absolute accuracy and the further they are used to project into the future, the greater the confidence intervals on the projection. When an assessment is conducted, it will use accumulated historical data as well as data that is as current as possible. Thus, assessments gradually should become more accurate as they incorporate longer time series and "learn" from past assessments. However, several factors contribute to inaccuracy in the projections. Projections may be inaccurate if: the assessment itself is inaccurate, future recruitments are different than projected in the assessment, or future catch differs from the level forecast in the assessment. Although there is much research devoted to prediction of recruitment levels, substantial improvement in this area is years away. Therefore, it is necessary to frequently update assessments to track true changes in stock abundance and adjust for past inaccuracies in stock estimates.

Over the past 15 years, the timeliness of the transition from survey to assessment to management action has varied greatly. The most timely has been that for Pacific whiting. Summer whiting surveys have been analyzed the following winter and used to adjust the fishery level less than a year after the survey is conducted. But this survey is only conducted triennially so this high timeliness has occurred only every third year. For most other species, the most recent survey data has already been one to several years old when it is used in the assessments, and the assessment results are used to set an ABC level that is kept constant for about three years until another assessment is conducted. During the stock declines of the 1990's, this low timeliness meant that downward adjustments in ABC lagged substantially behind the stock declines, thus contributed to the decline itself.

There are insufficient data, funds and staff to update every assessment every year for immediate adjustment of harvest levels. However, status quo ABC and OY calculations are best estimates and do not incorporate any consideration for the timeliness of implementation. The level of inaccuracy of the projection may cause either underachievement of optimum yield or overfishing. If projected catches are to have no more than a 50% probability of exceeding the overfishing level, then future harvest rates may need to be reduced to adjust for the increased inaccuracy of long projections. If a higher degree of avoiding overfishing is desired, then it would be even more important to progressively reduce the harvest level as the interval between assessments increases.

As shown in Table 4.2.2, the status quo/no action alternative tends to allow the use of the most recently available data for at least one-third of all assessed stocks. This use of most recently available data, however, should not be confused with the use of the best available science. Process Alternatives 2-5 would tend to provide the management process with better science than the annual stock assessment and management process of Process Alternative 1. These biennial alternatives provide stock assessment scientists with a greater opportunity to review and improve overall stock assessment methods and models, as they provide a two year cycle of stock assessments and model review. Of the four biennial alternatives, Process Alternative 5 makes the most timely use of stock assessments and provides the best insurance that fishing activities conducted against those stock assessments will reflect the pictures of stock health and abundance drawn by those assessments. Process Alternative 2 allows the longest time lag between resource surveys and fishing activities conducted against the stock assessments that fall out of the surveys. Thus, under Process Alternative 2, the Council would likely have to set more conservative harvest levels than under Process Alternative 5 in order to ensure that a retrospective analysis of fishing activities does not show that overfishing has occurred. Process Alternatives 3 and 4 fall between Alternatives 2 and 5 in terms of their timeliness of stock assessment use, with Alternative 3 being less timely than Alternatives 4 and 5, and Alternative 4 being more timely than Alternatives 2 and 3.

4.3 Socio-Economic Impacts of the Alternatives

The socio-economic impacts generally associated with fishery management actions are effects resulting from: 1) changes in harvest (whether directed commercial or indirected as recreational charter) availability and processing opportunities that may result in unstable income opportunities; 2) changes to access privileges associated with license limitation and individual quota systems; 3) fishing season timing or structure restrictions that may improve or reduce the safety of fishing activity; 4) fishing season timing or structure restrictions that may or may not take into account the social and cultural needs of fishery participants. Of these elements, the specifications and management measures process would not affect access privileges. The Council is currently discussing license limitation in the open access fisheries and trawl permit stacking. If the Council decides to move forward with either of these programs, the effects of changing fishery access privileges would be analyzed in the appropriate NEPA documents for those programs.

In this section, alternative specifications and management measures processes are examined for their potential socio-economic effects. The primary areas where the process itself could affect fishing industries and communities are: 1) the effect of changes to the fishing season start date on harvest availability and processing opportunity; 2) the effect of changes to the fishing season start date on fishery structure and safety; 3) the effect of changes to the fishing season start date on social and cultural needs of fishery participants. In addition to these direct effects on fishery management actions on fishing industries and communities, changing the specifications and management measures process or may affect the fishing public, general public, and participants in the fishery management process in: 1) the amount of management and science time devoted to developing annual specifications and management measures and the resultant staff resources for actions outside of that process; 2) the number and timing of Council meetings used to develop specifications and management measures; 3) the time available for public participation in the NMFS publication and evaluation of Council specifications and management measures recommendations. Table 4.3.1 provides these effects in a matrix format.

Table 4.3.1 Summary of Potential Socio-Economic Impacts of Alternative Specifications and Management Measures Processes and Alternative OY Durations

SOCIO-ECONOMIC ISSUES	Effects of changing season start date on harvest availability and processing opportunity	Effects of changing season start date on safety and social/cultural needs of fishing communities	Effects of management time and public review and analysis devoted to specifications and management measures process
Threshold	How would this specifications and management measures process affect harvest availability and processing opportunity for fishery participants? Would participation in fisheries other than groundfish fisheries be affected by a change in season start date?	How would this specifications and management measures process affect the safety of fishery participants? Would changing the start of the fishing season affect the social/cultural needs of fishing communities?	Does this specifications and management measures process allow more or less management time for other, non-specifications activities? How does this particular process affect public review and comment opportunities?
Process Alternative 1, status quo, no action: 2-meeting annual process (Sept & Nov,) Jan 1 start date	Status quo/no action alternative tends to result in early attainment of harvest allocations and fishing closures during Oct-Dec. For fishers wishing to operate during winter months and for processing plants, this slow groundfish period coincides with the Dungeness crab fishing and processing season. Just as Dungeness crab opportunities are decreasing in January-February, groundfish are again available for harvesting and processing. Recreational fishing tends to be slow during this period for most of the West Coast, except perhaps south of Point Conception, CA.	The specifications and management measures process itself does not tend to affect the safety of fishery participants, although the fishing period start date could have some effect on safety. Under status quo, fishing opportunities tend to slow down or close entirely during early winter months when offshore conditions are less navigable (Oct-Dec.) Cultural groups that might be most affected by a possible Oct-Dec closure could include individual fishers and processors wanting to increase their pre-holiday incomes and gain access to seasonal markets.	Status quo/no action alternative tends to devote the most management time to specifications and management measures because it is an annual process. The status quo schedule has a 2-meeting (Sept/Nov) process of Council proposals and final recommendations, followed by a Jan 1 publication of NMFS final rule implementing those regulations. In this process, public comment is received by the Council during the Sept/Nov period and by NMFS following publication of the final rule. Of the five alternatives, this schedule is the most compressed for management staff. For 2002, the Council held a 3-meeting process (June/Sept/Nov) followed by a Jan 1 NMFS proposed and emergency rule publication and public comment period and a Mar 1 final rule publication. While this 2002 variation lengthened staff time for the Council process, it increased staff workload for the NMFS process without increasing available work time. Duration of OYs, whether one-year, two-year, or mixed would not affect management time and public review and analysis devoted to specifications and management measures.
Process Alternative 2: 3-meeting biennial process (April, June & Sept,) Mar 1start date	Given closure trends under status quo, March 1 start date would likely result in early allocation attainment and closures during Dec-Feb. Similar to Alternative 1, this alternative would result in slower groundfish landings or closures during a period of higher Dungeness crab landings. With this potential closure period, however, fishers and processors might have less access to the stronger flatfish spawning aggregations of the mid-winter period. As with Alternative 1, recreational fishing tends to be slow during the winter months. If this alternative were implemented with some or all species managed with two-year OYs, as opposed to one-year OYs, early attainment and closure period could lengthen, possibly to Oct-Feb of second year in two-year fishing period. With two-year OYs, management measures would need to be more conservative at the start of the two-year fishing period to hedge against early closures during the second year in the fishing period.	This alternative would tend to result in declining landings and closures during the Dec-Feb period, which like the slow months of Alternative 1 include rougher winter weather months. Cultural groups that might be most affected by a possible Dec-Feb closure could include individual fishers and processors wanting to increase their pre-holiday incomes or gain access to seasonal markets. Under two-year OY duration alternatives, the slowing and closure period could lengthen, possibly to Oct-Feb, in which case groups affected by this period under both Process Alternatives 1 and 2 would be affected by the longer slow period in the second fishing year of the two year period.	Like all of the biennial alternatives, Alternative 2 would decrease overall time spent on developing specifications and management measures because the process would take place every two years instead of every year. Public review and comment would occur in Apr/Sept period for the Council process and following a Jan 1 publication of a NMFS proposed rule. Of the five alternatives, this schedule allows the most lengthy period for Council staff work time (11-19 months,) as it relies on stock assessments conducted in the prior year. NMFS staff work time = 5.5 months. This alternative relies on an April meeting for proposing specifications, which have historically been final meetings for salmon management process, leaving little Council time and energy for groundfish issues. March 1 start date would mean that inseason adjustments for final 3 months of year (Dec-Feb) would be made at a Nov meeting. Duration of OYs, whether one-year, two-year, or mixed would not affect management time and public review and analysis devoted to specifications and management measures.

SOCIO-ECONOMIC ISSUES	Effects of changing season start date on harvest availability and processing opportunity	Effects of changing season start date on safety and social/cultural needs of fishing communities	Effects of management time and public review and analysis devoted to specifications and management measures process
Process Alternative 3: 3-meeting, biennial process (Nov, March/April & June,) Jan 1 start date	Same as Alternative 1. If this alternative were implemented with some or all species managed with two-year OYs, as opposed to one-year OYs, early attainment and closure period could lengthen, possibly to Aug-Dec of second year in two-year fishing period. With two-year OYs, management measures would need to be more conservative at the start of the two-year fishing period to hedge against early closures during the second year in the fishing period.	Same as Alternative 1. Under two-year OY duration alternatives, the slowing and closure period could lengthen, possibly to Aug-Dec, in which case groups affected by this period under both Process Alternative 1 as well as vessels and processors that tend to not have groundfish alternatives in early autumn would be affected by the longer slow period in the second fishing year of the two year period.	Alternative 3 would be similar to Alternative 2 in benefits derived from Council time devoted to issues other than the groundfish specifications and management measures. Depending on when stock assessments are complete, this alternative could provide Council staff 14 months work time and NMFS staff 6.5 months work time. This alternative includes an April (salmon) meeting. Jan 1 start date would mean that inseason adjustments for final 3 months of year (Oct-Dec) would be made at Sept meeting, with final check for Dec at the Nov meeting. Duration of OYs, whether one-year, two-year, or mixed would not affect management time and public review and analysis devoted to specifications and management measures.
Process Alternative 4: 3-meeting, biennial process (June, Sept & Nov,) May 1 start date	Given closure trends under status quo, May 1 start date would likely result in early allocation attainment and closures during Feb-Apr period. This schedule would keep the fisheries open through stronger flatfish months and allow participants to switch between flatfish and Dungeness crab at will. A Feb-Apr groundfish closure could also have the negative effect of a very lean 3-month period between Dungeness crab fishing/processing season and the shrimp, salmon and albacore seasons. For some of the small boat fishers, this alternative could also mean a lack of fishing opportunity in their traditional start-up fishing months. Early spring recreational fishing opportunities could also be curtailed under this schedule. If this alternative were implemented with some or all species managed with two-year OYs, as opposed to one-year OYs, early attainment and closure period could lengthen, possibly to Dec-Apr of second year in two-year fishing period. With two-year OYs, management measures would need to be more conservative at the start of the two-year fishing period to hedge against early closures during the second year in the fishing period.	This alternative would tend to result in declining landings and closures during the Feb-Apr period, which could mean increased fishing during the preceding rough winter weather months. Treaty tribe subsistence fishing for groundfish could be most affected by May 1 start date, as a notable proportion of tribal groundfish landings occur in March-April, concurrent with the tribal halibut season start. Although tribal groundfish landings opportunities could not be restricted based on non-tribal use of all available resources, management between tribal and non-tribal fishing opportunities would have to be monitored more closely to ensure groundfish availability for tribal fishing seasons. Under two-year OY duration alternatives, the slowing and closure period could lengthen, possibly to Dec-Apr, in which case groups affected by this period under both Process Alternatives 2 and 4 would be affected by the longer slow period in the second fishing year of the two year period.	Alternative 4 would be similar to Alternative 2 in benefits derived from Council time devoted to issues other than the groundfish specifications and management measures. This alternative could provide Council staff 9 months work time and NMFS staff 6 months work time. May 1 start date would mean that inseason adjustments for final 5 months of year (Dec-Apr) would be made at a Nov meeting, with final check for Apr at the March meeting. May 1 fishing period start date would require restructuring of the non-tribal whiting and fixed gear primary sablefish season management processes, as both seasons currently begin in April. May 1 fishing period start date could also require change to tribal sablefish management process, as treaty tribes' sablefish season currently begins in March. This alternative would not interfere with a salmon-focused Council meeting. Duration of OYs, whether one-year, two-year, or mixed would not affect management time and public review and analysis devoted to specifications and management measures.
Process Alternative 5: 2-meeting, biennial process (June & Sept,) March 1 start date	Same as Alternative 3 with respect to both annual specifications process and OY duration process.	Same as Alternative 3 with respect to both annual specifications process and OY duration process.	Alternative 5 would be similar to Alternative 2 in benefits derived from Council time devoted to issues other than the groundfish specifications and management measures. This alternative could provide Council staff 9 months work time and NMFS staff 5.5 months work time. Like Alternative 2, March 1 start date would mean that inseason adjustments for final 3 months of year (Dec-Feb) would be made at a Nov meeting. Unlike Alternatives 2-4, this alternative would be a 2-meeting Council process, leaving less Council meeting time for discussing specifications and management measures. This alternative would not interfere with a salmon-focused Council meeting. Duration of OYs, whether one-year, two-year, or mixed would not affect management time and public review and analysis devoted to specifications and management measures.

4.3.1 Socio-Economic Effects of Changing Season Start Date

As detailed above in Table 4.3.1, the five process alternatives consider a range of fishing season start dates: January 1 (Alternatives 1 and 2,) March 1 (Alternatives 2 and 5,) and May 1 (Alternative 4.) In crafting these alternatives, the Multi-Year Management Committee considered only fishing year start dates that would coincide with both the start of a traditional "major" commercial cumulative limit period and with the start of a Recreational Fisheries Information Network (RecFIN) two-month recreational fishing "wave." Using these criteria was intended to allow a smooth transition of catch and landings data analysis from the current specifications and management measures process to any of the alternative processes. Based on these criteria, potential start dates could have been January 1, March 1, May 1, July 1, September 1, and November 1.

Groundfish has historically provided West Coast commercial fisheries participants with a relatively steady source of income over the year, supplementing the other more seasonal fisheries (Table 4.3.2). Although groundfish contributed only about 17% of total annual ex-vessel revenue during 2000, seasonally groundfish played a more significant role, providing 1/5 to 1/3 of ex-vessel revenue coastwide during April and also each of the three summer months.

Table 4.3.2 Percent of monthly exvessel value of all 2000 commercial fishery landings made on the West Coast in various fisheries stratified by month ($000)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Sablefish	0.8%	1.3%	3.6%	6.0%	3.7%	3.4%	6.3%	20.3%	5.7%	4.4%	4.3%	2.2%	5.8%
Whiting	0.0%	0.0%	0.0%	0.2%	1.9%	3.5%	7.6%	6.7%	4.4%	0.0%	0.0%	0.0%	2.3%
Flatfish	8.9%	5.5%	5.4%	7.1%	4.1%	3.2%	3.2%	2.7%	2.7%	3.0%	3.2%	3.0%	4.2%
Rockfish	2.5%	3.3%	5.6%	6.5%	5.6%	4.7%	5.6%	3.3%	5.9%	5.0%	6.8%	3.2%	4.6%
Other GF	0.2%	0.7%	0.3%	0.7%	1.1%	1.4%	1.3%	0.8%	0.8%	0.5%	0.4%	0.3%	0.7%
Shrimp/Prawns	1.6%	2.7%	3.8%	6.8%	7.1%	16.2%	14.3%	8.2%	8.3%	5.0%	1.6%	1.3%	6.2%
Crab/Lobster	51.0%	41.6%	29.6%	19.6%	15.9%	13.0%	7.2%	4.3%	8.3%	18.3%	18.4%	50.3%	23.5%
Salmon	0.2%	0.3%	0.2%	0.7%	17.1%	13.7%	10.0%	13.6%	13.3%	8.2%	2.0%	0.4%	6.9%
HMS	1.2%	6.5%	2.6%	4.7%	1.1%	1.4%	7.3%	16.3%	19.8%	19.6%	8.6%	6.7%	8.9%
CPS	13.5%	13.3%	11.3%	10.6%	8.1%	6.1%	7.8%	4.9%	6.5%	11.6%	25.0%	15.4%	11.0%
Other	20.2%	24.9%	37.5%	37.2%	34.3%	33.4%	29.3%	18.9%	24.2%	24.4%	29.7%	17.3%	25.9%

Section 4.2.1 discusses the potential biological effects on the marine environment of changing the fishing season start date. While not necessarily implied by choice of start date, the status quo January 1 fishing period start has historically tended to result in more intense fishing pressure at the beginning of the year, followed by increased overall participation and reduced per vessel participation mid-year, with any necessary landings slow downs or closure occurring around October-December. Extending this logic, shifting the start date to March 1, May 1, July 1, September 1 or November 1 would simply shift the activity cycle forward by a corresponding number of months, but still result in late season closures.

Impacts on markets supplied by the affected fisheries would be limited to possible changes or disruptions in the supply of local groundfish to fresh markets and to processors. While this may negatively affect fishers, processors, restaurants and others involved in the local supply chain, it is not anticipated to have significant impact on the overall availability or price of fish in local markets. West Coast groundfish do not command a large enough share of world markets to significantly affect prices, and local shortages would be offset by local supplies of substitute species or by supplies imported from outside the region.

Process Alternative 3 uses the same January 1 start date as the status quo/no action Process Alternative 1. Under both alternatives, following current season trends, harvest allocations would tend to be attained

Figure 4.3.1 Landings Volumes for Selected Larger-Volume West Coast Fisheries, 1997-2001

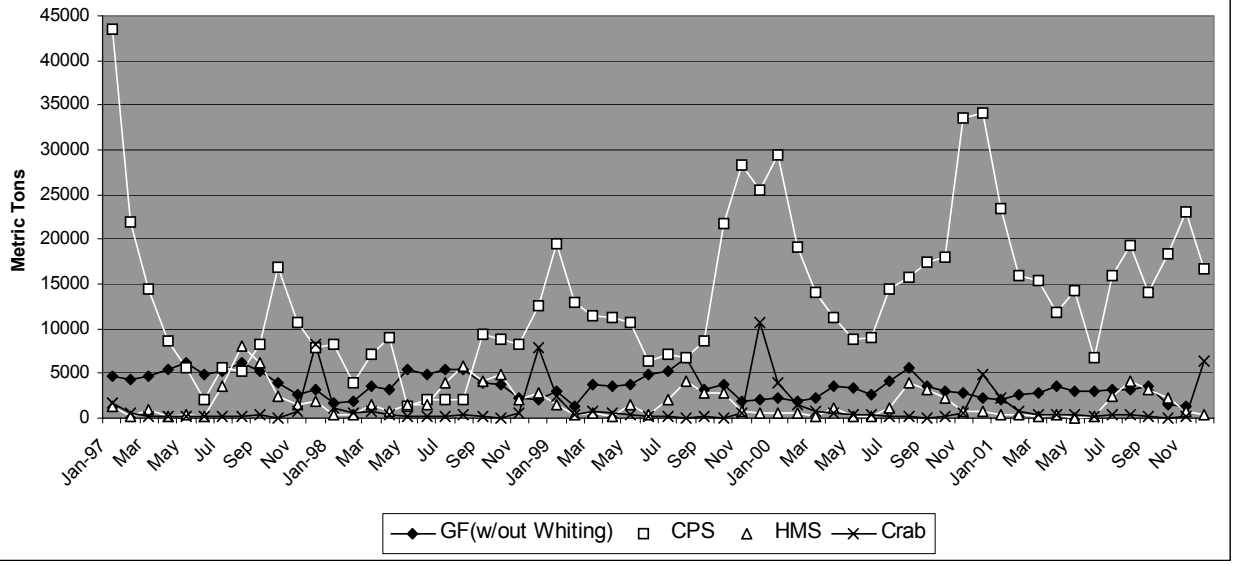
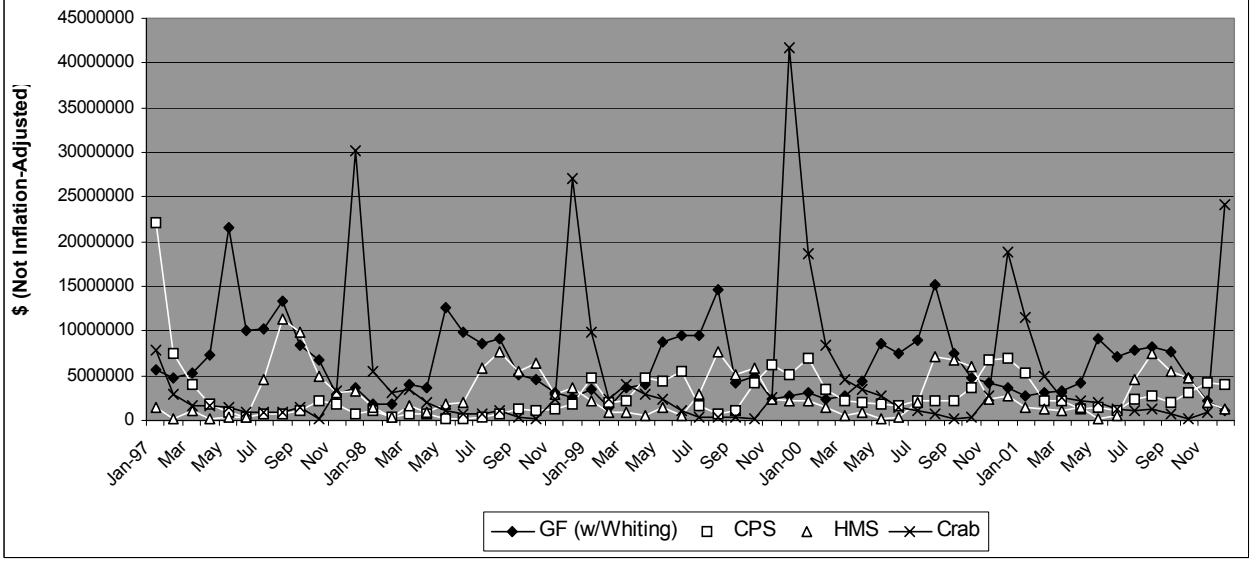


Figure 4.3.2 Landings Value for Selected Higher-Value West Coast Fisheires, 1997-2001

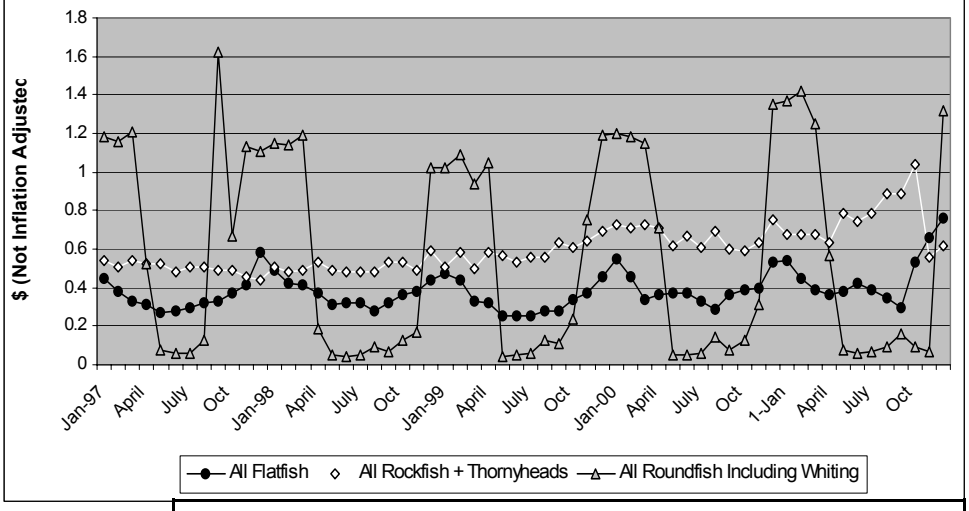


by late fall, with restrictions or closures occurring in the October-December period. In terms of safety, fishery restrictions and closures toward the end of the year when weather conditions are least favorable may be more acceptable. Small vessel operators who might want to have access to groundfish allocations during better weather months might be more adversely affected economically by summer closures than they are by winter closures. However for vessels operating off Southern California, winter weather is generally milder so restrictions during this period may be less important from a safety standpoint.

From the processors perspective, the January 1 start date with early winter restrictions may be economically acceptable because the Dungeness crab and coastal pelagic species (CPS) fishing seasons

tend to be strong in the November through January period. Those fisheries may allow fish processing plants to stay open during an otherwise slow groundfish period. There are also disadvantages, however to a January 1 start date with early winter restrictions and closures for fish marketers. During the November-December period, Americans spend a great deal of money, buying gifts and entertaining friends and family either at home or at restaurants. December holidays and New Year's are also celebrated in other countries with purchases of a wide range of luxury foods. Marketing and export opportunities, particularly to cultures with more fish-oriented diets, may be lost during this potentially lucrative time of year, although studies have shown that export opportunities may be determined as much by relative exchange rates and the availability of competitive substitutes as by the presence of potential markets (Sigel, 1984.).

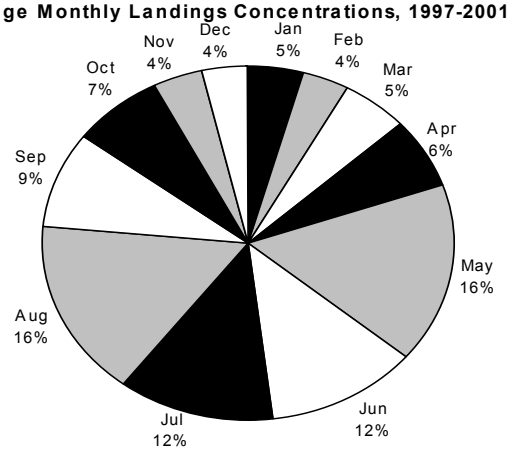
Figure 4.3.3 Price Per Pound for Groundfish Groups, By Month, 1997-2001



Note: Values and Prices in figures in this section not adjusted for inflation. Based on gross domestic product implicit price deflator, $1.00 in 2001 = $ 0.977 in 2000, $0.956 in 1999, $0.942 in 1998, and $0.931 in 1997.

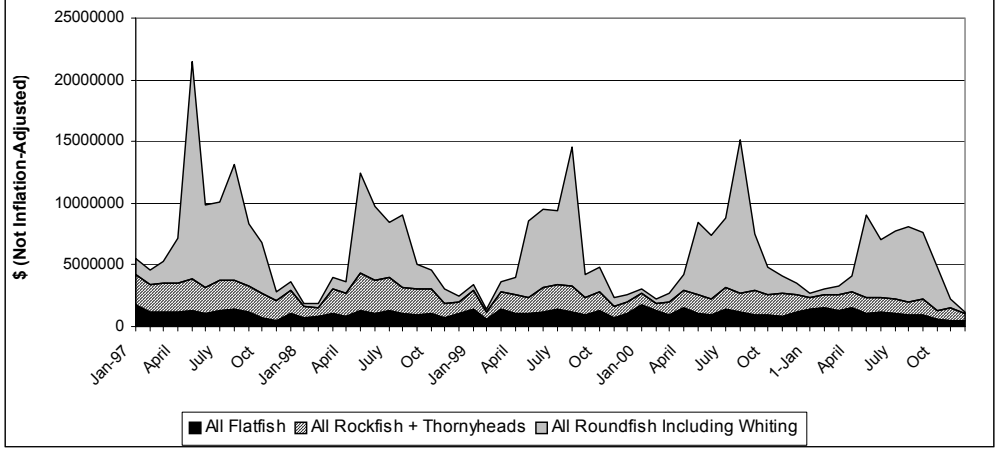
Closures may also affect the ability of fishery participants to manage the financial challenges of the holiday season. Like most Americans, groundfish fishery participants could probably better meet those challenges if they were able to increase their incomes during that November-December period. Process Alternatives 1 and 3 have the disadvantage of a fishing period start date that may result in fewer fishing opportunities at a time of year when fishery participants may have a greater need for income. Additionally, Process Alternative 3 could be modified to allow two-year OYs (OY Duration Alternatives 2 or 3,) which could place the slow end-of-period season into the latter half of the second year in a two-year cycle. The August-October period would not result in additional losses of holiday marketing opportunities, but could force the groundfish industry into a more dramatic cycle of openings and closures than under one-year OYs. To counteract this possibility, the Council would need to set conservative management measures at the start of the two-year management cycle.

Figure 4.3.4 Groundfish Landings (Including Whiting,) By Value, Average Monthly Landings Concentrations, 1997-2001



Process Alternatives 2 and 5 are biennial processes with March 1 fishing period start dates. A March 1 start date, with a corresponding February 28/29 ending date could push the restriction and closure period from the status quo October-December to a new December-February period. For processors that focus on Dungeness crab, a slow period in December-February might be more advantageous in northern ports, where crab tends to enter its hardshell phase later than in the south. Processors at the southern end of the Dungeness crab range (central-northern California) would be at a disadvantage because the hardshell phase for crab in their area tends to come in November-December, a time when they might want to continue to accept groundfish landings. On the other hand, CPS fisheries are concentrated in the southern part of the coast and those also operate strongly during the winter months. In terms of safety, a December-February closure probably has no measurable change over an October-December closure. Additionally, a slow December-February period may provide more year-end holiday marketing opportunities than an October-December closure. Conversely, closure in the early part of the calendar year may reduce marketers ability to participate in Asian cultures' celebration of New Years tied to the lunar calendar. Many Asian and Asian-American cultures tend to consume more fish per-capita than other American culture groups, making Asian holiday celebrations important fish-consumption periods. As with Process Alternative 3, setting two-year OYs could result in a long closure period at the end of the second fishing year. Under Process Alternatives 2 and 5, this period would likely occur in October-December, affecting both the groups that would be affected with one-year OYs under Process Alternative 3 and under Alternatives 2 and 5. Again, a more conservative harvest regime at the start of the management period could counteract the end-of-period closures.

Figure 4.3.5 Value of Groundfish Landings By Month, 1997-2001



Process Alternative 4 is a biennial process with a May 1 start date. A May 1 start date, with a corresponding April 30 ending date could push the restriction and closure period from the status quo October-December to a new February-April. This start date could ensure open groundfish fisheries throughout the Dungeness crab season, allowing vessels and processing plants to switch between crab or CPS and groundfish at will. Having a slow groundfish period of February-April, however, might be difficult for West Coast fishery participants trying to fill out their incomes between the Dungeness crab and CPS seasons and the shrimp, salmon and albacore seasons of spring and summer. For vessel safety and small vessel income, Process Alternative 4 is the least advantageous. February-April is the period when small vessels that do not fish during winter are just starting to get back on the water. Many fishers would not want to see a period of management-constrained fishing opportunities following immediately on the heels of a period of weather-constrained ones. Conversely, the knowledge that the fisheries would likely close during the February-April period would push vessel operators to fish during winter weather that they might otherwise avoid, thereby compromising safety. Like the potential December-February slow period associated with a March 1 start date, a February-April slow period associated with May 1 start could also negatively affect producers supplying fish for consumption during Asian and Asian-American New Years celebrations as well as during Lent, a period in the Christian calendar when many persons increase their fish consumption. Similar to all of the other Process Alternatives, the effects of this alternative would vary

according whether one-year (OY Duration Alternative 1,) two-year (OY Duration Alternative 2,) or mixed (OY Duration Alternative 3) OY periods are used. Without conservative management measures, the lengthy closure period that could be associated with two-year OYs under this alternative would likely occur in December-April. This closure period would affect all of the groups described as affected under Process Alternatives 2 and 5 as well as those affected by the May 1 start date under Process Alternative 4.

A May 1 start date could require reorganization of both tribal and nontribal fishing opportunities for groundfish. The logistics of tribal commercial fishery management under a May 1 start date will be addressed in the next section, along with nontribal commercial fishery logistical concerns. For most tribal fisheries, however, there are also subsistence and ceremonial uses of different fish species. Much of the subsistence fishing by the four groundfish treaty tribes occurs during the March-April tribal commercial halibut and sablefish fisheries. Nontribal groundfish fisheries would need to be managed in a way that would ensure groundfish availability for all tribal commercial, subsistence and ceremonial fisheries during the February-April period.

As with biological effects, many of the potential socio-economic effects of shifting the fishing year start date should more properly be considered effects of the Council's year-round fishery policy, rather than effects of the start date of a management period. Socio-economic effects resulting from different closure periods associated with the alternative season start dates or with one- or two-year OY durations could more accurately be attributed to inadequate tools for the allocation of managed species among user groups and to the lack of management tools that would allow fishery participants access during periods most advantageous to their particular business needs. Ideally, vessel operators and processors should be able to take advantage of whichever seasonal markets best fit their needs. Small vessel operators should not be forced to fish during inclement weather because of concerns about fishery closures during spring and summer months. Vessel operators afforded the privilege of fishing for both Dungeness crab and groundfish, or groundfish and shrimp, should be able to time their fishing trips based on the migratory patterns of their target species and the needs of their own marketing strategies and those of their associated processors. While implementing multi-year groundfish management will not alleviate all season-related management problems for fisheries participants, it should be a positive step toward improving the stability and certainty of seasonal groundfish allocations for participating harvesters and processors. The improved science and management made possible with multi-year planning will help mitigate the closure cycle by stabilizing groundfish allocations and landings throughout the season.

4.3.2 Socio-Economic Effects of the Council and NMFS Public Review Processes

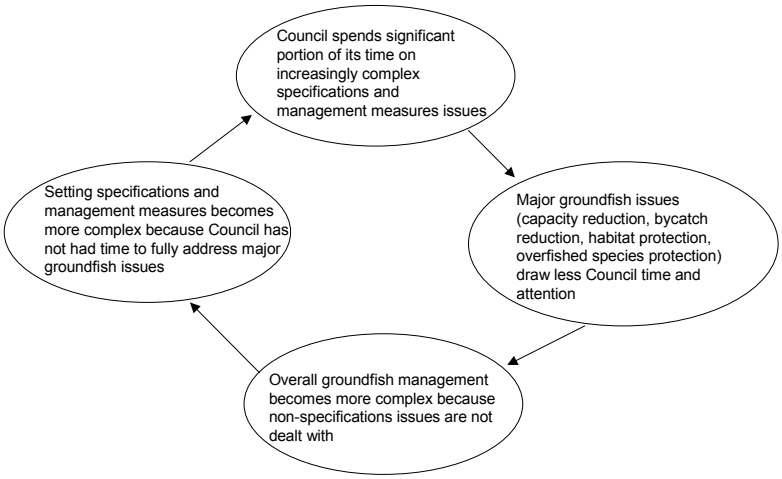
The changes to the Council's specifications and management measures process considered in Amendment 17 will also affect overall Council process and schedule. Each of the alternatives allows more or less Council and NMFS staff work time and uses a different number of Council meetings to achieve the same results. Alternatives that use more Council meetings to develop a specifications and management measures package may be more costly in terms of Council time spent on each issue, but may result in better overall analysis with less Council time spent on correcting mistakes. In addition to issues related to developing the specifications and management measures, changing the Council's process may also alter scheduling for inseason management measures. And, changing the Council meetings at which groundfish issues are considered may also conflict with non-groundfish issues traditionally considered at those meetings. Table 4.3.3 compares these factors across the process alternatives. OY duration would not affect the Council process.

Table 4.3.3 Council process issues under Amendment 17 alternatives

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Number of Council meetings needed to develop two years of specifications	4	3	3	3	2
Available time for Council staff and Council advisory committees analysis work	7 months	11-19 months	14 months	9 months	9 months
Available time for NMFS regulations development, publication, & public review period	2 months	5.5 months	6.5 months	6 months	5.5 months
Amount of time between the last Council meeting of the fishing year and the start of the new fishing period. (Inseason measures adjustment period.)	3 months. Inseason changes for Oct-Dec made in Sept, with final check at Nov. meeting.	3 months. Inseason changes for Dec-Feb made in Nov, no new meetings until after 3/1 start date.	3 months. Inseason changes for Oct-Dec made in Sept, with final check at Nov. meeting.	5 months. Inseason changes for Dec-Apr made in Nov, with final check at Mar. meeting.	3 months. Inseason changes for Dec-Feb made in Nov, no new meetings until after 3/1 start date.
Process includes a March or April meeting that could conflict with salmon management process?	No	Yes	Yes	No	No

Under Process Alternative 1 (status quo/no action,) the Council uses the highest number of meetings to develop specifications and management measures for a two-year period. Before setting up the Groundfish Multi-year Management Committee, the Council had decided to use a three-meeting process to develop annual specifications and management measures. With an annual three-meeting process, the Council would have used six meetings to develop specifications and management measures for a two-year period. In general, the Council considers groundfish issues at four out of five meetings per year, with the fifth meeting (March) used only for updates and preparatory discussions. One of the significant process advantages of Process Alternatives 2-5 is that the Council would have an "off" year in which it would not be developing specifications and management measures. During that off year, the Council could use its groundfish meetings to address its notable backlog of long-term groundfish management issues. Under status quo, the Council is stuck in a cycle that forces participants to spend so much time on specifications and management measures development that they are unable to work on issues (like capacity reduction) that could ultimately help to reduce the complexity of the specifications and management measures.

Figure 4.3.6 Council's Groundfish Management Efforts



In addition to varying in the number of meetings that would be used to develop specifications and management measures, the alternatives also vary in the amount of time that they allot for Council staff and Council advisory bodies to

provide background documentation and analysis for the Council's work. Process Alternative 2 provides the longest period (11-19 months,) with the Council's work time dependent on when stock assessments are completed, while the shortest period (7 months) is provided under status quo. The level of analysis and background documentation required in each specifications and management measures process would be based on the factors particular to that year's process and would not vary between alternatives. A disadvantage of the alternatives with shorter periods for background analyses is that these periods are generally only sufficient in years when there are no notable questions about the outcomes of new stock assessments and overfished species rebuilding plans. In developing the 2003 specifications, for example, the Council has had to hold emergency stock assessment reviews between its preliminary (June) and final (September) specifications meetings. The results of these reviews will have to be folded into the analysis for 2003 specifications and management measures. Conversely, a disadvantage of the alternatives with longer analysis periods is that the analysis becomes farther disconnected in time from the science that was conducted in support of the analysis. Even in the current specifications and management measure process, new information that arises between the completion of stock assessment and the Council's final decisions affects those decisions. With a longer analysis period, there are more opportunities for new information to arise, making both analysis and decisions more complex.

With the exception of status quo, the alternatives are essentially the same in terms of the duration of time allowed for NMFS to draft proposed implementing regulations, receive public comment, respond to that comment and draft final implementing regulations. The minimum time needed to complete this process is 5 months from the Council's final recommendation on specifications and management measures. The status quo process was revised for 2003 to ensure adequate opportunity for public review of and comment on the specifications and management measures regulatory package. Under the 2003 process, NMFS expects to implement an emergency rule for January-February 2003 management measures, and publish and associated proposed rule for the complete 2003 specifications and management measures package. The agency expects to publish the final rule for the 2003 specifications and management measures by March 1, 2003. This emergency/proposed rule process could not be used on a regular basis, as emergency rules are intended for emergencies, not planned-for events.

All of the alternatives, except for Process Alternative 4, has three months between the last Council meeting at which an inseason may be made and the start of the new fishing year/period. Under Process Alternatives 1 and 3, the Council would be able to make inseason adjustments at its September meeting for the October-December period. The November Council meeting is usually not useful for making inseason adjustments, as those adjustments could only affect the month of December. Groundfish fishing activity tends to be slow in December, so there is little that the Council can change for December that will have much effect on the overall landings patterns for the year. Under Process Alternatives 2 and 5, the Council would be able to make inseason adjustments at its November meeting for the December-February period. Unlike Process Alternatives 1 and 3, the Council would not have an interim meeting for last-month checks on landings levels. With Process Alternative 4, the November Council meeting would also be the last Council meeting at which the Council could make inseason adjustments before the start of the new fishing period. Process Alternative 4 includes a May 1 start date, which means that the Council could make last-month changes at its March meeting, but those would not take effect until the last month of the fishing period. As with Process Alternatives 1 and 3, adjustments made in the last month of the fishing period could not be expected to significantly alter the overall landings patterns for the year. If the Council were to adopt Process Alternative 4, it may also have to set up a process that would allow either NMFS or a telephone conference of Council representatives to make inseason adjustments as needed during the December-April period.

Similar to the annual groundfish management cycle, the annual salmon management cycle is a carefully orchestrated set of meetings, all carefully timed to use up-to-date information and agreements in setting the new year's management measures. The Council addresses annual salmon management measures at its March (proposed) and April (final) meetings. To ensure that the Council is fully able to concentrate on salmon issues, the March meeting has traditionally had few to no groundfish items on its agenda. The Council's groundfish advisory bodies, the GMT and the GAP, do not meeting during the March meeting.

Although groundfish issues are on the Council's April meeting agendas and the GMT and GAP meet during the Council's April meeting, groundfish issues dealt with in April also tend to be less rigorous than those dealt with in June, September, and November. Process Alternative 2 and 3 both include a March or April meeting in the specifications and management measures development process. If the Council is to include specifications and management measures development in a March or April meeting, it will likely have to ensure that it addresses no other groundfish issues during those meetings, so that it may continue to devote the bulk of its attention to salmon management.

In addition to these longer term issues, there are several short-term logistical issues associated with changing the fishing year start date that could affect the Council process and its participants. If the Council chooses either Process Alternative 1 or 3, the fishing period start date of January 1 would remain the same. Process Alternatives 2 and 5 have a March 1 fishing year start date. To shift from a January 1 to March 1 start date, the Council and NMFS would need to create separate ABCs/OYs and management measures for the January/February period of the transition year, followed by a new set of specifications and management measures for the March 1 - February 28/29 period following the transition period. [Note: Transition scenarios for Process Alternatives 3 (Council preferred) and 5 (SSC preferred) are presented in Appendix B.] Similarly, the Process Alternative 4 May 1 start date would require a four month transitional set of ABCs/OYs and management measures. Shifting to the May 1 start date of Process Alternative 4 would also require that the Council make arrangements for accommodating the current management structure of the tribal commercial halibut/sablefish fisheries, the non-tribal primary fixed gear sablefish fishery, and the shorebased primary whiting season south of 42° N. lat. Table 4.3.4 examines some of the transitional issues that might have to be addressed for each of these fisheries under an Process Alternative 4 May 1 start date.

Table 4.3.4 Logistical Issues for Period-Defined Fisheries Associated with a May 1 Start Date

Fishery	Issues to be Addressed in Transition to May 1 Start Date
Tribal Halibut/Sablefish Fisheries	The bulk of tribal groundfish fishing occurs in March/April, concurrent with the major halibut and sablefish fisheries. Process Alternative 4 would not affect the tribal halibut fisheries. If the tribal sablefish fisheries were set to take their entire sablefish allocation during the March/April period, a May 1 start date would also not affect those fisheries. The tribal sablefish allocation is set at the beginning of the fishing period and the period when it is taken is not affected by the activities of the non-tribal fisheries. However, under Process Alternative 4, fishing activities beyond May 1 would be conducted against new ABCs/OYs and allocations. Should the tribes wish to hold a sablefish season that began in March and lasted through April and into May or beyond, the tribes and the Council would have to discuss how to best manage tribal harvests against two different allocations within a single tribal management period. It would be impractical for the tribes to move their fisheries earlier than March both because their groundfish fisheries are managed in concert with their halibut fisheries (which have a fishing period start date controlled by an international commission,) and because tribal fisheries operate off of northern Washington and rough weather in this northern area tends to prevent many tribal and non-tribal vessels from operating during winter months.

Fishery	Issues to be Addressed in Transition to May 1 Start Date
Limited Entry Fixed Gear Primary Sablefish Fishery	Amendment 14 to the FMP set the limited entry fixed gear primary sablefish season at April 1 through October 31. In order to maintain an April-October season within the May-April fishing period specified in Process Alternative 4, the Council would have to create two fishing seasons for each year: one held from May 1 through October 31 and a second season held from April 1 through April 30. At the May 1 start date, fishing could commence on the new period's sablefish ABC/OY. Alternatively, the Council could decide to shorten the primary sablefish season to May-October in order to eliminate the complexity of running two back-to back seasons fishing against different ABCs/OYs. This latter alternative may prove unpopular given the many years this fleet has invested in moving their management regime from a brief derby fishery to a longer season with more safety and flexibility for participants.
Primary Whiting Season South of 42° N. lat.	Opening dates for the non-tribal shorebased whiting season differ by area. In 2002, the shorebased fishery between 42° N. lat. and 40°30' N. lat. opened on April 1 and the shorebased fishery south of 40°30' N. lat. opened on April 15. North of 42° N. lat., the fishery opened on May 15. If the Council were to implement a May 1 start date through Amendment 17, it would likely also have to formalize a percentage of the shorebased whiting fishery allocation to be set aside for harvesting in April. Under Process Alternative 4, April would be the end of the overall fishing period. Without a set aside for the southern shorebased whiting fisheries, the shorebased whiting allocation would likely be taken in the earlier part of the fishing period (May-August). April openings are set for the southern shorebased fleet to allow that fleet to take advantage of whiting's springtime migration northward. Moving the fishing period start date for the southern whiting fishery would be impractical because later dates could prevent southern vessels and processors from accessing whiting as it migrates through their waters.

5.0 CONSISTENCY WITH FMP AND OTHER APPLICABLE LAW

5.1 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." Amendment 17 is administrative in nature and would not affect prevention of overfishing nor achievement of optimum yield.

National Standard 2 requires the use of the best available scientific information. As discussed above in Section 4.2 and detailed in Table 4.2.2, the alternative specifications and management measures processes (Issue 1) would vary in the speed with which information from resource surveys is used in fisheries management. While the status quo/no action process alternative would result in the swiftest incorporation of survey information into management for one-third of all assessed stocks, the biennial management processes (Process Alternatives 2-5) would provide stock assessment scientists with more opportunities to improve the overall quality of groundfish science. Process Alternative 3 uses resource survey data in fisheries management more swiftly than Alternative 2 and less swiftly than Alternatives 4 and 5. However, Process Alternative 3 provides stock assessment scientists with more time to complete

the assessments than Alternatives 4 or 5, possibly resulting in better quality stock assessments. Process Alternative 3 differs from the swiftest data use alternative (Process Alternative 5) in the timing of survey data use by ten months. For each alternative, there is a trade-off between use of most recently available data and opportunity to improve the quality of scientific information needed for the management process. The OY Durations Alternatives (Issue 2) do not differ in their use of the best available science in the setting of the OYs. Two-year OYs (OY Duration Alternatives 2 or 3,) however, may provide more flexibility in responding to scientific infomation for inseason management than one-year OYs (Alternative 1).

National Standard 3 would not be affected by the proposed actions because they do not address whether individual stocks of fish are managed as a unit throughout their ranges, or whether interrelated stocks of fish are managed as a unit.

National Standard 4 requires that “Conservation and management measures shall not discriminate between residents of different States.” All alternatives meet this standard

National Standard 5 is not affected by the proposed actions because none of the alternatives would affect the Council’s ability to improve or alter efficiency in the utilization of fishery resources.

National Standard 6 is not affected by the proposed actions because none of the alternatives would affect the Council’s ability to take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.

National Standard 7 requires that “Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.” The biennial management measures processes proposed in Alternatives 2-5 would all reduce cost and duplication over the status quo/no action alternative of an annual specifications and management measures process. Alternatives 2-4 (Alternative 3 is preferred) include higher costs than Alternative 5 because they are 3-meeting Council processes for developing specifications and management measures, rather than a 2-meeting Council process.

National Standard 8 requires that “conservation and management measures shall, 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." Fishing communities could be negatively affected by the biennial management processes (Process Alternatives 2-5) if the Council were to manage with two-year OYs (OY Duration Alternatives 2 or 3), rather than with two one-year OYs (OY Duration Alternative 1). In recent years, the Council has had to shut down large sectors of the fisheries 4-6 months before the end of the fishing year. If two-year OYs were implemented through a biennial management alternative, incautious management regimes in the first fishing year could result in overharvest and a complete fishery shut-down the second fishing year. Amendment 17 itself is administrative in nature and would not create a fishery shutdown, but management actions taken during the specifications and management measures process altered by Amendment 17 could certainly affect fishing communities.

National Standard 9 would not be affected by the proposed actions because Amendment 17 is administrative in nature does not affect the Council’s ability to address the reduction of bycatch or bycatch mortality.

National Standard 10 would not be affected by the proposed actions because Amendment 17 is administrative in nature does not affect the Council’s ability to promote the safety of human life at sea.

Amendment 17 is administrative in nature and is intended to alter the schedule by which the Council and NMFS develop and consider specifications and management measures; therefore, none of the alternatives are expected to have any effects (positive or negative) on essential fish habitat (EFH.)

5.2 Consistency with the FMP

Similar to the Magnuson-Stevens Act National Standard guidelines, the goals and objectives of the FMP are intended to provide a philosophical framework to guide the Council's decisions. Amendment 17 is intended to revise the process by which the Council considers the groundfish specifications and management measures. Amendment 17 does not revise the guiding principles of the FMP. None of the Amendment 17 alternatives to either Issue 1 (Process) or Issue 2 (OY Duration) are counter to any of the goals or objectives or the FMP, nor would the alternatives analyzed herein prevent the Council from managing the fishery with those goals and objectives in mind. Of the FMP's goals and objectives, only Objective 15, a "Social Factors" objective, may be affected by Amendment 17 deliberations.

> Objective 15. When considering alternative management measures to resolve an issue, choose the measure that best accomplishes the change with the least disruption of current domestic fishing practices, marketing procedures, and the environment.

Alternatives 2, 4, and 5 all would change the start date of the fishing year. Fishery participants have expressed a desire to continue with the current management practice of a January 1 fishing year start date (Alternatives 1 and 3). Thus, Alternative 3 would be more consistent with Objective 15 than the other biennial process alternatives.

Objective 1, a "Conservation" objective calls for maintaining "an information flow on the status of the fishery and the fishery resource which allows for informed management decisions as the fishery occurs." This is similar to Magnuson-Stevens Act National Standard 2, which requires the use of the best available scientific information. Amendment 17 would not disrupt the information flow that is currently used in setting specifications and management measures and in revising management measures inseason. As discussed above for National Standard 2, each of the process alternatives provides a different time lag between when resource surveys are conducted and when the data from those surveys is used to support management for a fishing period.

Objective 17, another "Social Factors" objective is essentially the same as National Standard 8. It states, "Consider the importance of groundfish resources to fishing communities, provide for the sustained participation of fishing communities, and minimize adverse economic impacts on fishing communities to the extent practicable." And, as discussed at National Standard 8, above, the effect of a biennial management process on fishing communities depends mainly on the particular specifications and management measures developed for any one fishery management period.

5.3 Paperwork Reduction Act

None of the alternatives require collection-of-information subject to the PRA.

5.4 Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) of 1972 is the principle federal legislation that guides marine mammal species protection and conservation policy in the United States. Under the MMPA, NMFS is responsible for the management and conservation of 153 stocks of whales, dolphins, porpoise, as well as seals, sea lions, and fur seals while the FWS is responsible for walrus, sea otters, and the West Indian manatee.

Off the West Coast, the Steller sea lion (*Eumetopias jubatus*) Eastern stock, Guadalupe fur seal (*Arctocephalus townsendi*), and Southern sea otter (*Enhydra lutris*) California stock are listed as threatened under the ESA and the sperm whale (*Physeter macrocephalus*) Washington, Oregon, and California (WOC) Stock, humpback whale (*Megaptera novaeangliae*) WOC - Mexico Stock, blue whale (*Balaenoptera musculus*) Eastern north Pacific stock, and Fin whale (*Balaenoptera physalus*) WOC Stock are listed as depleted under the MMPA. Any species listed as endangered or threatened under the ESA is automatically considered depleted under the MMPA.

The West Coast groundfish fisheries are considered a Category III fishery, indicating a remote likelihood of

or no known serious injuries or mortalities to marine mammals, in the annual list of fisheries published in the Federal Register. Based on its Category III status, the incidental take of marine mammals in the West Coast groundfish fisheries does not significantly impact marine mammal stocks.

None of the proposed management alternatives are likely to affect the incidental mortality levels of species protected by the MMPA.

5.5 National Environmental Policy Act (NEPA)

This EA is intended to meet the NEPA requirements that apply to the proposed action.

5.6 Executive Order 12866

None of the Amendment 17 alternatives would be a significant action according to 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.

5.7 Endangered Species Act

NMFS issued Biological Opinions 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 chinook bycatch amount specified in the Pacific whiting fishery Biological Opinion's (December 15, 1999) incidental take statement estimate of 11,000 fish, 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 BO, NMFS determined in a letter dated April 25, 2002 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 action is within the scope of these consultations.

5.8 Coastal Zone Management Act

Section 307(c)(1) of the Federal Coastal Zone Management Act (CZMA) of 1972 requires all federal activities that directly affect the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. The proposed alternative 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 which vary widely from one state to the next. Because the intent of Amendment 17 is administrative in nature -- to alter the schedule by which the Council and

NMFS develop and consider specifications and management measures -- none of the alternatives are expected to affect any state's coastal management program.

5.9 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 percent 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. Accordingly, tribal allocations and regulations have been developed in consultation with the affected tribe(s) and, insofar as possible, with tribal consensus.

None of the alternatives under consideration for Amendment 17 would affect tribal groundfish allocations. As discussed above in Section 4.0, changing the start date of the fishing period from the current January 1 start date could affect tribal management activities for the halibut and groundfish fisheries. The major tribal groundfish and halibut seasons occur in March and April. A fishing year start date of March 1 (Alternatives 2 and 5) would shorten the time between the NOAA approval of groundfish harvest specifications and the start date of tribal fisheries, which could cause logistical challenges for tribal fisheries managers setting season start dates and harvest amounts. Alternative 4, which includes a May 1 fishing period start date, would set the March-April tribal groundfish and halibut fisheries at the end of the Council's fishing period. While this fishing period start date would provide tribal fisheries managers with more advance notice of available groundfish harvest amounts, there could be greater logistical challenges under Alternative 4 if the treaty tribes wished to change their current management practices to extend the tribal fisheries from the current March-April into a March-May or April-May season. None of the alternatives would affect the halibut fishery management schedule, which is determined by the International Pacific Halibut Commission, and which has traditionally had an annual fisheries start date on or around March 15.

5.10 Migratory Bird Treaty Act

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.

6.0 REGULATORY IMPACT REVIEW (RIR)

The RIR analyses has many aspects in common with the EA. Much of the information required for the RIR has been provided above in the EA. Table 6.0.1 identifies where previous discussions relevant to the EA 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 6.1 Regulatory Impact Review and Regulatory Flexibility Analysis

RIR Elements of Analysis	Corresponding Sections in EA
Description of management objectives	1.0
Description of the Fishery	3.3
Statement of the Problem	1.0
Description of each selected alternative	2.0
An economic analysis of the expected effects of alternatives relative to no action	4.3

Regulatory Impact Review

The RIR is designed to determine whether the proposed actions could be considered "significant regulatory actions" according to E.O. 12866. Table 6.2 identifies 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 an 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 the analysis in section 4.0 of this document the proposed alternatives are not expected to be significant regulatory actions for the purposes of E.O. (Table 6.2)

Table 6.2 Summary of E.O. 12866 Test Requirements

E.O 12866 Test of "Significant Regulatory Actions	Alternative 1: No Action	Alternative 2	Alternative 3	Alternative 4	Alternative 5
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;	No	No	No	No	No
2) Create a serious inconsistency or otherwise interfere with action taken or planned by another agency;	No	No	No	No	No
3) Materially alter the budgetary impact of entitlement, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or	No	No	No	No	No
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,	No	No	No	No	No

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Pacific Fishery Management Council, August 1990, "Final Amendment 4 to the Pacific Coast Groundfish Plan"

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Pacific Fishery Management Council. 2001d. "Analysis of the Open Access Fishery." Prepared by Jim Hastie, NMFS. Council briefing book, Exhibit C.9, Attachment 2(a), June 2001.

Pacific Fishery Management Council. 2001e. "Limited Entry in the Open Access Fishery meeting notes." Council briefing book, Exhibit C.9, Attachment 2, June 2001.

Scientific and Statistical Committee's Economic Subcommittee. 2000. "Report on the Overcapitalization in the West Coast Groundfish Fishery." Report to Pacific Fishery Management Council.

7.2 List of Public Meetings, Agencies and Persons Consulted

Meetings of the Groundfish Multi-Year Management Committee were held on December 13-14, 2001, and on January 31- February 2, 2002. Amendment 17 was further discussed at the Council's meetings in April, June, and September 2002. Through these meetings, the Council has consulted with the NMFS, WDFW, ODFW, CDFG, and the Groundfish Treaty Tribes. Through its Multi-Year Management Committee and advisory bodies, the Council has also consulted with representatives of the fishing and processing industries, environmental conservation organizations, academia and other public groups.

7.3 List of Federal Register Notices Published in Connection with this Action

66 FR 52114-52115 – 10/12/01 – Announcing November 2001 Council meeting where Council requested formation of Groundfish Multi-Year Management Committee based on recommendations of Groundfish Management Process Committee

66 FR 59575 – 11/29/01 – Announcing first Groundfish Multi-Year Management Committee meeting for December 13-14, 2001

> SUPPLEMENTARY INFORMATION: The formation of this ad hoc committee is in response to the Council's request for a committee to scope multi-year management approaches for the West Coast groundfish fishery. Multi-year management of the groundfish fishery would be synchronized with a multi-year groundfish stock assessment schedule. Full accommodation of federal notice and comment requirements would also be incorporated into the multi-year cycle. This is the first meeting of the committee, and the primary purpose of the meeting is to refine the purpose and objectives of multi-year management, as well as initiate scoping of alternative approaches.

67 FR 569 – 01/04/02 – Announcing second Groundfish Multi-Year Management Committee meeting for January 31-February 2, 2002

67 FR 7358-7360 – 02/19/02 – Announcing March 2002 Council meeting where initial review of Groundfish Multi-Year Management Committee recommendations occurred.

67 FR 13317-13318 – 03/22/02 – Announcing April 2002 Council meeting where Council initiated FMP amendment.

7.4 List of Preparers

This document was prepared by the Northwest Regional Office of the National Marine Fisheries Service. Contributors: Yvonne deReynier, Jamie Goen, Carrie Nordeen, Becky Renko. Richard Methot of the Northwest Fisheries Science Center provided the discussion of the effects of changing the management process on the timeliness of stock assessment information. Edward Waters of the Pacific Fishery Management Council provided the analysis of the expected economic effects of altering the start date of the fishing year. Preparers also appreciate the organizational aid of Daniel Waldeck of the Pacific Fishery Management Council, who staffed Groundfish Multi-Year Management Committee meetings and Amendment 17 discussion items for the Council.

Appendix A

DRAFT AMENDATORY LANGUAGE FOR AMENDMENT 17 – MULTI-YEAR MANAGEMENT

This document presents draft amendatory language that would revise the FMP to allow multi-year management. Plain text shows status quo (Alternative 1) language. Bolded text shows where the FMP could be amended to allow a biennial specifications and management measures process under Alternatives 2-5. Some ~~strikeout~~ text is shown as editing text that is not relevant to any of the alternatives. There are numerous places in the FMP where the words "annual," "year," or "yearly" are used in descriptive paragraphs mentioning the Council's annual specifications and management measures process without affecting that process. To better focus attention on the FMP processes that would be affected by Amendment 17, these descriptive paragraphs have not been provided here. If the Council chooses any of the multi-year management alternatives (Alternatives 2-5,) permission from the Council to make minor edits to account for the change in management period would be helpful to the Council staff.

2.2 Operational Definition of Terms

Acceptable Biological Catch (ABC) is a biologically based estimate of the amount of fish that may be harvested from the fishery each year **or each biennial fishing period (Alternatives 2-5)** without jeopardizing the resource. It is a seasonally determined catch that may differ from MSY for biological reasons. It may be lower or higher than MSY in some years **or two-year periods** for species with fluctuating recruitment. The ABC may be modified to incorporate biological safety factors and risk assessment due to uncertainty. Lacking other biological justification, the ABC is defined as the MSY exploitation rate multiplied by the exploitable biomass for the relevant time period.

* * *

Biennial fishing period is defined as a 24-month period beginning January 1 (Alternative 3) / March 1 (Alternatives 2 & 5) / May 1 (Alternative 4) and ending December 31 (Alternative 3) / February 28 [or 29 in leap years] (Alternatives 2 & 5) / April 30 (Alternative 4).

* * *

Fishing year is defined as January 1 through December 31 **(Alternatives 1& 3) / March 1 through February 28 [or 29 in leap years] (Alternatives 2 & 5) / May 1 through April 30 (Alternative 4).**

* * *

Maximum sustainable yield (MSY) is an estimate of the largest average annual **or biennial** catch or yield that can be taken over a significant period of time from each stock under prevailing ecological and environmental conditions. It may be presented as a range of values. One MSY may be specified for a group of species in a mixed-species fishery. Since MSY is a long-term average, it need not be specified annually **or biennially**, but may be reassessed periodically based on the best scientific information available.

* * *

5.0 SPECIFICATION AND APPORTIONMENT OF HARVEST LEVELS

The ability to establish and adjust harvest levels is the first major tool at the Council's disposal to exercise its resource stewardship responsibilities. Each fishing year **(Alternative 1) biennial fishing period (Alternatives 2-5)**, the Council will assess the biological, social, and economic condition of the Pacific

coast groundfish fishery and update maximum sustainable yield (MSY) estimates or proxies for specific stocks (management units) where new information on the population dynamics is available. The Council will make this information available to the public in the form of the *Stock Assessment and Fishery Evaluation (SAFE)* document described in Section 5.1. Based upon the best scientific information available, the Council will evaluate the current level of fishing relative to the MSY level for stocks where sufficient data are available. Estimates of the acceptable biological catch (ABC) for major stocks will be developed, and the Council will identify those species or species groups which it proposes to be managed by the establishment of numerical harvest levels (optimum yields [OYs], harvest guidelines [HGs], or quotas). For those stocks judged to be below their overfished/rebuilding threshold, the Council will develop a stock rebuilding management strategy.

The process for specification of numerical harvest levels includes the estimation of ABC, the establishment of OYs for various stocks, calculation of specified allocations between harvest sectors, and the apportionment of numerical specifications to domestic annual processing (DAP), joint venture processing (JVP), total allowable level of foreign fishing (TALFF), and the reserve. The specification of numerical harvest levels described in this chapter is the process of designating and adjusting overall numerical limits for a stock either throughout the entire fishery management area or throughout specified subareas. The process normally occurs annually between September and November **(Alternative 1) / biennially between April and September (Alternative 2) / between November and June (Alternative 3) / between June and November (Alternative 4) / between June and September (Alternative 5)** , but can occur, under specified circumstances at other times of the fishing year. The Council will identify those OYs which should be designated for allocation between limited entry and open access sectors of the commercial industry. Other numerical limits which allocate the resource or which apply to one segment of the fishery and not another are imposed through the socioeconomic framework process described in Chapter 6 rather than the specification process.

The National Marine Fisheries Service (NMFS) Regional Administrator will review the Council's recommendations, supporting rationale, public comments, and other relevant information; and, if it is approved, will undertake the appropriate method of implementation. Rejection of a recommendation will be explained in writing.

The procedures specified in this chapter do not affect the authority of the U.S. Secretary of Commerce (Secretary) to take emergency regulatory action as provided for in Section 305(c) of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) if an emergency exists involving any groundfish resource or to take such other regulatory action as may be necessary to discharge the Secretary's responsibilities under Section 305(d) of the Magnuson-Stevens Act.

The ~~annual~~ specification**s and management measures** process, in general terms, occurs as follows:

1. The Council will determine the MSY or MSY proxy and ABC for each major stock. Typically, the MSY proxy will be in terms of a fishing mortality rate ($F_{x\%}$,) and ABC will be the $F_{x\%}$ applied to the current biomass estimate.

2. Every species will either have its own designated OY or be included in a multispecies OY. Species which are included in a multispecies OY may also have individual OYs, have individual HGs, or be included in a HG for a subgroup of the multispecies OY. Stocks without quantitative or qualitative assessment information may be included in a numerical or non-numerical OY.

3. To determine the OY for each stock, the Council will determine the best estimate of current abundance and its relation to its precautionary and overfished thresholds. If the abundance is above the precautionary threshold, OY will be equal to or less than ABC. If abundance falls below the precautionary threshold, OY will be reduced according to the harvest control rule for that stock. If abundance falls below the overfished/rebuilding threshold, OY will be set according to the interim rebuilding rule until the Council develops a formal rebuilding plan for that species.

4. ****Editorial changes for this paragraph would be addressed under Amendment 16 (overfished species rebuilding) to the FMP**** For any stock the Secretary has declared overfished or approaching the overfished condition, or for any stock the Council determines is in need of rebuilding, the Council will develop a rebuilding plan and submit it in the same manner as recommendations of the annual management process. Once approved, a rebuilding plan will remain in effect for the specified duration or until the Council recommends and the Secretary approves revision.

5. The Council may reserve and deduct a portion of the ABC of any stock to provide for compensation for vessels conducting scientific research authorized by NMFS. Prior to the research activities, the Council will authorize amounts to be made available to a research reserve. However, the deduction from the ABC will be made in the year after the "compensation fishing"; the amounts deducted from the ABC will reflect the actual catch during compensation fishing activities.

6. The Council will identify stocks which are likely to be fully harvested (i.e., the ABC, OY, or HG achieved) in the absence of specific management measures and for which allocation between limited entry and open access sectors of the fishery is appropriate.

7. The groundfish resource is fully utilized by U.S. fishing vessels and seafood processors. The Council may entertain applications for foreign or joint venture fishing or processing at any time, but fishing opportunities may be established only through amendment to this FMP. This section supercedes other provisions of this FMP relating to foreign and joint venture fishing.

This chapter describes the steps in this process.

5.1 SAFE Document

****Annual SAFE documents are required under Federal regulations implementing National Standard 2 of the Magnuson-Stevens Act (base conservation and management measures on the best available scientific information.) Under Amendment 16 to the FMP, the Council will consider revising the SAFE document production schedule (stock assessments available before final decision on specifications and management measures, evaluation of the fishery available after end of fishing year).**

Amendment 17 Alternatives 2-5 consider a biennial management process. Under a biennial management process, some elements of the SAFE document may not be necessary in years when the Council is not preparing specifications and management measures. For example, elements 2, 5, 6, 7, and 11 could be eliminated from "off year" SAFE documents without violating Federal regulations or hampering the Council's ability to conduct inseason management.**

For the purpose of providing the best available scientific information to the Council for evaluating the status of the fisheries relative to the MSY and overfishing definition, developing ABCs, determining the need for individual species or species group management, setting and adjusting numerical harvest levels, assessing social and economic conditions in the fishery, and updating the appendices of this fishery management plan (FMP); a SAFE document is prepared annually. Not all species and species groups can be reevaluated every year due to limited state and federal resources. However, the SAFE document will in general contain the following information:

1. A report on the current status of Washington, Oregon, and California groundfish resources by major species or species group.

2. Specify and update estimates of harvest control rule parameters for those species or species groups for which information is available.

3. Estimates of MSY and ABC for major species or species groups.

4. Catch statistics (landings and value) for commercial, recreational, and charter sectors.

5. Recommendations of species or species groups for individual management by OYs.

6. A brief history of the harvesting sector of the fishery, including recreational sectors.

7. A brief history of regional groundfish management.

8. A summary of the most recent economic information available, including number of vessels and economic characteristics by gear type.

9. Other relevant biological, social, economic, ecological, and essential fish habitat information which may be useful to the Council.

10. A description of any rebuilding plans currently in effect, a summary of the information relevant to the rebuilding plans, and any management measures proposed or currently in effect to achieve the rebuilding plan goals and objectives.

11. A list of annual specifications and management measures that have been designated as routine under processes described in the FMP at Section 6.2.

Under a biennial specifications and management measures process, elements 2, 5, 6, 7, and 11 would not need to be included in a SAFE document in years when the Council is not setting specifications and management measures for an upcoming biennial fishing period (Alternatives 2-5). The preliminary SAFE document is normally completed late in the year, generally late October, when the most current stock assessment and fisheries performance information is available and prior to the meeting at which the Council approves its final management recommendations for the upcoming year. The Council will make the preliminary SAFE document available to the public by such means as mailing lists or newsletters and will provide copies upon request. A final SAFE may be prepared after the Council has made its final recommendations for the upcoming year and will include the final recommendations, including summaries of proposed and pre-existing rebuilding plans. The final SAFE document, if prepared, will also be made available upon request.

* * *

5.4 Authorization and Accounting for Fish Taken as Compensation for Authorized Scientific Research Activities.

At a Council meeting, NMFS will advise the Council of upcoming resource surveys that would be conducted using private vessels with groundfish as whole or partial compensation. For each proposal, NMFS will identify the maximum number of vessels expected or needed to conduct the survey, an estimate of the species and amounts of compensation fish likely to be needed to compensate vessels for conducting the survey, when the fish would be taken, and when the fish would be deducted from the ABC in determining the OY/harvest guideline. NMFS will initiate a competitive solicitation to select vessels to conduct resource surveys. NMFS will consult with the Council regarding the amounts and types of groundfish species to be used to support the surveys. If the Council approves NMFS' proposal, NMFS may proceed with awarding the contracts, taking into account any modifications requested by the Council. If the Council does not approve the proposal to use fish as compensation to pay for resource surveys, NMFS will not use fish as compensation.

Because the species and amounts of fish used as compensation will not be determined until the contract is awarded, it may not be possible to deduct the amount of compensation fish from the ABC or harvest

guideline in the year that the fish are caught. Therefore, the compensation fish will be deducted from the ABC the year **(Alternative 1) / biennial fishing period (Alternatives 2-5)** after the fish are harvested. During the ~~annual~~ specification**s and management measures** process, NMFS will announce the total amount of fish caught during the year **(Alternative 1) / biennial fishing period (Alternatives 2-5)** as compensation for conducting a resource survey, which then will be deducted from the following year's ABCs in setting the OYs.

* * *

5.6 Annual **(Alternative 1) / Biennial (Alternatives 2-5)** Implementation Procedures for Specifications and ~~Apportionments~~ **Management measures**(previously section 5.8)

Annually**/Biennially**, the Council will develop recommendations for the specification of ABCs, OYs, any HGs or quotas, ~~and apportionments to DAH, DAP, JVP, and TALFF and the reserve~~ over the span of two **(Alternatives 1 & 5) / three (Alternatives 2, 3, 4)** Council meetings. In addition during this process, the Council may recommend establishment of HGs and quotas for species or species groups within an OY.

The Council will develop preliminary recommendations at the first of two **/ three** meetings (usually in August or September) **(Alternative 1) / in April (Alternative 2) / in November (Alternative 3) / in June (Alternatives 4 & 5)** , based upon the best stock assessment information available to the Council at the time and consideration of public comment. After the first meeting, the Council will provide a summary of its preliminary recommendations and their basis to the public through its mailing list as well as providing copies of the information at the Council office and to the public upon request. The Council will notify the public of its intent to develop final recommendations at its second **/third** meeting (usually October or November) **(Alternative 1) / in September (Alternatives 2 & 5) / in June (Alternative 3) / in November (Alternative 4)**, and solicit public comment both before and at its second meeting.

At its second **and/or third** meeting, the Council will again consider the best available stock assessment information which should be contained in the recently completed SAFE report and consider public testimony before adopting final recommendations to the Secretary. Following the second**/third** meeting, the Council will submit its recommendations along with the rationale and supporting information to the Secretary for review and implementation.

Upon receipt of the Council's recommendations supporting rationale and information, the Secretary will review the submission, and, if approved, publish a notice in the *Federal Register* making the Council's recommendations effective January 1 of the upcoming fishing year **(Alternative 1) / publish a proposed rule in the *Federal Register*, making the Council's recommendations available for public comment and agency review. Following the public comment period on the proposed rule, the Secretary will review the proposed rule, taking into account any comments or additional information received, and will publish a final rule in the *Federal Register*, possibly modified from the proposed rule in accordance with the Secretary's consideration of the proposed rule.**

In the event that the Secretary disapproves one or more of the Council's recommendations, he may implement those portions approved and notify the Council in writing of the disapproved portions along with the reasons for disapproval. The Council may either provide additional rationale or information to support its original recommendation, if required, or may submit alternative recommendations with supporting rationale. In the absence of an approved recommendation at the beginning of the fishing year**/biennial fishing period**, the current specifications in effect at the end of the previous fishing year**/biennial fishing period** will remain in effect until modified, superseded, or rescinded.

5.7 Inseason Procedures for Establishing or Adjusting Specifications and ~~Apportionments~~ **Management Measures**(previously 5.9)

5.7.1 Inseason Adjustments to ABCs

Occasionally, new stock assessment information may become available inseason that supports a determination that an ABC no longer accurately describes the status of a particular species or species group. However, adjustments will only be made during the annual **/biennial** specifications process and a revised ABC announced at the beginning of the next fishing year **/ biennial fishing period**. The only exception is in the case where the ABC announced at the beginning of the fishing year **/ biennial fishing period** is found to have resulted from incorrect data or from computational errors. If the Council finds that such an error has occurred, it may recommend the Secretary publish a notice in the *Federal Register* revising the ABC at the earliest possible date.

* * *

6.0 MANAGEMENT MEASURES

* * *

6.2 General Procedures for Establishing and Adjusting Management Measures

Management measures are normally imposed, adjusted, or removed at the beginning of the fishing year **/ biennial fishing period**, but may, if the Council determines it necessary, be imposed, adjusted, or removed at any time during the year. Management measures may be imposed for resource conservation, social or economic reasons consistent with the criteria, procedures, goals, and objectives set forth in the FMP.

Because the potential actions which may be taken under the two frameworks established by the FMP cover a wide range analyses of biological, social, and economic impacts will be considered at the time a particular change is proposed. As a result, the time required to take action under either framework will vary depending on the nature of the action, its impacts on the fishing industry, resource, environment, and review of these impacts by interested parties. Satisfaction of the legal requirements of other applicable law (e.g., the Administrative Procedure Act, Regulatory Flexibility Act, Executive Order 12291, etc.) for actions taken under this framework requires analysis and public comment before measures may be implemented by the Secretary.

Four different categories of management actions are authorized by this FMP, each of which requires a slightly different process. Management measures may be established, adjusted, or removed using any of the four procedures. The four basic categories of management actions are as follows:

A. Automatic Actions - Automatic management actions may be initiated by the NMFS Regional Administrator without prior public notice, opportunity to comment, or a Council meeting. These actions are nondiscretionary, and the impacts previously must have been taken into account. Examples include fishery, season, or gear type closures when a quota has been projected to have been attained. The Secretary will publish a single "notice" in the *Federal Register* making the action effective.

B. "Notice" Actions Requiring at Least One Council Meeting and One *Federal Register* Notice - These include all management actions other than "automatic" actions that are either nondiscretionary or for which the scope of probable impacts has been previously analyzed.

These actions are intended to have temporary effect, and the expectation is that they will need frequent adjustment. They may be recommended at a single Council meeting ~~(usually November~~), although the Council will provide as much advance information to the public as possible concerning the issues it will be

considering at its decision meeting. The primary examples are those **inseason** management actions defined as "routine" according to the criteria in Section 6.2.1. These include trip landing and frequency limits and size limits for all commercial gear types and closed seasons for any groundfish species in cases where protection of an overfished or depleted stock is required, and bag limits, size limits, time/area closures, boat limits, hook limits, and dressing requirements for all recreational fisheries. Previous analysis must have been specific as to species and gear type before a management measure can be defined as "routine" and acted upon at a single Council meeting. If the recommendations are approved, the Secretary will waive for good cause the requirement for prior notice and comment in the *Federal Register* and will publish a single "notice" in the *Federal Register* making the action effective. This category of actions presumes the Secretary will find that the extensive notice and opportunity for comment on these types of measures along with the scope of their impacts already provided by the Council will serve as good cause to waive the need for additional prior notice and comment in the *Federal Register*.

C. Abbreviated Rulemaking Actions Normally Requiring at Least Two Council Meetings and One *Federal Register* "Rule" or "Notice" **(Alternative 1) C. Specifications and Management Measures Rulemaking Actions Requiring at Least Two (Alternative 5) / Three (Alternatives 2-4) Council Meetings and Two *Federal Register* Notices** - These include (1) management actions being classified as "routine", or (2) trip limits that vary by gear type, closed seasons or areas, and in the recreational fishery, bag limits, size limits, time/area closures, boat limits, hook limits, and dressing requirements the first time these measures are used or ~~(3) management measures that are intended to have permanent effect and are discretionary, and for which the impacts have not been previously analyzed~~ **(moved to Section D, below)**. Examples include changes to or imposition of gear regulations, or imposition of landings limits, frequency limits, or limits that are differential by gear type, or closed areas or seasons for the first time on any species or species group, or gear type. The Council will develop and analyze the proposed management actions over the span of at least two **/ three** Council meetings ~~(usually September and November)~~ and provide the public advance notice and opportunity to comment on both the proposals and the analysis prior to and at the second Council meeting. If the Regional Administrator approves the Council's recommendation, the Secretary will waive for good cause the requirement for prior notice and comment in the *Federal Register* and publish a "final rule" or "notice" in the *Federal Register* which will remain in effect until amended. **(Alternative 1 – sentence would be deleted under Alternatives 2-5)** If a management measure is designated as "routine" under this procedure, specific adjustments of that measure can subsequently be announced in the *Federal Register* by "notice" as described in the previous paragraphs. Nothing in this section prevents the Secretary from exercising the right not to waive the opportunity for prior notice and comment in the *Federal Register*, if appropriate, but presumes the Council process will adequately satisfy that requirement. **(Alternative 1 – sentence would be deleted under Alternatives 2-5) The Secretary will publish a "proposed rule" in the *Federal Register* with an appropriate period for public comment followed by publication of a "final rule" in the *Federal Register* (Alternatives 2-5).**

The primary purpose of the previous two categories of abbreviated notice and rulemaking procedures is to accommodate the Council's September-November meeting schedule for developing annual management recommendations, to satisfy the Secretary's responsibilities under the Administrative Procedures Act, and to address the need to implement management measures by January 1 of each fishing year.**(Alternative 1 – paragraph would be deleted under Alternatives 2-5)**

It should be noted the two **/three** Council meeting process refers to two decision meetings. The first **and second (Alternatives 2-4)** meeting to develop proposed management measures and their alternatives, the second **/third** meeting to make a final recommendation to the Secretary. For the Council to have adequate information to identify proposed management measures for public comment at the first meeting, the identification of issues and the development of proposals normally must begin at a prior Council meeting, ~~usually the June Council meeting~~.

D. Full Rulemaking Actions Normally Requiring at Least Two Council Meetings and Two *Federal Register* Rules (Regulatory Amendment) - These include any proposed management measure that is highly controversial or any measure which directly allocates the resource. **These also include management**

measures that are intended to have permanent effect and are discretionary, and for which the impacts have not been previously analyzed. (Alternative 2-5, moved from Section C, above) The Council normally will follow the two meeting procedure described for the abbreviated**/ specifications and management measures** rulemaking category. The Secretary will publish a "proposed rule" in the *Federal Register* with an appropriate period for public comment followed by publication of a "final rule" in the *Federal Register*.

Management measures recommended to address a resource conservation issue must be based upon the establishment of a "point of concern" and consistent with the specific procedures and criteria listed in Section 6.2.2.

Management measures recommended to address social or economic issues must be consistent with the specific procedures and criteria described in Section 6.2.3.

Appendix B

TRANSITION TO MULTI-YEAR MANAGEMENT UNDER ALTERNATIVE 3 (COUNCIL PREFERRED)

	Jan '03	April '03	June '03	Sept '03	Nov '03	Jan '04	Mar/Apr 04	June '04	Sept '04	Nov '04	Jan '05
Stock Assessments	Assessments and STAR for '04 due **5/03** Assessments and STAR for '05-'06 due **10/03**					"Off" year for stock assessments. Advanced model development and stock assessment model refinement year.					"On" year begins
Council Process			Proposed '04 Specs	Final '04 Specs	Proposed '05-'06 ABC/OY		Proposed '05-'06 manage measures	Final '05-'06 Specs & manage measures	First "off" year for Council begins 9/04 and ends 11/05. In 11/05, proposed ABC/OY for '07-'08		
NMFS Regulatory Process	Public review and NOAA implementation of Amendment 17			'04 Specs via emergency for Jan-Feb or carry-over if '03 conservative enough '04 Specs proposed rule, public review; final rule due 3/04				NMFS sends '05-'06 out for public review via proposed rule and implements via final rule by 01/05			

TRANSITION TO MULTI-YEAR MANAGEMENT UNDER ALTERNATIVE 3 (WITH THREE-MEETING '04 TRANSITION)

	Jan '03	**April '03**	**June '03**	**Sept '03**	**Nov '03**	**Jan '04**	**Mar/Apr 04**	**June '04**	**Sept '04**	**Nov '04**	**Jan '05**
Stock Assessments	Assessments and STAR for '04 due **5/03** Assessments and STAR for '05-'06 due **10/03**					"Off" year for stock assessments. Advanced model development and stock assessment model refinement year.					"On" year begins
Council Process			Proposed '04 Specs	Proposed '04 manage measures	Final '04 Specs Proposed '05-'06 ABC/OY		Proposed '05-'06 manage measures	Final '05-'06Specs & manage measures	First "off" year for Council begins 9/04 and ends 11/05. In 11/05, proposed ABC/OY for '07-'08		
NMFS Regulatory Process	Public review and NOAA implementation of Amendment 17				'04 Specs via emergency for Jan-**Apr** or carry-over if '03 conservative enough '04 Specs proposed rule, public review; final rule due 3/04				NMFS sends '05-'06 out for public review via proposed rule and implements via final rule by 01/05		

TRANSITION TO MULTI-YEAR MANAGEMENT UNDER ALTERNATIVE 5 (SSC SUPPORTED)

<table>
<tr><th></th><th>Jan ‘03</th><th>April ‘03</th><th>June ‘03</th><th>Sept ‘03</th><th>Nov ‘03</th><th>Jan ‘04</th><th>Mar/Apr 04</th><th>June ‘04</th><th>Sept ‘04</th><th>Nov ‘04</th><th>Jan ‘05</th></tr>
<tr><td>Stock Assessments</td><td colspan="3">Assessments and STAR for ‘04-‘05 due 5/03.</td><td colspan="3">“Off” year for stock assessments. Advanced model development and stock assessment model refinement year.</td><td colspan="4">“On” year begins</td></tr>
<tr><td rowspan="2">Council Process</td><td colspan="2" rowspan="2"></td><td>Proposed ‘04-‘05 Specs</td><td>Final ‘04-‘05 Specs</td><td colspan="2" rowspan="2"></td><td colspan="4" rowspan="2">First “off” year for Council begins 3/04 and ends 6/05. In 6/05, proposed ABC/OY for ‘06-‘07</td></tr>
<tr><td colspan="2">Transitional OYs needed for Jan-Feb -04</td></tr>
<tr><td>NMFS Regulatory Process</td><td colspan="2" rowspan="2">Public review and NOAA implementation of Amendment 17</td><td rowspan="2"></td><td colspan="2">Emergency rule for Jan-Feb ‘04 specs may be needed even if Jan-Feb ‘03 used for carry-over because of transition to 3/1 start date</td><td colspan="3" rowspan="2"></td><td colspan="2" rowspan="2"></td></tr>
<tr><td colspan="3">‘04-‘05 Specs proposed rule, public review; final rule due 3/04</td><td></td></tr>
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AMENDMENT 17 - MULTI-YEAR MANAGEMENT

Situation: The Council is scheduled to take final action on Amendment 17. This amendment was developed in response to the increasing complexity of the groundfish management process, and designed to accommodate a court decision requiring National Marine Fisheries Service (NMFS) to publish the proposed annual specifications and management measures in the *Federal Register* for public comment before publishing a final rule implementing these specifications and management measures

Alternatives under Amendment 17 would change the process for developing groundfish specifications and management measures so that measures could be established for two years, rather than one year. This would provide more time for the Council and NMFS to work on other critical groundfish issues, such as strategic plan implementation. In addition, the alternative management schedules would provide enough time for NMFS to carry out the court ordered public notice and comment requirement.

The amendment includes five alternate management schedules, with various options for setting specifications and management measures, the number and schedule of Council meetings for developing specifications and measures, fishing year start dates, and schedules for conducting new and updated groundfish stock assessments. It also compares the effects of using one-year optimum yields or two-year optimum yields within a biennial framework.

The Environmental Assessment (EA) for Amendment 17 was made available to the public after the September 2002 Council meeting. Notice of availability was provided in the Council newsletter. The document was also posted to the Council website. As of October 15, 2002, no comments were received.

In taking final action on Amendment 17, the Council should consider specifying a preferred alternative and articulating why this alternative is preferred over the other alternatives. Providing adequate time for Council and NMFS staff to develop and analyze management specifications, ensuring science is timely and relevant, and modifying the fishing year start date are issues that will need to be considered in making this determination.

The Council should also consider how it intends to transition to a new management regime, including the number of Council meetings that will be required during 2003 to develop, analyze, and act on multi-year management specifications for 2004 through 2005.

Council Action:

1. Final Adoption of Amendment 17

Reference Materials:

1. Exhibit G.5, Attachment 1 -- EA for Amendment 17.

Agenda Order:

a. Agendum Overview	Dan Waldeck
b. NMFS Report	Yvonne de Reynier
c. Reports and Comments of Advisory Bodies	
d. Public Comment	
e. **Council Action:** Final Adoption of Amendment 17	

over=7

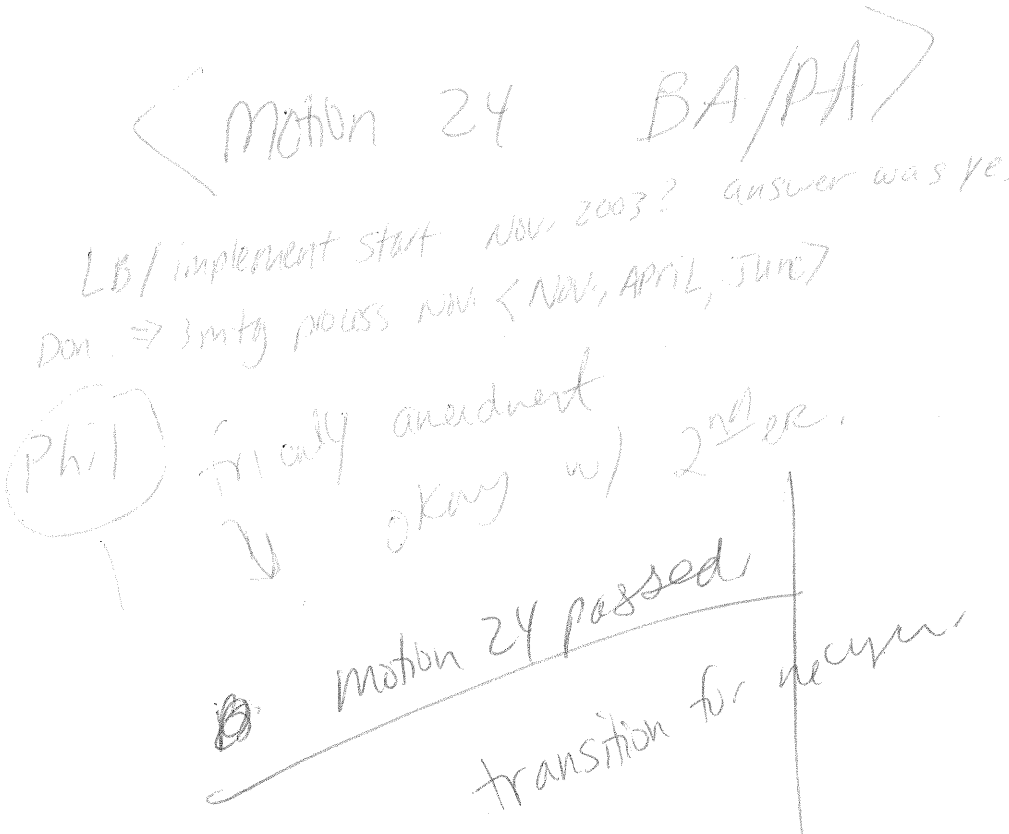
Groundfish Fishery Strategic Plan (GFSP) Consistency Analysis

The purposes of Amendment 17 (optimizing the groundfish management process and providing for adequate public notice and comment) are in line with GFSP goals for the Council process. These goals include: establishing and maintaining a management process that is transparent, participatory, understandable, accessible, consistent, effective, credible, and adaptable; providing a public forum that can respond in a timely way to the needs of the resource and to the communities and individuals who depend on them; and establishing a long-term view with clear, measurable goals and objectives.

PFMC
10/15/02

Supplemental Reference Materials

2. Exhibit G.5.c, Supplemental SSC Report.
3. Exhibit G.5.c, Supplemental GMT Report.
4. Exhibit G.5.c, Revised Supplemental GMT Report.
5. Exhibit G.5.c, Supplemental GAP Report.



October 28, 2002

D. Robert Lohn
Regional Administrator
National Marine Fisheries Service
7600 Sand Point Way NE
Bin C15700
Seattle, WA 98115

Dear Robert:

Enclosed is a joint ODFW, WDFW and CDFG application for an exempted fishing permit (EFP) for your review and approval. The EFP is requested to allow legal retention, delivery and temporary possession of incidentally caught Pacific salmon and Pacific halibut in the shoreside Pacific whiting fishery, and potentially to allow for overages of other groundfish species caught while target fishing for whiting. It is our opinion that accurate enumeration of the incidental catch in this fishery continues to be needed. During 2002, 100% of the catch was enumerated. In addition, the minimum observation rate of 10% of all trips was achieved with such observations being conducted shoreside. We also included collection of biological data for bycatch of key groundfish species. Participating processors allowed us to achieve a 100% observation rate for salmon and halibut bycatch by setting aside all salmon and halibut encountered during offloads, regardless of whether the trip was observed or not. An EFP for the "shoreside" processing sector of the Pacific whiting fishery continues to be the only means available to estimate the bycatch of prohibited species and groundfish.

Under this program, permitted vessels would be required not to sort their catch at-sea so that the entire catch can be sampled. Shoreside observers enumerate prohibited species and groundfish bycatch for 10 to 15% of all shoreside deliveries, and also collect biological information on whiting and bycatch species. An allowance for overages of groundfish catch continues to be needed for calculating the groundfish bycatch rate and to facilitate collection of valuable biological data (age, sex, weight and length) for bycatch groundfish species (e.g. sablefish, yellowtail rockfish and widow rockfish). These biological samples will be used to support stock assessment work. The shoreside whiting industry, in cooperation with state fishery managers, has dramatically reduced the bycatch rates for rockfishes (60% from late 1990's levels). This is in addition to new methods for predicting and reducing salmon bycatch in this fishery. Any prohibited species and proceeds from groundfish overages will be forfeited to the State of landing.

We have not yet determined how many vessels will participate in the fishery next year, but expect 30-35 vessels. We will generate a participating vessels list as soon as possible and forward it to you.

Sincerely,

Patricia M. Burke

Patricia M. Burke
Marine Resources Program Manager

attachment

EXPERIMENTAL FISHING PERMIT APPLICATION

1. Date of Application

   October 28th, 2002

2. Applicant Name(s)

   Washington Department of Fish and Wildlife
   48A Devonshire Road
   Montesano, WA 98563-9618
   Attention: Brian Culver (360)249-1205

   Oregon Department of Fish and Wildlife
   2040 SE Marine Science Drive
   Newport, OR 97365-5294
   Attention: Mark Saelens (541)867-4741
   Steve Parker (541)867-4741

   California Department of Fish and Game
   411 Burgess Drive
   Menlo Park, CA 94025-3488
   Attention: Dave Thomas (415)688-6361

3. Purposes and Goals of the Proposed Experiment

   The goal of the exempted fishery is to implement an observation program, at the request of the Pacific Fishery Management Council, to enumerate the bycatch in whiting harvests delivered to shoreside processing plants for 10 -15 percent of all EFP deliveries. Whiting must be handled quickly to ensure quality, and as a result many vessels dump tows directly into the hold and are unable to sort their catch. The purpose of the EFP is to allow delayed sorting from mid-water trawl catches of Pacific whiting until the catch is unloaded at a shoreside processing plant. In addition, in order to sample unsorted total catch shoreside, the EFP may need to include provisions to allow for potential overages in groundfish trip limits as well as the retention of prohibited species (e.g. salmon and halibut) until offloading. The amounts of groundfish which exceed the trip limits set for the year will be forfeited to the state in which the delivery is made and port price paid. Current groundfish regulations at 50 CFR 663.7(b) stipulates that prohibited species must be returned to the sea as soon as practicable with a minimum of injury when caught and brought aboard. The EFP is necessary to authorize retention of prohibited species until delivery shoreside by vessels participating in the observation program. The EFP would be valid only for landings by permitted vessels at processing plants that have been designated by the States of Washington, Oregon or California as participants in the observation program. Designated processing plants will have signed agreements with their state and would have to agree to set aside prohibited species for biological sampling

and disposition, and allow sampling of whiting landings and groundfish bycatch.

There are two options for disposal of incidentally caught prohibited species brought ashore: (1) donate to a local food share or other appropriate charitable organization, or (2) reduction in the fish meal plant. Option 1 is preferred, but salmon caught by trawls are often in poor condition, and they are also very perishable.

In addition to enumerating each prohibited species, other data to be collected include length, sex, weight and in the case of salmon, scales for age. Salmon snouts will be collected for coded wire tags from appropriately marked fish.

Another goal is to document the bycatch rate of other groundfish species encountered while target fishing for Pacific whiting. Biological data (age, weight, length and sex) will be collected for Pacific whiting, sablefish, yellowtail rockfish, widow rockfish, Pacific mackerel, and jack mackerel.

4. Justification

The EFP is requested so that an accurate count of incidentally caught salmon can be generated, and estimates of groundfish bycatch rates can be obtained from shoreside deliveries of Pacific whiting. An EFP will also offer legal protection for trawlers and processors that have possession of incidentally caught prohibited species, and may offer legal protection from overages of groundfish, which resulted from targeted fishing trips for whiting, made under the EFP.

5. Statement of Project Significance

Enumeration of incidentally caught species is the primary purpose for this EFP. Monitoring the bycatch of salmon in the whiting fishery also is a requirement of an ESA Section 7 consultation. Estimation of groundfish bycatch rates and collection of biological information to support stock assessment work is a secondary purpose. Results from this project will be needed to project bycatch if regulation changes should occur (e.g. modification of prohibited species) to allow this fishery to operate without the need for an EFP each year.

6. Vessels to be covered by the EFP

List to be provided at a later date.

7. Species and Amounts to be Harvested

The target species to be harvested is Pacific whiting (*Merluccius productus*). The preliminary U.S. Pacific whiting harvest guideline in 2003 is 148,200 mt. The corresponding shore-based allocation would be 52,718 mt. Based on bycatch information from our EFP program during 1992-2002, the following catches of salmon, sablefish,

widow rockfish, yellowtail rockfish, and other species would be expected if the bycatch rates were the same as in 2002:

Species/Species Group	Bycatch Rate (no/mt.)	Expected Bycatch (number)
Salmon	0.0253	1337

Species/Species Group	Bycatch Rate (kg/mt.)	Expected Bycatch (kilograms)
Sablefish	2.8319	149,293
Widow Rockfish	0.1175	6,193
Yellowtail Rockfish	0.9133	48,152
Canary Rockfish	0.0095	503
Yelloweye Rockfish	0	0
Darkblotch Rockfish	0.0002	12
Boccacio Rockfish	0.0005	28
Lingcod	0.0048	251
POP	0.0049	257
Misc. Rockfish	0.0072	380
Mackerel	0.1622	8,573
Walleye Pollock	3.2221	169,863
*Other Misc. Fish	0.3997	21,073

*Other misc. fish include: American shad, Pacific herring, shark quid, octopus, flatfish(other than halibut), and skates.

8. Conduct of Fishing Experiment

Fishing will occur in the EEZ in the INPFC Eureka, Columbia and Vancouver areas. Ports of interest are Ilwaco and Westport, WA; Astoria, Newport and Charleston, OR; and Crescent City and Eureka, CA. Trawls, which conform to current legal requirements for midwater trawls, will be used to capture the target species. The season will open June 15, 2003 (April 1 off northern California), and will probably run through August 2003. The EFP should be valid for through the end of December 2003, to allow for any delay in shore-based allocation attainment.

The program will continue to rely on industry funding to pay for: observers, part of the salary for a coordinator and data analysis assistant, supplies, and travel to processing plants and meetings.

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE (WDFW)
EXEMPTED FISHERY PERMIT (EFP) PROPOSALS FOR 2003

Longline Dogfish

- Objective - To measure bycatch rates for yelloweye and canary rockfish and estimate all groundfish discards in the targeted longline dogfish fishery; observer quantify groundfish by set
- Duration - 4 months (Feb - May)
- 3 Vessels - Qualifying criteria are landings in 2000, 2001 and 2002 into WA; cumulative total of 300,000 lbs of dogfish; these vessels made up 80% of the dogfish landings and their individual income from dogfish is 28-41%
- 100% observer coverage funded by State Disaster Relief funds
- Mandatory rockfish retention; rockfish above trip limits forfeited to the State
- Bycatch caps of 100 lbs/month of canary rockfish and 200 lbs/month of yelloweye rockfish per vessel, with cumulative caps of 0.5 mt of canary and 2 mt of yelloweye for the EFP
- Estimated landings:
  Dogfish - 500,000 lbs
  Yelloweye RF - 2 mt
  Canary RF - 0.5 mt

Midwater Trawl Pollock

- Objective - To measure bycatch rates for whiting and rockfish in the targeted midwater pollock fishery and to allow pollock fishers to land unsorted catches which may include groundfish species that would otherwise be prohibited (e.g., whiting and rockfish); observer monitor for compliance with full retention
- Duration - 5 months (Feb - June)
- 3 Vessels - Qualifying criteria are landings from directed trips in 2002 into WA; these vessels made up 100% of the directed pollock landings
- 100% observer coverage funded by participating vessels
- Mandatory rockfish and whiting retention; groundfish above trip limits forfeited to the State
- Bycatch caps of 300 lbs of canary rockfish total per vessel, and 500 lbs/month of widow rockfish per vessel, with cumulative caps of 0.5 mt of canary, 3 mt of widow, and 5000 mt of whiting for the EFP
- Estimated landings:
  Pollock - 9,000 mt
  Whiting - 5000 mt
  Canary RF - < 0.5 mt
  Widow RF - 3 mt
  Yellowtail RF - 5 mt

Trawl Arrowtooth Flounder/Petrale

- Objective - To measure bycatch rates for canary rockfish in the targeted arrowtooth flounder/petrale sole trawl fishery with gear modifications; observer quantify rockfish by tow
- Duration - 4 months
- 6 Vessels - Same vessels that participated in 2001 and 2002
- 100% observer coverage funded by participating vessels
- Mandatory rockfish retention; rockfish above trip limits forfeited to the State
- Bycatch caps of ~ 150 lbs/month of canary rockfish per vessel, with a vessel cap of 600 lbs of canary, and cumulative caps of 1.5 mt of canary, 0.5 mt of yelloweye, and 3 mt of darkblotched rockfish for the EFP
- Estimated landings:
  Arrowtooth flounder - 455 mt
  Petrale - 36 mt
  Canary RF - 1.5 mt
  Yelloweye RF - < 0.5 mt
  Darkblotched RF - 3 mt

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON THE EXEMPTED FISHING PERMITS (EFPs): UPDATE AND NEW PROPOSALS

The Groundfish Advisory Subpanel (GAP) reviewed the exempted fishing permits (EFPs) being considered for Council approval and the Groundfish Management Team (GMT)list of EFP priorities.

In general, the GAP concurred with the list of priorities recommended by the GMT and the criteria being used to establish those priorities. The GAP is disappointed that Washington Department of Fish and Wildlife has decided to drop the request for an EFP on widow bycatch in the midwater yellowtail fishery and urges either Oregon or Washington to consider conducting this project in 2003.

The GAP also recommends the Council re-approve the shoreside whiting EFP that has been used in the past. Although amendments to the salmon fishery management plan are designed to eliminate the need for the whiting EFP, it is uncertain whether the salmon amendments will be approved in sufficient time to conduct all of the preliminary port meetings that have been used to increase vessel and plant awareness of bycatch avoidance issues. Having the EFP in effect for one more year will help to continue the low level of salmon bycatch.

PFMC
10/29/02

GROUNDFISH MANAGEMENT TEAM STATEMENT ON EXEMPTED FISHING PERMITS: UPDATE AND NEW PROPOSALS

The Groundfish Management Team (GMT) discussed the state Exempted Fishing Permit (EFP) proposals for 2003 and prioritized these EFPs using the criteria of fleetwide applicability in managing future groundfish fisheries and the potential efficacy of EFP fishing gear and strategies in avoiding overfished species and more cleanly targeting healthy and abundant groundfish stocks. The GMT also discussed the EFP caps for overfished species and recommended the individual EFP caps for canary rockfish to conform with the Council decision to cap the total canary rockfish cap at 6.5 mt for all the EFPs listed below except shoreside whiting. The following table depicts the individual EFPs and overfished species' caps in prioritized order as recommended by the GMT.

The GMT believes the shoreside whiting EFP, which allows suspension of groundfish sorting requirements in the 2003 shoreside whiting fishery to enable shoreside sampling of total catch, is the most important EFP due to the catch accounting benefits provided. The GMT notes, while individual species' caps are not identified in the table for the shoreside whiting EFP, estimated catch of these species was included in the bycatch scorecard that was before the Council when final management measures were adopted in September. The bycatch scorecard provided estimates of total catch of overfished species under the Council-preferred management measures for 2003. In this regard, the EFP caps noted below are inherently different in that they are the limits of overfished species' catch proposed for each EFP; attainment of any of these caps would terminate the EFP for the year. The GMT still estimates total catch of overfished species in the 2003 shoreside whiting fishery will be as described in the bycatch scorecard presented to the Council in September and lower than the EFP caps presented below. As for all considered 2003 fishery opportunities, bycatch of any of the overfished species in the shoreside whiting fishery greater than was estimated in the bycatch scorecard could threaten other fishing opportunities. The shoreside whiting EFP is the only one of these EFPs without a requirement for observers. Participants in the shoreside whiting EFP are not covered under the NMFS Observer Program and, as a result, there is no opportunity to verify the level of compliance to the full retention provisions of the EFP. Therefore, the GMT recommends NMFS extend its observer coverage to include the shoreside whiting fishery during the primary whiting season.

Proposed 2003 EFPs caps (mt) for overfished West Coast groundfish species. EFPs are listed in priority order as recommended by the Groundfish Management Team.

Fishery	Bocaccio	Canary	Cowcod	Darkblotched	Whiting	Widow	Yelloweye
Shoreside Whiting	NA	NA	NA	NA	NA	NA	NA
OR: Selective Flatfish Trawl	NA	2.7	NA	NA	NA	1.0	1.2
WA: Arrowtooth Flounder Trawl	NA	1.5	NA	3.0	NA	NA	0.5
CA: Nearshore Flatfish Trawl	1.5	1.3	0.5	NA	NA	NA	1.0
WA: Pollock	NA	0.5	NA	NA	5,000	3.0	NA
WA: Dogfish Longline	NA	0.5	NA	NA	NA	NA	2.0
TOTAL EFP CAPS	**1.5**	**6.5**	**0.5**	**5.1**	**5,000**	**4.0**	**4.2**

NA- Not applicable.

PFMC
10/30/02

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON EXEMPTED FISHING PERMITS: UPDATE AND NEW PROPOSALS

Exempted fishing permits (EFPs) allow fishing activities that would otherwise be prohibited. The SSC notes that EFPs should be consistent with the goals and objectives of the Groundfish Strategic Plan. The Council has discussed the possibility of the Groundfish Management Team (GMT) developing guidelines for EFP applications. If the GMT develops guidelines for evaluating EFPs, the SSC is willing to help the GMT to define the scientific aspects of these guidelines.

PFMC
10/30/02

Set-asides (mt) of overfished West Coast groundfish species for 2003 EFPs.

Fishery	Bocaccio [1/]	Canary	Cowcod	Dark-blotched	Lingcod	POP	Whiting	Widow	Yelloweye
EFPs: Individual caps subject to change by Council action in November 2002. [2/]									
CA: Nearshore Flatfish Trawl	1.6	1.5	1.5	NA	NA	NA	NA	NA	1.5
OR: Selective Flatfish Trawl	NA	4.0	NA	3.1	13.0	TR	UR	1.0	1.7
WA: Arrowtooth Flounder Trawl	NA	0.3	NA	1.0	2.0	1.0	UR	NA	0.0
WA: Midwater Yellowtail Trawl	NA	1.0	NA	0.0	0.0	0.0	UR	12.0	0.0
WA: Dogfish Longline	NA	1.0	NA	0.0	0.2	0.0	0.0	0.0	1.0
WA: Pollock	NA	0.0	NA	0.0	0.0	0.0	50.0	1.0	0.0
TOTAL EFP CAPS	**1.6**	**6.5** [2/]	**1.5**	**4.1**	**15.2**	**1.0**	**50**	**14.0**	**4.2**

NA- Not applicable; TR- Trace amount (<0.01 mt); UR- Not reported in available data sources.

1/ South of 40°10' N latitude.

2/ The Council capped the 2003 canary rockfish set-aside for all EFPs in combination at 6.5 mt to derive an expected total catch of 44 mt of canary rockfish in 2003.

EXEMPTED FISHING PERMITS (EFPs): UPDATE AND NEW PROPOSALS

Situation: Exempted fishing permits (EFPs) allow fishing activities that would otherwise be prohibited. As an example, EFPs provide a process for testing novel fishing gears and strategies to substantiate methods for prosecuting sustainable and risk-averse fishing opportunities. The Council has signaled its intent to make greater use of EFPs in the new groundfish management regime of depth restrictions and widespread area closures to reduce harvest of overfished species. Preliminary discussions revealed potential drawbacks to the concept of EFP proliferation, including impacts to the current NOAA Fisheries Groundfish Observer Program. The Council should take this opportunity to further discuss these issues and recommend to NMFS a process and standards for restructuring the current EFP program to meet Council and Magnuson-Stevens Fishery Conservation and Management Act objectives of providing healthy and sustainable fishing opportunities.

The Council reviewed six state-sponsored groundfish EFP proposals for next year at its September meeting. The objectives and the expected catch of overfished groundfish species for each EFP were discussed (Attachment 1). As part of the Council's deliberations for setting 2003 groundfish management measures, a decision was made to cap the canary rockfish set-aside for all six EFPs in combination at 6.5 mt. The Council is tasked at this meeting with recommending 2003 EFPs and overfished species' caps for each EFP.

The Council has, in the past during the November meeting, approved an EFP allowing suspension of at-sea sorting requirements in the shoreside whiting fishery to allow portside sampling. The Council asked NMFS last November to do the final rulemaking for Groundfish Fishery Management Plan Amendment 10 to avoid having to annually approve an EFP enabling full retention in the shoreside whiting fishery. NMFS has not done this rulemaking yet, but plans to complete this task before the fishery begins next year. If workload preempts completion of this task, an EFP can be approved next March.

Council Action:

1. **Consideration and discussion of EFP proposals, process, and standards.**
2. **Recommend 2003 EFPs sponsored by the state agencies to NMFS.**

Reference Materials:

1. Set-asides (mt) of overfished West Coast groundfish species for 2003 EFPs (Exhibit G.6, Attachment 1).

Agenda Order:

a.	Agendum Overview	John DeVore
b.	Agency and Tribal Proposals	State and Agency Representatives
c.	Reports and Comments of Advisory Bodies	
d.	Public Comment	
e.	**Council Action:** Consideration of Proposals and Recommendations to NMFS	

Groundfish Fishery Strategic Plan (GFSP) Consistency Analysis

The GFSP supports bycatch reduction efforts and development of selective fishing techniques. Council-approved EFPs are designed to gather information on methods to selectively harvest abundant species and determine bycatch rates of overfished and other groundfish species of concern. Any additional EFP applications will need to be reviewed for consistency with overall GFSP objectives.

PFMC

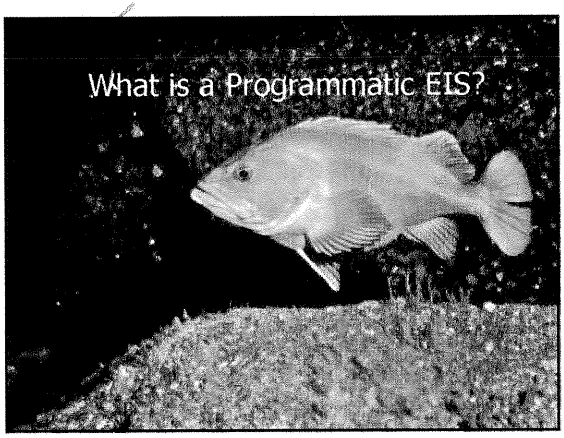
Presentation by Mr. Jim Glock <Administrative Record>
10/31/02 G.7.b NMFS Report

West Coast Groundfish Programmatic Environmental Impact Statement

Status Report and Recommendation for Adoption of Alternatives for Analysis

October 2002

What is a Programmatic EIS?



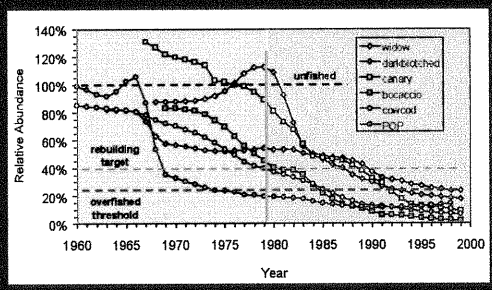
A PEIS is the comprehensive document in which an agency considers a number of related actions or projects being decided within one program. A PEIS looks to the environmental consequences of a program as a whole.

A PEIS "examines an entire policy initiative rather than performing a piecemeal analysis, within the structure of a single agency action."

Why do a Programmatic EIS now?

- **Depletion of several major groundfish species and overcapacity in the various fishing sectors have combined to create a "fishery disaster."**
- **NOAA Fisheries and the Council are considering several alternatives to the current management program. This PEIS will aid the Council, NOAA Fisheries and the public in planning future actions and understanding the environmental impacts.**
- **The primary purpose of the proposed action is to prepare and implement a comprehensive recovery plan for the groundfish resources and the fisheries that depend on them.**

Some Key Overfished Groundfish Stocks



From Steve Ralston, NMFS/SWFSC

- nine species of groundfish have been overfished
- rebuilding plans for overfished groundfish stocks must be prepared, and the stocks rebuilt as required by law
- bycatch, which has occurred and continues to occur in the groundfish fisheries, must be assessed, monitored and reduced to the extent practicable
- fishing effects on essential groundfish habitat must be reduced to the extent practicable; and
- social and economic conditions within various fishing sectors and fishing communities have deteriorated and a fishery disaster has been declared

What's the end result?

- Final adoption of the proposed action (that is, a preferred alternative) will commit the Council and NOAA Fisheries to a specific plan of action.
- An FMP amendment or series of FMP amendments and regulation amendments would implement the program over the next 5-10 years.
- The Council could begin preparing the first FMP amendment before the PEIS preferred alternative is selected, or immediately after.

Overview of this draft PEIS

- Purpose and need for action
- Alternatives, including the status quo
- Description of the affected environment
- Environmental impacts (the analysis)

Purpose and need for action:

- What is the proposed action?
  - The Proposed action is to manage the West Coast groundfish resources and fishery as described and mandated by the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

But we already have a management program…

- Yes, so the question is whether to continue with the same program, or to try a different approach. This could be a different emphasis, a more strategic focus, different (or clearer) goals and standards, or a change in the management tools that are used.

What about the Council's Strategic Plan for Groundfish?

- The Strategic Plan is the basis for Alternative 2. However, the Strategic Plan does not address all aspects of the fishery management program.
- Conditions have changed since the Strategic Plan was developed and approved.

What is a programmatic alternative?

- Each alternative must include all the required elements of a fishery management program.
- Each alternative must identify goals, objectives and numerical standards, and identify the management tools that will be used to achieve those standards.
- Specific regulations will not be included at this time

Alternative 1. This is the status quo alternative. The current fishery management program, as laid out in the Fishery Management Plan, is a process-oriented, adaptive management program to achieve broad goals, responsive to issues, with a priority to maximize fishing opportunities within biological constraints. The proposed 2003 annual specifications are an illustration of the types of management measures implemented in accordance with Alternative 1. The primary focus of the status quo is to provide maximum flexibility to respond to changing conditions in the groundfish resources and the groundfish fisheries

Alternative 2. Alternative 2 is a modification of the status quo with a strategic focus emphasizing capacity reduction, improved bycatch information collection, and resolution of allocation issues. This alternative is based primarily the Council's Strategic Plan for Groundfish

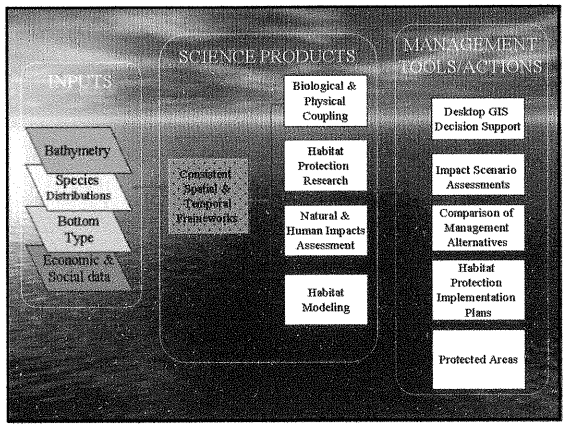
Alternative 3. Alternative 3 is a modification of the status quo with emphasis on obtaining greater short term social and economic benefits. As with Alternative 2, the primary focus is on reducing overcapacity in order to create opportunities for profitable fishing operations. This alternative is intended to be less restrictive than the status quo and could utilize the mixed stock exception to provide greater access to healthy fish stocks.

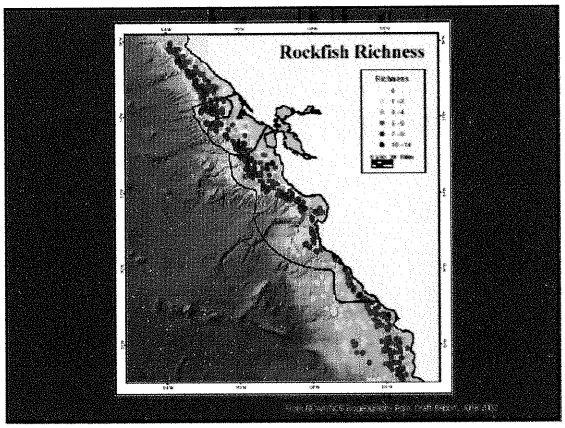
How will impacts of the alternatives be analyzed?

- Where possible, differences between alternatives will be quantified. For example, different harvest policies would lead to different catch levels that may be predictable.
- In some cases, geographic analytical techniques will be used. For example, the effects of different closed areas may be predictable and will be quantified and illustrated.

What is "geographic analysis?"

- Geographic Information Systems, or "GIS" for short, are used to place various types of data into a map. Different layers of information can be portrayed in ways that may show patterns we might not recognize otherwise. In addition, various analyses can be performed (such as effects of boundary lines and areas).





What is needed from the Council today?

- The Council will adopt the program alternatives to be evaluated in the PEIS. The choices are
  - adopt the alternatives as proposed by the ad hoc EIS Oversight Committee,
  - revise some or all alternatives first,
  - add or delete some alternatives first.
- Consider initiating FMP amendment to begin implementing the preferred alternative/proposed action

Where do we go from here?

- Distribute baseline descriptions and approved alternatives to EIS teams and others.
- Hold workshops to review adequacy of descriptions and to develop analytical methods to evaluate impacts.
- Complete draft analyses by February 2003 for initial GMT and SSC review.
- Distribute preliminary draft PEIS to Council family and interested public before March Council meeting.
- Initial Council review in April 2003.
- Council adoption of Draft PEIS in June 2003 for formal public review.
- Formal public review; August-November.

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON GROUNDFISH FISHERY MANAGEMENT PLAN PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT

The Groundfish Advisory Subpanel (GAP) received an update from Mr. Jim Glock on the Programmatic Environmental Impact Statement (PEIS) being developed for the Pacific Groundfish Fishery Management Plan (FMP).

In general, the GAP agreed the alternatives developed by the Ad Hoc Groundfish FMP EIS Oversight Committee fully frame the range of issues that need to be considered. The GAP did not try to identify a preferred option within the alternatives.

Several issues were discussed the GAP believes need to be addressed in the PEIS. First, the PEIS should fully identify the management measures that have been put in place over the years and demonstrate how these have led to decreased allowable harvest. This need is especially apparent in the graph used to show declining fisheries. Second, the PEIS should try to identify the point at which further management restrictions elicit no further gains; in other words, when is enough enough? Third, the PEIS needs to identify, and if possible, quantify environmental influences on the status of groundfish stocks, including predator-prey relationships between groundfish species and between groundfish and nongroundfish species. Finally, the PEIS should describe how what we have done in the past influences the present state of the fisheries, both the biological state and the socioeconomic state.

PFMC
10/31/02

	Alternative 1	**Alternative 2**	**Alternative 3**	**Alternative 4**	**Alternative 5**
Prevent overfishing: not exceed any MSY harvest rate, and prevent every assessed stock from declining to the overfished classification.					
SUMMARY Policy/ Program Goals	A program that combines **risk-neutral and risk-averse harvest levels**, individual species and assemblage OYs, adjusting OYs to account for bycatch estimates, seasons and individual retention limits	Same as Alternative 1: A program that combines **risk-neutral and risk-averse harvest levels**, individual species and assemblage OYs, adjusting OYs to account for bycatch estimates, seasons and individual retention limits	A program that combines **risk-neutral harvest levels**, individual species and assemblage OYs, adjusting OYs to account for bycatch estimates, seasons and individual retention limits	A program that combines **risk-averse harvest levels**, individual species and assemblage OYs, adjusting OYs to account for bycatch estimates, seasons and individual retention limits	A **very risk-averse** program with a higher overfished threshold and lower harvest rates
Numerical Standards	ABC=Fmsy; OY≤ ABC with 40-10; adjusted 75:50; OFL=$B_{25\%}$; closure on reaching ABC/OY for any stock within an assemblage	ABC=Fmsy; OY≤ ABC with 40-10; adjusted 75:50; OFL=$B_{25\%}$; closure on reaching ABC/OY for any stock within an assemblage	ABC=Fmsy; OY≤ ABC with 40-10; unadjusted 75:50; OFL=$B_{25\%}$; closure on reaching ABC/OY for any weak stock within an assemblage	ABC=Fmsy; OY≤ ABC with 50-10; 50% reduction for all unassessed stocks; OFL=$B_{25\%}$; closure on reaching ABC/OY for any stock within an assemblage	ABC=Fmsy; OY≤ with 60-10; 60% reduction for all unassessed stocks; OFL=$B_{25\%}$; Bmsy=$B_{40\%}$ or $B_{45\%}$
Toolbox	set ABC and OY; gear restrictions; trip limits; time/area management; seasons; minimum size limits; bag limits	set ABC and OY; gear restrictions; trip limits; time/area management; seasons; area closures (e.g., MPAs); minimum size limits; bag limits	set ABC and OY; gear restrictions; trip limits; seasons; size limits; bag limits	set ABC and OY; gear restrictions; seasons trip limits; time/area management; ; area closures (e.g., MPAs); depth closures; minimum size limits; bag limits	set ABC and OY; gear restrictions; area closures; catch limits with mandatory retention; seasons; bag limits

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Rebuild Overfished Stocks: Rebuild all groundfish stocks currently classified as overfished within the time required by law.					
SUMMARY	**Rebuilding periods set less than or equal to the maximum allowable**	**Rebuilding periods set less than or equal to the maximum allowable**	**Rebuilding periods may exceed maximum allowable** due to use of mixed-stock exception	**Rebuilding periods shorter** than maximum allowable	**Shortest possible rebuilding periods**
Policy/ Program Goals	Define overfishing by species; Consider socio-economic effects in rebuilding plans	Define overfishing by species; Consider social and economic effects in rebuilding plans (See Strategic Plan for additional goals)	Define overfishing by species; greater priority to social and economic effects in rebuilding plans; **utilize mixed-stock exception**	Define overfishing by species; shorter rebuilding periods, less priority to short term economic effects	Define overfishing by species; low priority to economic effects; area closures (MPAs) as primary management tool
Numerical Standards	Tmax or shorter, with >50% probability	Tmax or shorter, with >60% probability	May exceed Tmax; do not reduce any overfished species abundance	Tmid with >**50%** probability	Tmin;
Toolbox	OY setting; gear restrictions; area closures; depth closures; VMS; seasons; bag limits	OY setting; gear restrictions; area closures; depth closures; VMS; seasons; bag limits	Mixed-stock exception; OY setting; gear restrictions; area closures; seasons; bag limits	OY setting; gear restrictions; area closures; seasons; bag limits	OY setting; time/ area closures and MPAs; gear restrictions; seasons; bag limits

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Bycatch Reporting: Assess the amount of bycatch occurring in the groundfish fishery, monitor bycatch in a scientifically credible manner					
SUMMARY Policy/ Program Goals	Bycatch estimated through a combination of logbooks, port sampling, observers	Bycatch estimated through a combination of logbooks, port sampling, observers (See Strategic Plan for additional goals/objectives)	Bycatch estimated through a combination of 100% reporting (commercial logbooks) with random observer verification, and increased port/field sampling of recreational catches	Comprehensive, integrated and timely reporting and monitoring program, based primarily on observers, to more precisely estimate total catch and bycatch, both commercial and recreational, through large sample size, electronic catch and bycatch reporting by all commercial and CPFV vessels	Verified, total catch accounting through 100% observer coverage of all commercial groundfish and CPFV vessels and comprehensive port sampling of recreational catch
Numerical Standards	100% observer coverage on at-sea processing vessels; other commercial vessels: stratified random monitoring based on available federal funding (about 10% observer coverage)	100% observer coverage on at-sea processing vessels; other commercial vessels: stratified random monitoring to observe at least 10% of commercial groundfish vessels or coverage adequate to assess thotal groundfish mortality	100% observer coverage on at-sea processing vessels; 100% commercial and CPFV logbook coverage including discards; observer coverage as needed to verify accuracy of total bycatch estimate	Total catch and bycatch estimated within +/- 25%; 100% observer coverage on at-sea processing vessels;	Total accounting of all groundfish catch and bycatch; individual vessel limits for certain limiting species

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Toolbox	federally funded (partial) observer program; state port sampling programs; EFPs; catch/bycatch logbooks	federally funded (partial) observer program; state port sampling programs; EFPs; catch/bycatch logbooks; may require vessels to provide observer	catch/bycatch logbooks for all gear types; catch records for recreational fishers; fish tickets; observers (to verify commercial); field sampling to assess recreational bycatch	observer program; VMS; camera/video; electronic catch/bycatch logbooks; fish tickets; full retention (of overfished species) recorded on fish tickets; recreational catch records and port sampling	mandatory observer requirement; VMS; recreational catch reporting (records such as punch cards); port sampling of recreational catches

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Bycatch reduction: Reduce bycatch to the extent practicable.					
SUMMARY Policy/ Program Goals	Adjust trip limits to discourage fishing in certain areas and similar to expected species encounter rates; use gear restrictions where possible to reduce expected or assumed bycatch rates; area closures where appropriate	Reduce capacity, adjust trip limits to discourage fishing in certain areas and similar to expected species encounter rates; use gear restrictions where possible to reduce expected or assumed bycatch rates; area closures where appropriate	Reduce capacity; adjust trip limits to discourage fishing in certain areas and similar to expected species encounter rates; use gear restrictions where possible to reduce expected or assumed bycatch rates	Focus on vessel, sector and/or fleet bycatch caps. Reduce bycatch by specific bycatch reduction measures; performance standards and incentive program; vessel and fleet bycatch caps based on application of observed bycatch rates	Rapidly reduce bycatch to levels near zero through discard prohibition, performance standards, and incentives
Numerical Standards	0.05 salmon/mt of whiting ; OYs for overfished species	0.05 salmon/mt of whiting ; OYs for overfished species	0.05 salmon/mt of whiting ; OYs for overfished species	reduce bycatch 50% in 5 years	near zero bycatch of groundfish within 5 years
Toolbox	OY setting; BRDs; gear modifications/restrictions, area closures; depth closures; bycatch modeling; trip limits; seasons; bag limits	Buyback, permit stacking, ITQs and (further) license limitation; OY setting; BRDs; gear modifications/ restrictions; area closures (MPAs); depth closures; trip limits; seasons; bag limits; full or increased retention requirements	Buyback, permit stacking, ITQs; OY setting; BRDs; gear modifications/ restrictions, trip limits; seasons; time/area management; area closures; bag limits	Bycatch caps; catch limits; OY setting; gear endorsement modifications; gear restrictions; area closures (including MPAs); discard monitoring system (e.g., camera) seasons; bag limits	bycatch caps; catch limits; full retention of groundfish; OY setting; area closures; gear restrictions; seasons; bag limits

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Habitat Establish objectives and standards for reducing fishing effects on EFH, including a preferred method and schedule for achieving the objectives. Must also define the role of HAPCs, MPAs, etc.					
SUMMARY Policy/ Program Goals	no net loss of habitat	Protect, maintain and/or recover those habitats necessary for healthy groundfishfish populations and the productivity of those habitats; promote research on gear effects and gear modifications to reduce adverse impacts	no net loss of groundfish habitat: reduce gear/seafloor contact from pre-1996 levels; **current gears are assumed to have minimal impact on EFH until proven otherwise**	Protect and recover groundfish habitat: Eliminate fishing gear impacts in some EFH areas, reduce fishing impacts on bottom habitat in all other areas through a combination of gear restrictions and incentives to develop and use low impact methods	Protect and recover groundfish habitat; eliminate fishing gear impacts in a larger portion of EFH, reduce fishing impacts on bottom habitat in all other areas through a combination of gear restrictions and incentives to develop and use low impact methods; **current fishing gears/methods assumed to have negative impacts until proven otherwise**
Numerical Standards	none	none	none	Protect 10% of benthic EFH (equally spread over nearshore, shelf and slope seafloor) from all groundfish gear impacts; reduce hours of gear/seafloor contact by 25% from 2002 everywhere;	Protect 25% of benthic EFH (equally spread over nearshore, shelf and slope seafloor) from all groundfish gear impacts; reduce hours of gear/seafloor contact by 50% from 2002 everywhere;

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Toolbox	EFH definition and identification; gear restrictions	EFH definition and identification; HAPCs, MPAs, gear modifications/ restrictions; capacity reduction; performance standards	gear restrictions; capacity reduction	effort reduction; gear performance standards; a combination of gear restrictions and incentives (to develop and use low impact methods; area closures); allocations for those meeting performance standards	area closures; HAPCs and MPAs; gear restrictions and modifications; gear performance standards; allocations for those meeting performance standards

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Social and Economic Factors: establish goals and objectives for restructuring the groundfish fishing industry and recreational sector, including preferred mechanisms for downsizing the commercial groundfish fleet, and establishing priorities for allocating various groundfish fishing opportunities as they become available					
SUMMARY Policy/ Program Goals	Program focus is on maximizing fishing opportunities within biological constraints; social and economic stability, striving for equitable balance between commercial and recreational fishing through direct and indirect allocation (see FMP for specific goals and objectives)	Program focus on improving social and economic conditions by reducing commercial fleet capacity; stabilize social and economic conditions by resolving allocation issues (see Strategic Plan allocation goal and general allocation principles)	Program focus on maximizing socio-economic benefits, improving social and economic conditions by reducing commercial fleet capacity; maintain year-round fishing opportunities. Develop private ownership, rights-based measures (IFQs) to provide individual vessels flexibility to prosper.	Same as Alternative 2, plus emphasis on maintaining a diversity of harvesters, vessels, and communities.	Low priority to social and economic effects; no year round fishing goal; all vessels strictly regulated with equal opportunity, through individual caps or IFQs without property rights.
Numerical Standards	none	at least 50% capacity reduction for commercial fleet	at least 50% capacity reduction for commercial fleet	at least 50% capacity reduction for commercial fleet	none
Toolbox	allocations; license limitation; species endorsements; trip limits; seasons; bag limits; permit stacking; ITQs	allocations; license limitation; species endorsements; trip limits; permit stacking; seasons; bag limits	allocations; license limitation; trip limits; ITQs; seasons; bag limits	allocations, including community preservation quotas; license limitation; trip limits; seasons; bag limits	individual catch limits; IFQs without property rights; seasons; bag limits
Other Monitoring (habitat, ecosystem function, gear effectiveness, other)					

REVISED GROUNDFISH PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT ALTERNATIVES

The following is a brief summary of the alternatives put forward by the ad hoc EIS Oversight Committee meeting on October 7-8. 2002.

Alternative 1. This is the status quo alternative. The current fishery management program, as laid out in the Fishery Management Plan, is a process-oriented, adaptive management program to achieve broad goals, responsive to issues, with a priority to maximize fishing opportunities within biological constraints. The proposed 2003 annual specifications are an illustration of the types of management measures implemented in accordance with Alternative 1. The primary focus of the status quo is to provide maximum flexibility to respond to changing conditions in the groundfish resources and the groundfish fisheries.

Alternative 2. Alternative 2 is a modification of the status quo with a strategic focus emphasizing capacity reduction, improved bycatch information collection, and resolution of allocation issues. This alternative is based primarily the Council's Strategic Plan for Groundfish.

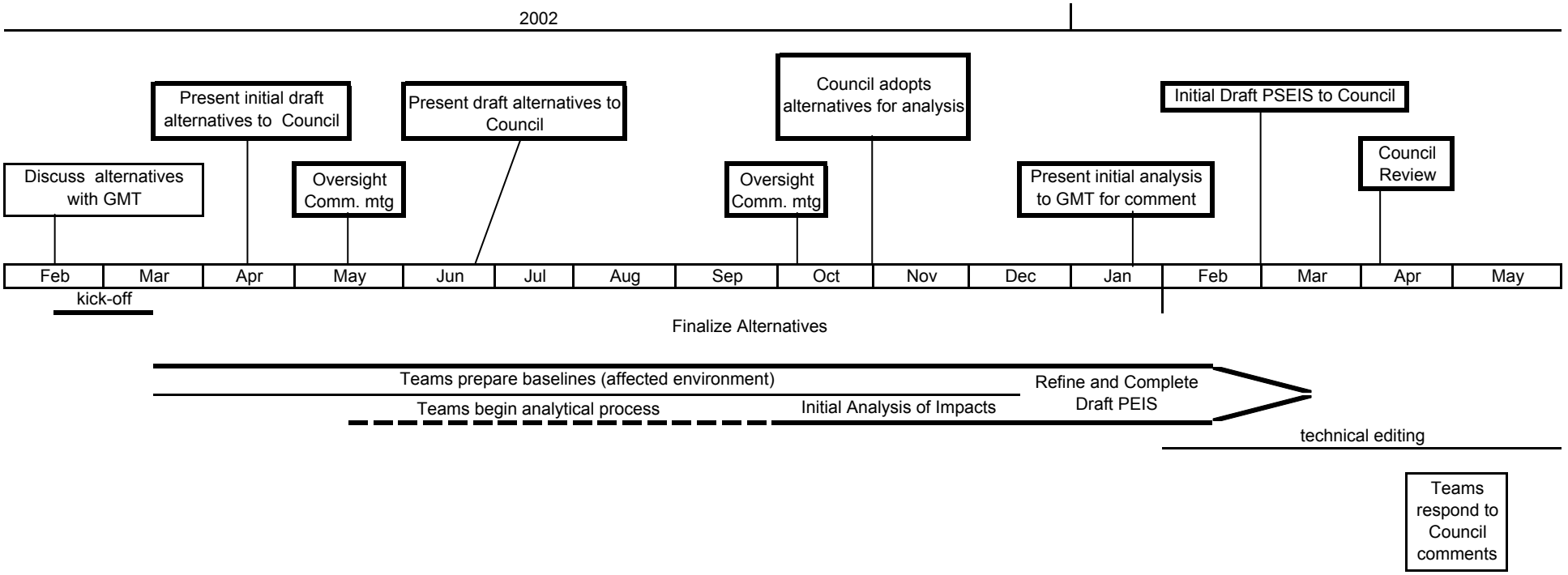
Alternative 3. Alternative 3 is a modification of the status quo with emphasis on obtaining greater short term social and economic benefits. As with Alternative 2, the primary focus is on reducing overcapacity in order to create opportunities for profitable fishing operations. This alternative is intended to be less restrictive than the status quo and could utilize the mixed stock exception to provide greater access to healthy fish stocks.

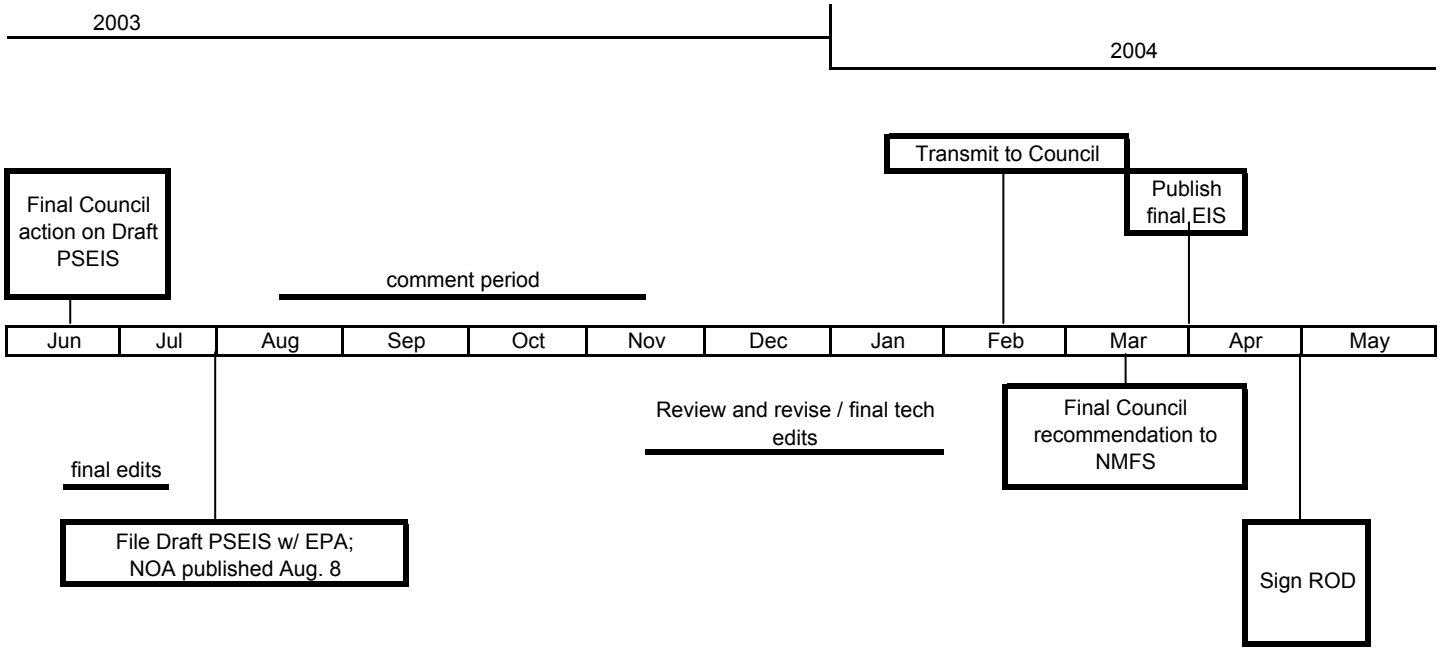
Alternative 4. Alternative 4 is similar to Alternative 2, but with increased emphasis on (1) risk-averse management; (2) measuring and mitigating impacts on fish, other species, and habitat; and (3) seasons. This is a more conservative management program that relies on seasons, gear modifications and restrictions, incentives to reduce bycatch and effects on EFH, and closures to prevent all on-bottom fishing gear effects.

Alternative 5. Alternative 5 is a very risk-averse management program that emphasizes mitigating (avoiding) impacts on fish, other species, and habitat and measuring those impacts. It would set rebuilding periods at the minimum possible, which would require near zero catch and bycatch. Individual catch and bycatch limits (caps) would be established. Larger area closures to protect bottom habitat would be established.

Exhibit G.7
Attachment 2
November 2002

Revised Programmatic SEIS Timeline, October 2002




2003
2004
Transmit to Council
Publish final EIS
Final Council action on Draft PSEIS
comment period
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Review and revise / final tech edits
Final Council recommendation to NMFS
final edits
File Draft PSEIS w/ EPA; NOA published Aug. 8
Sign ROD

GROUNDFISH FISHERY MANAGEMENT PLAN PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT

Situation: NMFS, in consultation with the Council, is preparing a Programmatic Environmental Impact Statement (PEIS) that will review the current status of the federal groundfish management program and offer a range of alternative management strategies at a broad programmatic or policy level. This PEIS was initiated with a scoping process early in 2001 and is intended in part to provide the opportunity for and implementation of Council's strategic plan for groundfish. Since the strategic plan was adopted, and the EIS scoping period held, groundfish management has changed substantially, with the focus towards how to allow fishing while achieving the stock rebuilding mandate. The Ad Hoc Groundfish FMP EIS Oversight Committee (EIS Oversight Committee) met in May 2002 and developed a set of programmatic alternatives for Council consideration and adoption for analysis. However, ~~but~~ at the June meeting, NMFS recommended the Council delay adoption of the alternatives until it had developed its final management recommendations for the 2003 fishing year; the Council agreed. At the September 2002 meeting, the Council directed the Oversight Committee to reconvene and review its May alternatives to make sure they were still appropriate under the new stock conditions and management program. The committee met on October 8-9 and has revised its previous recommendations.

The EIS Oversight Committee's revisions do not fundamentally change the alternatives, but they do clarify the strategic focus represented by each alternative (except the status quo) and incorporate measurable criteria to compare and evaluate them. Each alternative (except the status quo) would represent a different way to amend the FMP to incorporate different goals, policies, and management frameworks.

NMFS asks the Council to review and endorse the set of alternatives summarized in Attachment 1, along with providing any guidance on the contents of the alternatives. Once the alternatives are endorsed by the Council, the teams preparing the PEIS will begin evaluating their potential environmental effects as part of the PEIS development process.

Attachment 2 presents a revision of the schedule for completion of the PEIS. The schedule is based on Council endorsement of the alternatives at the November Council meeting, thus allowing analysis to proceed. The Council is still scheduled to choose a preferred alternative in early 2003. This will allow completion of the draft PEIS by August 2003, as in the original schedule, subsequent public review, and preparation of the final PEIS. The Council should consider preparing an amendment package in parallel with the final PEIS to implement policies and program elements of the preferred alternative.

The Council may also consider providing guidance on future meetings of the EIS Oversight Committee and its membership.

Council Task:

1. **Guidance on Programmatic EIS process.**

Reference Materials:

1. Revised Groundfish Programmatic Environmental Impact Statement Alternatives (Exhibit G.7, Attachment 1).
2. Revised Programmatic SEIS Timeline (Exhibit G.7, Attachment 2).

Agenda Order:

a. Agendum Overview — Kit Dahl
b. NMFS Report — Jim Glock
c. Reports and Comments of Advisory Bodies
d. Public Comment
e. Council Guidance on Programmatic EIS Process

Groundfish Fishery Strategic Plan (GFSP) Consistency Analysis

The GFSP broadly supports effective public involvement during and beyond the transition to sustainable groundfish fishery management. The GFSP also specifically seeks to update the goals and objectives in the current groundfish FMP to incorporate GFSP visions and goals (Sec. II.C.(d)3). The Programmatic SEIS will provide a public forum vehicle for assessing and incorporating GFSP visions and goals into the Groundfish FMP.

PFMC
10/16/02

Supplemental Reference Materials

3. Summary Minutes of the Ad Hoc GF FMP EIS Oversight Committee (Exhibit G.7, Supplemental Attachment 3).

4. Exhibit G.7.c, Supplemental GAP Report.

SUMMARY MINUTES
Ad Hoc Groundfish Fishery Management Plan Environmental Impact Statement Oversight Committee

Pacific Fishery Management Council
West Conference Room
7700 NE Ambassador Place, Suite 200
Portland, OR 97220-1384
(503) 820-2280
October 7-8, 2002

A. Call to Order

Mr. Jim Glock called the Ad Hoc Groundfish Fishery Management Plan Environmental Impact Statement Oversight Committee meeting to order at 1 p.m. The agenda was approved.

Members in Attendance

Mr. Brian Culver (for Mr. Phil Anderson), Groundfish Management Team member (WDFW), Olympia, WA
Mr. Tom Ghio, Groundfish Advisory Subpanel, Moss Landing, CA
Mr. Peter Huhtala, Pacific Marine Conservation Council, Astoria, OR
Dr. Hans Radtke, Council member, Yachats, OR
Mr. Burnie Bohn ODFW, Portland, OR
Ms. Marija Vojkovich (for Mr. LB Boydstun) Council member (CDFG), Sacramento, CA

Members Absent

Mr. Ralph Brown, Council member, Brookings, OR
Mr. Paul Heikkila, Habitat Committee, Coquille, OR

Others in Attendance

Mr. Chuck Tracy, Council staff, Portland, OR
Mr. Jim Glock, NMFS, Portland, OR

B. Review of Process to Date

Mr. Glock discussed the meeting goals. These were to review the matrix of example draft alternatives already developed, elaborate on the alternatives therein, and change the structure of alternatives as needed. The alternatives developed during the meeting would be brought before the Council at its November meeting to be adopted for subsequent analysis in the Environmental Impact Statement (EIS).

Mr. Glock provided a brief overview of the requirements of National Environmental Policy Act (or NEPA, requiring EISs) and the NEPA process. Past EISs prepared for the groundfish fishery management plan (FMP) have been fairly cursory, so there is a need to more comprehensively analyze the many incremental changes in policy and management measures that have occurred. This can form the basis for strategic planning in the Programmatic EIS (PEIS). He also indicated the PEIS would allow tiering of future analyses and promote regulatory streamlining.

Discussion continued on the nature of a PEIS and what level of specificity is appropriate. Mr. Glock indicated that each alternative in the PEIS represents an entire program framework, or a distinct FMP.

C. PEIS Timeline

Mr. Glock presented a revised timeline for the PEIS (Exhibit G.7, Attachment 2) process that included adoption of the alternatives for analysis at the November 2002 Council meeting, an initial draft PEIS presented to the Council at the March 2003 meeting, final Council action on draft PEIS at the June 2003 Council meeting, submission to Environmental Protection Agency in late July followed by a 90-day comment period, with final Council recommendations to NMFS at the March 2004 Council meeting, and publishing the final EIS in April 2004.

D. Geographic Information System (GIS) Technology Presentation

Mr. Glock gave a PowerPoint presentation of some GIS technology that allows combining layers of information to identify such things as species richness (diversity), threatened habitats (useful in identification of essential fish habitat [EFH] or habitat areas of particular concern, etc.) The products can be integrated with the Ecotrust analysis of community impacts, observer data, etc.

Ms. Vojkovich asked if implementing the new GIS technology as an analytical tool could require development of a new alternative(s). Mr. Glock responded that it was a possibility, and if so it would have to occur in April.

E. Revise and Complete Alternatives Matrix and Descriptions

These minutes attempt to capture the discussion and points raised during development of the matrix, but do not describe the modified elements. Readers may wish to refer to the matrix of alternatives (Exhibit G.7, Attachment 1) while reading this.

There was general discussion of the toolbox which occurs in each component of each alternative and the utility of having only one toolbox for each alternative since many of the tools are used throughout the various components.

Dr. Radtke indicated that social and economic effects of the alternatives be considered separately. The committee recommended that the term socioeconomic effects be replaced with social and economic effects and that analyses be identified as such.

Alternative 1 - Status Quo

The committee discussed area closures and their ability of affect recovery of overfished stocks while achieving economic objectives of the FMP. It was suggested that allocation formulae were needed to streamline the process, and capacity reduction would alter fishery characteristics. Various options for area closures were discussed including:

- Block closures (latitude-longitude)
- Derby-type fisheries where a sector would close when the first optimum yield (OY) was reached (landed or total catch)
- Individual catch limits where vessels would cease fishing when a bycatch limit was reached
- Individual fishing quotas

Alternative 2 - Strategic Plan

The committee discussed the role of the Ad Hoc Groundfish Strategic Plan Oversight Committee (SPOC) and the possibility of reconvening the SPOC to rework the alternative. Mr. Glock expressed concern that turnover in SPOC membership may result in different interpretation of the strategic plan objectives. It was thought that the two-year review of the strategic plan scheduled for the November 2002 Council meeting may provide some insight into how to proceed.

Mr. Bohn recommended that Alternative 2 should reflect the current strategic plan interpretation.

Mr. Huhtala indicated he was not comfortable with characterizing a 10% observer coverage objective as the strategic plan objective, rather that 10% approximates possible coverage under current program limitations.

The committee agreed to a numerical standard for Alternative 2 that included, "...stratified random monitoring to observe at least 10% of commercial groundfish vessels or coverage adequate to assess total groundfish mortality."

Alternative 5 - Minimal Fishing

The committee discussed the constituency that might support the objectives in this alternative and concluded that most of the groups interested and represented in the Council process at this time would not support the objectives. The committee also questioned the consistency of the objectives with provisions of the Magnuson-Stevens Fishery Conservation and Management Act (maximum sustainable yield, economic benefit, etc.). The *term no consideration to socioeconomic effects* in the rebuild overfishing component was rephrased to *low priority to social and economic effects.*

G. Next Steps

Mr. Glock outlined the next steps in PEIS development. The alternatives developed during the meeting will be presented to the Council at the November meeting. They are expected to adopt them, possibly with some modifications for analysis.

Adjourn

The meeting adjourned at approximately 3:30 p.m. on October 8, 2002.

PFMC
10/23/02

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON THE GROUNDFISH FISHERY MANAGEMENT PLAN ESSENTIAL FISH HABITAT ENVIRONMENTAL IMPACT STATEMENT

The Groundfish Advisory Subpanel (GAP) reviewed the work being done on developing an environmental impact statement (EIS) for the essential fish habitat section of the Pacific groundfish fishery management plan.

The EIS will require the collection and analysis of a significant amount of data before it can be used effectively. Much of this data will need to come from individual fishermen who are familiar with the bottom topography in the areas in question as well as the geographic and temporal distribution of fish stocks.

Ideally, the data now being collected should be "ground-truthed" through a series of port meetings, similar to what was done in developing the lines being used for depth-based groundfish management. The EIS development team is sympathetic to this approach, but noted to the GAP that both time and funding impose considerable constraints.

The GAP notes there are readily available means to gather detailed information, including using the assistance of Sea Grant. Oregon Sea Grant in particular has been more than cooperative in arranging meetings of the sort that could help the EIS team.

In regard to time, while there are certain court-ordered deadlines, the majority of the GAP believes that both the plaintiffs and the defendants in the essential fish habitat case have shown a desire to allow more time to complete the task if doing so will result in a better product. The majority of the GAP recommends the Council ask the Assistant Administrator for Fisheries to pursue an extended time line so that a better product can be developed.

A minority of the GAP notes the need for a delay in the time line has not yet been demonstrated and that it is premature to request such a delay. Further, a request for a delay should be initiated by NMFS in the context of the entire legal decision, which involves several Council plans.

Finally, the GAP recommends the Council convene an ad hoc technical team consisting of appropriate Council advisory body members - including members of the GAP who are familiar with the areas in question - to assist the EIS team in analyzing the data they have available.

PFMC
10/30/02

GROUNDFISH MANAGEMENT TEAM REPORT ON GROUNDFISH FISHERY MANAGEMENT PLAN ESSENTIAL FISH HABITAT ENVIRONMENTAL IMPACT STATEMENT

The Groundfish Management Team (GMT) supports convening a technical review committee to review and/or develop the risk analysis contemplated in the Essential Fish Habitat (EFH) Environmental Impact Statement. While development of such a committee is endorsed by the GMT, anticipated workload by GMT members precludes their participation in the technical review committee.

PFMC
10/31/02

Tim Roth read this since nobody else was available

HABITAT COMMITTEE REPORT ON GROUNDFISH FISHERY MANAGEMENT PLAN ESSENTIAL FISH HABITAT ENVIRONMENTAL IMPACT STATEMENT

The Habitat Committee (HC) supports the development of a technical review committee to review the risk analysis being developed for the Essential Fish Habltat (EFH) Environmental Impact Statement (EIS). We recognize this risk assessment requires expertise on habitat, geology, bathymetry, and modeling. The scope of this work is beyond the immediate expertise of the HC, so we support the recruitment of outside expertise as needed. The HC is willing to participate in this process at the request of the Council. Given the difficult schedule ordered by the court for completion of this EIS, the HC also recognizes a technical review committee offers the best opportunity for transparency of the science and the process.

PFMC
10/31/02

GROUNDFISH FISHERY MANAGEMENT PLAN ESSENTIAL FISH HABITAT ENVIRONMENTAL IMPACT STATEMENT

Situation: The Council has been briefed on the NMFS decision to develop a Supplemental Environmental Impact Statement (SEIS) that will analyze alternatives for designating EFH and minimizing the adverse effects of fishing on EFH. The NMFS project manager for the EFH SEIS will brief the Council on progress to date and discuss a timeline for SEIS development. The progress report will focus on the development of a geographic information system (GIS) that will be used to evaluate EIS alternatives.

NMFS requests the Council to appoint a technical committee to guide a contractor in the development and completion of an assessment of groundfish habitat. The committee would review the GIS and other data that would be the inputs into the assessment as well as an analytical framework that will serve as the assessment model. This strategy is consistent with the groundfish EFH decision tree that was presented to the Council in April. Members would come from Council advisory bodies and outside organizations with expertise in marine habitat. NMFS will also describe how this committee will work with the Habitat Committee. Along with the aforementioned GIS, these efforts form the basis for developing the alternatives that will be evaluated in the EIS.

Council Task:

1. Discuss and provide guidance to NMFS on further development of the Groundfish EFH SEIS.

Reference Materials:

1. EIS Timeline, (Exhibit G.8, Supplemental Attachment 1). not available per Kit Dahl 10-31-02

Agenda Order:

a. Agendum Overview — Kit Dahl
b. NMFS Report — Steve Copps
c. Reports and Comments of Advisory Bodies
d. Public Comment
e. Council Guidance on the EFH EIS Process

Groundfish Fishery Strategic Plan (GFSP) Consistency Analysis

The GFSP broadly supports effective public involvement during and beyond the transition to sustainable groundfish fishery management. The GFSP supports protection, maintenance, and/or recovery of habitats necessary for healthy and productive fish populations (Sec. II.A.(b)7). The EFH SEIS will examine options and establish a management framework consistent with these GFSP goals.

PFMC
10/16/02

Supplemental Reference Materials

2. Letter to Don McIsaac from Rollie Schmitten (Exhibit G.8, Supplemental Attachment 2).

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

Dr. Donald McIsaac
Executive Director
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, OR 97220-1384

Dear Dr. McIsaac:

We appreciate your efforts to date to comply with terms of the *American Oceans Campaign, et al. v. Daley, et al.* settlement. We see strong evidence that NMFS and Council staff in all of the Regions are working diligently to complete Environmental Impact Statements (EIS) to implement Essential Fish Habitat.

As work progresses, it remains extremely important that every effort be made to comply with the court-approved schedules regarding completion of the EISs. Schedule development was closely coordinated with each of the Regions and Councils party to the lawsuit, and should provide sufficient time to complete the documents, while allowing for the thorough analysis required by the National Environmental Policy Act.

I have been keeping Dr. Hogarth apprised of progress on the EISs, and he has made it clear that this is an issue of great importance to him. Both Dr. Hogarth and I are counting on each of you to ensure that the schedules are met. My staff will continue to coordinate with your staff as work on the EFH EISs continues. Please let me know if there is additional assistance that we can provide throughout this process.

Sincerely,

Rolland A. Schmitten
Director, Office of Habitat Conservation

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON THE GROUNDFISH STRATEGIC PLAN TWO-YEAR REVIEW

The Groundfish Advisory Subpanel (GAP) examined three issues in the context of Strategic Plan review: Trawl Permit Stacking; Open Access Permitting; and Fixed Gear Permit Stacking.

While the GAP agrees that capacity reduction in the trawl fishery remains the highest priority, there is little further action the Council needs to take to begin a trawl buyout program. Therefore, the GAP believes that workload efforts should be focused on developing a trawl individual quota program, especially in light of the expiration of the federal moratorium on individual quotas. Although one member of the public suggested that a permit stacking program would be preferable in his port, the GAP notes the analysis needed for permit stacking would be the same as for individual quotas so the analysis should begin as soon as possible.

In regard to open access permitting, the GAP notes that two states have already begun a permit process for nearshore fisheries. In addition, there was lack of consensus among open access representatives as to whether a federal permitting process should go forward or how it should be constructed. The GAP, therefore, recommends that open access permitting be given a lower priority. However, the GAP believes the Council has provided an essential service in facilitating data exchanges among the states on open access issues. The GAP recommends the Council continue regular meetings of its Ad Hoc Open Access Committee so that information exchange can continue.

In regard to fixed gear permit stacking, the GAP discussed a number of issues in the context of Amendment 14. These included further GAP review - as requested by the Council - of the problem of multi-vessel / multi-permit leasing presented to the Council by Mr. Mike Pettis of Newport; a proposal to allow stacking of up to six permits presented to the Council by Ms. Michelle Longo-Eder; and further discourse on the practicability of grandfathering and owner-on-board requirements. The GAP recommends the fixed gear fleet engage in further discussions of Amendment 14 issues, ideally with the assistance of a Council-appointed facilitator and Council staff, and return to the Council in April with a suite of suggestions for refinements on Amendment 14. These proposals could then be reviewed by the GAP and other advisory bodies as a whole, rather than piecemeal. Since some of the proposals could involve regulatory amendments, and thus a two meeting process, the GAP further recommends that fixed gear stacking issues be included as an agenda item for the Council in April, with final action if needed in June. We believe that this will help streamline the process of further refining Amendment 14 and allow a holistic review of all proposals.

PFMC
10/31/02

Jim Hastie

Exhibit G.9.e
Supplemental GMT Report
November 2002

GROUNDFISH MANAGEMENT TEAM STATEMENT ON STRATEGIC PLANNING INITIATIVES

At its October meeting, the Groundfish Management Team (GMT) reviewed the capacity-reduction initiatives awaiting further Council attention that are identified in Exhibit G.9, Supplemental Attachment 2. The GMT supports continued Council ranking of capacity reduction within the trawl fleet as its highest priority among these initiatives. Rather than focusing on ranking each of the identified initiatives, the GMT believes it is better situated to identify issues affecting the long-term value of investments of limited staff and funding resources in the development of specific proposals during 2003.

The GMT concurs with the GAP that, if possible, implementation of trawl permit buyback should occur prior to implementing other options such as stacking or ITQs. This sequence would afford the greatest opportunities for successful and expedient implementation of these latter, longer-term approaches to capacity management. Initial reduction of the fleet through buyback is likely to produce a resulting fleet having less variation in historic participation, which is in turn apt to allow swifter consensus-building in the resolution of allocation-related aspects of ITQ or stacking programs.

Our understanding is that NMFS is attempting to expedite implementation of an industry-funded buyback for the west coast, limited-entry trawl fleet. If this effort is successful, it may be possible to begin removing capacity from this fishery during 2003. If the process cannot be expedited, it may be two years or so before buying back of permits can begin. This uncertainty poses challenges for determining what other initiatives may yield the greatest results from Council-directed work during 2003. For example, the development and analysis of trawl permit stacking or ITQ alternatives will be influenced by the composition of the fleet to which these measures would be applied. Alternatives developed for application to a very diverse 270-vessel trawl fleet would likely be considerably different than those for a more homogeneous 150-vessel fleet. And even if plan development proceeds on the assumption that buyback will occur by the time the Council is ready to take action, it will be difficult for supporting analysis to fully anticipate the composition of the post-buyback fleet prior to the buyback actually occurring. Further, even though the moratorium on ITQs has lapsed, it appears unlikely that NMFS would consider approving any new programs until a comprehensive set of guidelines for implementation has been developed. And while design of a west coast program would likely take longer than guideline development, considerable time could be wasted before guidelines are published, through discussion or tentative adoption of options that are subsequently prohibited by the guidelines.

Conversion of the directed open-access fishery to limited entry has been an expressed priority of the GMT for several years. However, ongoing state initiatives in Oregon and California (and the existing Washington ban on commercial fishing inside three miles) are likely to substantially address commercial capacity/effort concerns in the nearshore fisheries before a Council program could be implemented. State efforts will not directly restrict open-access effort in fisheries outside of the nearshore area, however the recent progression of fishing opportunity constraints leaves sablefish and southern slope rockfish as the only major groundfish targets where access will not be constrained by state programs. As discussed in conjunction with VMS development, conversion to limited entry would still confer benefits in the form of identifying directed fishery participants. Regardless of whether the Council elects to elevate this initiative "above the line" for 2003, the GMT believes that it is important for the Council to continue to facilitate a forum for discussing and resolving issues associated with state efforts to restrict open-access participation.

Regarding potential changes to the cap on the number of stacked permits in the primary fixed-gear sablefish fishery, the GMT notes that this program has demonstrated that it can significantly reduce the number of vessels participating in the fishery. Roughly one-third of qualifying permits have already been stacked on other vessels. However, even though further reduction in the number of participants would be expected with a doubling of the current cap, it is not clear that the amount of additional reduction would be comparable to that already observed with the ability to stack three permits. Additionally, the GMT notes that what appears to a minor wording change in the cap (from 3 to 6), would still require a full NEPA analysis, and the considerable staff time associated with development of any plan amendment package.

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Michele Longo Eder
Of Counsel

August 19, 2002

Dr. Donald O. McIsaac
Executive Director
Pacific Fisheries Management Council
7700 NE Ambassador Place
Suite 200
Portland, OR 97220

Re: Allocation Committee Meeting
August 28-29, 2002

Dr. Hans Radtke
Chairman
Pacific Fisheries Management Council
P.O. Box 244
Yachats, OR 97498

Dear Dr. McIsaac and Dr. Radtke:

I have not seen an agenda for the allocation committee meeting on August 28-29, but I thought I would ask you to include the following as a discussion and action item on the agenda. Please also include the subject of this letter as an agenda item for the GAP at the September Council meeting, and consider it a public comment for the September briefing book under the appropriate agenda item.

Recognizing that a part of the role of the allocation committee is to examine ways of reducing effort by the groundfish fleet in the groundfish fishery, I would suggest that the regulations and/ or the management plan be amended as follows:

> **To allow the fixed gear fishery to stack more than (3) three permits per vessel, up to (6) six permits per vessel**

First and foremost, from a conservation standpoint, allowing an increase in the number of permits stacked in the fixed gear fishery, from three to six permits, will assist in reducing fishing effort on rockfish and associated bycatch. As I understand it, the stacking of fixed gear sablefish permits does not allow for any stacking of other groundfish limits associated with the permit, thereby lessening this fishery's impact on other groundfish, and in particular , upon species of concern.

Secondly, there are people in the fixed gear fishery who would sell the sablefish endorsed permits, but because of the restriction on the number of permits that can be stacked, have a limited market in which to sell them. Conversely, there are buyers who will purchase permits, but have no market because of the current limits on numbers of permits allowed to be stacked.

We encourage the Council to act proactively, both in regard to the effect on species of concern, and in regard to the economic viability of the businesses in the fishery. Allowing an increase in the number of permits stacked will encourage the survival of those that remain in the fishery , and provide an economic benefit to those who wish to, or because of other business pressures, are forced to exit the fishery.

It may be of use to illustrate to you what the decrease of limits have been in the fixed gear fishery for Sablefish for the last three years:

	2000	2001	2002
Tier 1	81,000	57,000	36,000
Tier 2	37,000	26,000	16,500
Tier 3	21,000	15,000	9,500

As you will note, the poundage associated with each of the tiers has decreased by more than 50% in the last 3 years. Although we are aware that there may be an increase in the amount of sablefish allowed to be caught in 2003, this increase, if indeed it occurs, may only be temporary, and in any event, the amount of any increase cannot compensate for the significant loss of income during the past two years.

Although the Council is primarily concerned with groundfish, and the effect of restrictions in the groundfish fleet, be aware that the West Coast fishery as a whole is experiencing an overall depression. Depressed prices for salmon, shrimp, crab and tuna are adding to the general poor outlook for fisheries. There will be a smaller fleet regardless of what this Council does, and regardless of what happens in groundfish. This proposal, however, will provide some economic relief both to those who choose to leave, and those who choose to stay.

The limits on the number of permits stacked was initially justified, in part, by a concern that the fixed gear sablefish endorsed fleet not become "too" small, or "too" consolidated. Given the fact that the stated goal of the Council in its long term management plan is to reduce the fleet by 50%, it would appear that allowing an increase in the number of permit to be stacked in this fishery is a specific action that this Council can take now, and by emergency regulation if necessary, in order to meet one of its long term goals.

Because of prior commitments, I will be unable to attend the Committee's meeting on August 28th, but I would be available to join the meeting by conference call and answer any questions by phone on the 29th.

Very truly yours,

Michele Longo Eder

MLE:ae

Michael Pettis
310 SE Yaquina View Dr.
Newport, OR 97365

Nov. 2002

A three vessel example of how opportunity changes with different Ownership

These Examples are with Vessel owner combinatio also owning 3 or less Grandfathered Fishing Perm

Vessel Description	Example-1 Ownership/opportunity	Example-2 Married Ownership	Example-3 Dad-Mom/Son Ownership	Proposal:
Boat-"A" 1) Fixed gear permit 2) Sablefish Endorsed 3) Grandfathered Owner	Individually Owned by "Joe" opportunity: 3 Permits Stacked	Joint Ownership Joe & Beth opportunity: 3 Permits Stacked	Joint Ownership Joe-Beth opportunity: 3 Permits Stacked	ALLow "Grandfathered" Fishing Permit Owners, who also own multiple vessels, to Lease enough Fishing permits so that: (Each vessel they owned on the "grandFAther" date) can participate at an egal Level with Single vessel Owner vesse
Boat-"B" 1) Fixed gear permit 2) Sablefish Endorsed 3) Grandfathered Owner	Individually Owned by "Beth" opportunity: 3 Permits Stacked	Joint Ownership Joe & Beth opportunity: 0 Permits Can be Fished	Joint Ownership Joe-Beth opportunity: 0 Permits Can be Fished	Example: An owner of 2 grandfathered Boats and 2 Fishing Permits, would be allowed to Lease 4 Permits, So tha each of the boats could Fish 3 Permits Stacked.
Boat-C 1) Fixed gear permit 2) Sablefish Endorsed 3) Grandfathered Owner	Individually Owned by "Billy" opportunity: 3 Permits Stacked		3-way Ownership Joe-Beth-Billy opportunity: 0 Permits Can be Fished	

GROUNDFISH STRATEGIC PLAN TWO-YEAR REVIEW

Situation: The Groundfish Strategic Plan includes provisions for periodic review, both formal and informal reviews are anticipated. Formal reviews would be scheduled by the Council to review implementation progress, evaluate the plan's effectiveness, and modify the plan as necessary; formal reviews would notice the public as to the possibilities of changes in goals, objectives, or direction. Informal reviews are meant to provide the Council a report on implementation progress. The Council did not select a formal review cycle, although, the plan notes that "routine reviews" should occur every five years. At the September 2002 Council meeting the Council requested an informal review of general progress in implementing the Strategic Plan and its recommendations. Council staff will report on general implementation progress since adoption of the Plan in September 2002 (Exhibit G.9, Supplemental Attachment 1) to provide the opportunity for further guidance or to initiate a formal review.

The Council also requested an update on the status of several plan-related capacity reduction initiatives (trawl permit stacking, fixed gear permit stacking, and open access permitting). Relative to fixed gear there are three items for Council consideration: (1) a proposal to modify the maximum number of fixed gear permits that could be stacked per vessel from three to six (Exhibit G.9.f, Public Comment), (2) unresolved provisions of Amendment 14 to the Groundfish Fishery Management Plan (e.g., owner on-board requirements), and (3) a the number of permits that may be acquired through leasing. Supplemental Attachment 2 reviews the status of ongoing and pending capacity-related issues.

Based on this information, advisory reports, and public comments the Council could provide guidance relative to Strategic Plan implementation, as well as specific direction for the capacity-related initiatives.

Council Action:

1. Guidance and Planning to Achieve Objectives

Reference Materials:

1. Exhibit G.9, Supplemental Attachment 1 – Progess Report. received 10-31-02
2. Exhibit G.9, Supplemental Attachment 2 – Status of three capacity-related initiatives. received 10-25-02
3. Exhibit G.9.f, Public Comment.

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Agenda Order:

a. Agendum Overview — Dan Waldeck
b. Summary of Achievements Toward Goals and Objectives — Dan Waldeck
c. Planning to Resolve Ongoing Issues — Jim Seger
   i. Trawl Permit Stacking
   ii. Fixed Gear Permit Stacking
   iii. Open Access Permitting
d. Agency and Tribal Comments and Reports
e. Reports and Comments of Advisory Bodies
f. Public Comment
g. **Council Action:** Guidance and Planning to Achieve Objectives

Groundfish Fishery Strategic Plan (GFSP) Consistency Analysis

The Strategic Plan states "The Council would review the plan, with public participation, as part of a Council meeting. The public would have notice of the upcoming review, would have the opportunity to provide written comment to the Council, and would have the opportunity to provide comment to the Council during the meeting at which the review takes place. Advisory entities would have input through the standard Council meeting format. If the Council determines that action is necessary, it will initiate the necessary process."

PFMC
10/16/02

Supplemental Reference Materials

4. Exhibit G.9.f, Supplemental Public Comment.
5. Exhibit G.9.e, Supplemental GMT Report
6. Exhibit G.9.e, Supplemental GAP Report

IMPLEMENTATION OF THE GROUNDFISH FISHERY STRATEGIC PLAN – PROGRESS REPORT

The Groundfish Fishery Strategic Plan was adopted by the Pacific Fishery Management Council (Council) in September 2000. The Strategic Plan was developed to provide a foundation for future management of the West Coast groundfish fishery. It is intended to be a resource for Council efforts to rebuild depleted stocks and maintain biologically sustainable, healthy stocks, and guide efforts to reduce the size of the fishing fleet to a level that is economically sustainable for the fishing fleet.

The Strategic Plan envisions several changes in the future groundfish fishery, including stocks that are healthy and resilient, fishing capacity in balance with resource availability, and an efficient, understandable management and regulatory process. To achieve this vision the Strategic Plan sets goals and recommendations for fishery management; science, monitoring, and analysis; and the Council process. The goals and recommendations for these general topics are summarized in Appendix A (attached).

To build upon the foundation established by the Strategic Plan, the Council formed the Ad Hoc Groundfish Strategic Plan Implementation Oversight Committee (SPOC). The SPOC met several times in 2001 to consider implementation issues. In April 2001, based on the recommendations of the SPOC, the Council adopted a list of 15 Strategic Plan implementation priorities (see Appendix B). The highest priority items included the categories of:

- capacity reduction (five individual prioritized elements)
- a comprehensive observer program
- improvement of the groundfish management process
- marine reserves
- harvest policies
- allocation (five individual prioritized elements)
- science matters
- improvements in the Council process

Since adoption of the Strategic Plan, several events have caused major changes in the groundfish fishery and the management process. These events have overwhelmed Council workload and hindered substantial progress in Strategic Plan implementation.

- In August 2001, the Ninth Circuit Court ruled that federal notice and comment rulemaking procedures are required prior to implementation of annual management specifications. This rulemaking process can take up to five months to complete, which means for the fishing year to start January 1, the Council is required to take final action on management specifications at the September Council meeting. This requirement prevents the Council from using the improved three-meeting process adopted in April 2001.

- Continued declines in certain groundfish stocks caused dramatic changes to the management of recreational and commercial fisheries. Responding to these stock declines, fishery impacts, and socioeconomic effects has dominated Council workload.

- In 2002, because of the significance of environmental and economic impacts, the Council undertook development of a comprehensive Environmental Impact Statement to comparatively analyze the various impacts and inform Council decision making in setting 2003 management specifications.

In an effort to reduce this year-to-year strain and provide for the court ordered notice and comment period, the Council developed a proposal for multi-year management of the groundfish fishery (Amendment 17, Agendum G.5). A multi-year management process is expected to provide an "off-year" and help facilitate Strategic Plan implementation.

A summary of the progress toward implementation of the Strategic Plan priorities follows.

Capacity Reduction

Groundfish limited entry permit buyback is a high priority. The Council has supported industry-led efforts to develop a buyback program for the West Coast groundfish fishery. Congressional support (through either direct appropriation or loan program) for the buyback program is pending. For about one year, trawl permit stacking efforts were not emphasized while Congressional processes were underway.

The SPOC recommended formation of development teams to initiate work on permit stacking programs for the limited entry trawl and permitting in open access fisheries. These development teams met several times in early 2002 to work on their respective issues and reported to the Council in April 2002. Because of other workload priorities, additional work on trawl permit stacking and permitting in the open access fishery was delayed. Work products from these two development teams are reviewed in Exhibit G.9, Attachment 2 (November 2002). Permit stacking in the limited entry fixed gear sablefish fishery was implemented August 7, 2001 (66*FR*41152) through Amendment 14 to the groundfish fishery management plan (FMP).

Council staff has also responded to congressional inquiries for Council input about legislation that would provide for fishing quota programs. These responses have emphasized the Council's strong support for the ability to use fishing quota programs in the West Coast groundfish fishery.

Observer Program

The Council has worked closely with National Marine Fisheries Service in the development and implementation of the West Coast groundfish observer program. It is anticipated that observer data will be available for management in 2003.

Management Process

The Council initially addressed improving the annual groundfish management process through the formation of an Ad Hoc Groundfish Management Process Committee which met several times to develop recommendations in 2001. In response, in April 2001, the Council adopted a three-meeting process (June, September, November). However, changes to the notice and comment period resulting from litigation required the Council to consider changing the groundfish management process to a multi-year schedule. At the September 2002 meeting, the Council reviewed Amendment 17 to the Groundfish FMP. The new management system would change the process for developing groundfish specifications and management measures so that measures could be established for two years, rather than one year. This would provide more time for the Council and NMFS to work on other critical groundfish issues, such as strategic plan implementation. In addition, a revised management schedule would provide enough time for NMFS to publish a proposed rule in the *Federal Register* and take public comment before its final decision on whether to approve the Council recommendations. Amendment 17 is scheduled for final adoption in November 2002.

Marine Reserves

The Council has adopted marine reserves as a management tool (recommendation #1 in Appendix A) and developed a cost estimate for optimal implementation of the remaining marine reserves recommendations (#2 through #5 in Appendix A) which suggested the need for an additional $4.7 million in funding and resources over the course of three years. No success was had in seeking this funding from Congress over the past two fiscal years.

Over the past 18 months, the Council and it's advisory bodies have worked closely with the Channel Islands National Marine Sanctuary (CINMS), California Department of Fish and Game, and California Fish and Game Commission (CFGC) staff in considering marine reserves in the Channel Islands area. The Council's role in this matter was based on the effect the state action would have in limiting the reasonable range of alternatives available to the Council for the implementation of complementary reserves in federal waters of the CINMS, a role designated for the Council under the National Marine Sanctuaries Act (NMSA). The Council spent considerable time and resources reviewing the basis for marine reserve alternatives and the California Environmental Quality Act (CEQA) impact analysis document and provided final comments to the CFGC on October 8, 2002.

Harvest Policies

Generally, Strategic Plan harvest policy recommendations are embodied in current groundfish management policy. For example, in 2002, fishery and area closures were employed inseason to protect depleted stocks. For 2003, most groundfish fisheries will be severely constrained, principally as a precautionary measure to protect weak stocks.

Allocation

The allocation principles defined by the Strategic Plan are formulated to ensure all groundfish sectors are treated equally. Envisioned in this philosophy is that no sector would be held harmless when stock declines necessitate constraining fishing opportunity. This philosophy has been followed in crafting recent groundfish management measures. For example, economic impacts on communities and geographic stock structure were used in designing 2003 management measures. The fishery priorities defined by the Strategic Plan (Allocation Recommendation 11), generally, dictate Council management allocations among the various sectors.

Science

The Council has discussed the need for a workshop to address bycatch issues in the West Coast groundfish fishery. The Council has also discussed the need for a workshop to explore the concepts of virgin biomass (B_0) and maximum sustainable yield (MSY). At the November 2002 meeting, the Council is scheduled to consider the need for these workshops and whether to proceed with logistical arrangements.

Council Process Improvements

Improvements to administrative aspects of the Council process were a major Strategic Plan theme and actions have been taken in this area which especially address process improvement recommendations #4 and #5. A communications staff person was hired to improve Council communication with the fishing community and making Council documents more "user friendly." In this same vein, the Council website was redesigned to make it easier to use and provide access to a greater number of Council documents. Document distribution has also been streamlined. Recently, a toll free number was acquired to make it easier for the public to contact the Council office. To track adherence to the Strategic Plan and provide context to agenda items, a Groundfish Consistency Analysis box was added to groundfish-related briefing book situation summaries.

Summary

In sum, some progress has been made on many Strategic Plan topics: capacity reduction, management process, marine reserves, observer program, and administration. Work is beginning on efforts to improve estimates of bycatch in the West Coast groundfish fishery and to better understand fundamental stock parameters to improve stock assessments and fishery management.

However, several important areas have not been worked on. The need for an implementation plan for capacity reduction is strongly recommended in the Strategic Plan, but a comprehensive plan has not been implemented. Allocation is also noted as critical to several Strategic Plan initiatives. However, formal work on specific allocations of the groundfish quota has not begun. Consideration of establishing marine reserves, including siting and design criteria, (i.e., Phase II) has not been initiated. There has been limited progress on Strategic Plan habitat-related recommendations; although, an essential fish habitat environmental impact statement process is underway.

This progress report indicates that efforts are underway to implement the Strategic Plan, but several areas might need more attention. Council workload (the combination of groundfish issues, other Council-managed fisheries, and other exogenous factors) has hindered progress. As the Council moves into 2003 and a revised

management regime, the Council may want to undertake a formal review of the Strategic Plan, which could include re-consideration of the goals and recommendations. The Council may also want to review the SPOC priority list and determine if certain areas should be re-emphasized, and determine if there are initiatives that should proceed immediately.

APPENDIX A

Goals and Recommendations

1. Fishery Management

Management Policy Goal

To adopt understandable, enforceable, and stable regulations that, to the greatest extent possible, meet the FMP's goals and objectives and the requirements of the Magnuson-Stevens Act.

Management Policy Recommendations

1. Develop a plan to reduce capacity.
2. Explore the use of incentives to encourage fisherman to modify practices to reduce bycatch.
3. Make allocation decisions.
4. Consider delegating or deferring management nearshore species to the States.
5. Commercial fisheries should be limited through state and/or federal license or permit programs.

Harvest Policy Goal

To establish an allowable level of catch that prevents overfishing while achieving optimum yield based on best available science.

Harvest Policy Recommendations

1. Given the uncertainty in the estimating ABCs, set optimum yields (OYs) lower than the ABC, manage to a fixed OY(s), and close fisheries when OY is reached.
2. Harvest levels must be increasingly precautionary when less biological information is available.
3. For unassessed stocks, set precautionary harvest levels.
4. To protect weak stocks harvested in multi-species fisheries, adopt a policy requiring closure of the fishery when the ABC or OY of the weak stock has been taken.
5. Without an international agreement on setting and sharing the total allowable catch for trans-boundary stocks, the Council should conserve that portion of the stock within the geographic range of its authority.

Capacity Reduction Goal

To have a level of harvest capacity in the fishery that is appropriate for a sustainable harvest and low discard rates, and which results in a fishery that is diverse, stable, and profitable.

Capacity Reduction Recommendations

The highest priority for reducing capacity is Recommendation #1 from the Management Policy section. These recommendations include short-term, long-term, and transitional elements.

Short to Intermediate Term

1. Separate the open access fishery into two sectors, one that targets groundfish and a second that lands groundfish incidental to non-groundfish fisheries. This involves development of "B" and "C" permit systems.
2. Divide the open access allocation into separate allocations for "B" and "C" permit holders.
3. Consider using historical landings only from 1994-1999 and participation from either 1998 or 1999 for initially qualifying B permit holders.

4. For the limited entry fixed gear fishery, develop and implement a voluntary permit stacking program.

5. For the limited entry trawl fleet, develop and implement a voluntary permit-stacking program.
6. Consider developing and implementing a whiting species endorsement that restricts future participation in the whiting fishery to vessels registered to a permit with a whiting endorsement.
7. Pursue a buyback program to remove latent capacity.

Intermediate to Long Term

8. Develop a comprehensive IFQ program for the limited entry trawl fishery, or in the alternative, a mandatory permit-stacking program.
9. Consider establishing a rockfish endorsement for the limited entry fixed gear fleet and open access (B permit) fleet.
10. Consider access limitation for commercial passenger fishing vessels.

Allocation Goal

To distribute the harvestable surplus among competing interests in a way that resolves allocation issues on a long-term basis.

Allocation Recommendations

General Allocation Principles

1. All fishing sectors and gear types will contribute to achieving conservation goals.
2. Non-groundfish fisheries that take groundfish incidentally should receive only the minimal groundfish allocations needed to efficiently harvest their target (non-groundfish) species.
3. Modify directed rockfish gears, as needed, to improve their ability to target healthy groundfish species and avoid or reduce mortality of weak groundfish species.
4. When information on total removals by gear type becomes available, consider discards in all allocations between sectors and/or gear types. Each sector will then receive adjustments for discard before allocation shares are distributed.
5. Fairly distribute community economic impacts and the benefits and costs of allocation coast-wide.
6. Consider impacts to habitat and recovery of overfished stocks or endangered species (dependent on affected habitats) when making allocation changes.
7. Allocation decisions should consider and attempt to minimize transfer of effort into other fishery sectors, particularly for state managed fisheries.
8. Allocation decisions will: (a) consider ability to meet increased administrative or management costs; and (b) be made if reasonably accurate in-season quota monitoring or annual catch accounting has been established or can be assured to be established and be effective.
9. As the tribe(s) expand their participation in groundfish fisheries, allocations of certain groundfish species may have to be specified for tribal use.

Area Management as Related to Allocation

10. Structure allocations considering both the north-south geographic and nearshore, shelf and slope distributions of species and their accessibility by various sectors and gears.
11. In addressing recreational/commercial rockfish allocation issues, use the following fishery priorities by species group: for nearshore rockfish, states may recommend a recreational preference, with any excess to be made available for commercial use; for shelf rockfish, the Council may set a recreational preference only on a species-by-species basis; and for slope rockfish, commercial allocation.
12. Licenses, endorsements or quotas established through management or capacity reduction measures may be limited to specific areas through exclusive area registrations and consider port landing requirements.

Observer Program Goal

To quantify the amount and species of fish caught by the various gears in the groundfish fishery and account for total fishery-related removals.

Observer Program Recommendations

1. Immediately implement an at-sea observer program, total catch determination is the priority.
2. Consider the following options to fund an observer program:
   a) Seek federal/state funding;
   b) Continue to support legislative change to provide authority to collect fees from the fishing fleet to support the observer program;
   c) If federal/state or industry funding is not available, make individual vessels responsible for providing some level of observer coverage as a condition of participation in the fishery.
3. Trawl and non-trawl fleets should have some meaningful level of observer coverage.
4. Consider alternative monitoring approaches, including logbooks and video.
5. After observer program established, a full retention strategy may be considered.
6. As a secondary priority, an observer program should collect additional data for stock assessments.

Marine Reserves Goal

To use marine reserves as a fishery management tool that contributes to groundfish conservation and management goals, has measurable effects, and is integrated with other fishery management approaches.

Marine Reserves Recommendations

1. Adopt marine reserves as a fishery management tool.
2. Identify the specific objectives that marine reserves are expected to meet.
3. Develop siting and design criteria.
4. Adopt final siting criteria, including reserve size and location, and proceed with implementation and evaluation as quickly as possible, to ensure compatibility with other management changes.
5. Direct the Scientific and Statistical Committee to recommend new methodologies for continued stock assessments and for establishing harvest levels outside the reserves following the implementation of reserves.

Groundfish Habitat Goal

To protect, maintain, and/or recover those habitats necessary for healthy fish populations and the productivity of those habitats.

Groundfish Habitat Recommendations

1. Consider regulatory changes (including incentive systems) that result in modification or elimination of fishing gears or fishing practices that are determined to adversely affect EFH areas of concern such as nearshore and shelf rock-reef habitats.
2. Develop and implement gear performance standards.
3. Promote scientific research on the effects of fishing gear on various habitats.
4. Promote research to modify existing gear and practices.
5. Identify habitats necessary for healthy fish populations and identify locations of those habitats.

2. Science, Monitoring, and Analysis

Science, Data Collection, Monitoring, and Analysis Goal

To provide comprehensive, objective, reproducible, and credible information in an understandable and timely manner to meet our conservation and management objectives.

Science Recommendations

1. Prioritize stock assessments for suspected "weak stocks" in mixed-stock fisheries.
2. Create cooperative, scientific partnerships between state, federal, tribal, and private entities.
3. Promote increased communication and collaboration between the fishing industry and scientists.
4. Develop ways to incorporate fisher observations into stock assessment and monitoring programs.
5. Implement the Council's draft West Coast Fisheries Economic Data Plan.
6. Ensure that economists and social scientists are included in the Council process.
7. Hold an annual or bi-annual meeting of U.S./Canada and/or U.S./Mexico stock assessment scientists.
8. Meet annually with National Marine Fisheries Service's Northwest and Southwest Regions and Science Centers and the Pacific States Marine Fisheries Commission to integrate the Council's data and research needs into NOAA's budget process.
9. Meet with the states and NMFS to develop a joint research and data collection/analysis plan.
10. Direct scientific efforts to measure changes in productivity due to ocean environmental changes.
11. Obtain a dedicated research vessel(s) to perform annual surveys and collect other data needed to manage the coastwide groundfish under Council jurisdiction.

3. Council Process

Council Process Goals

To establish and maintain a management process that is transparent, participatory, understandable, accessible, consistent, effective, credible, and adaptable; to provide a public forum that can respond in a timely way to the needs of the resource and to the communities and individuals who depend on them; and to establish a long-term view with clear, measurable goals and objectives.

Council Process Recommendations

1. Encourage long term thinking.
2. Establish a performance evaluation committee.
3. Update goals and objectives in the FMP to incorporate the strategic plan's vision and goals.
4. Routinely update Council mailing lists.
5. Use newsletters, website, public fora, news releases, and public service announcements to improve public participation in Council activities and decisions.
6. Make draft agendas available earlier to the local media from fishing communities.
7. Sponsor workshops to explain the Council process.

Implementation and Measuring Success

Implementation Recommendations

1. At the September 2000 Council meeting, the Council adopts the Final Groundfish Strategic Plan document (per revisions incorporated after the summer public comment phase).
2. The Council directs the formation of a "Groundfish Strategic Plan Implementation Oversight Committee" which should be composed of Council members, some of which will have been members of the Strategic Plan Development Committee, to ensure continuity and an effective transition to implementation.
3. At its discretion, the Implementation Oversight Committee may establish small implementation development teams to develop specific alternative(s) for implementing elements of the Strategic Plan. Implementation development teams will be comprised of Council subpanel, management team, and committee members from the GMT, GAP, SSC, EC, and members of the public as deemed necessary by the Implementation Oversight Committee.
4. The Implementation Oversight Committee works at direction of the Council and is tasked with making recommendations regarding implementation of the strategic plan.

5. The Implementation Oversight Committee goals should include: (a) effective transition to the implementation phase, (b) ensuring the plan is implemented in a timely fashion, and (c) whenever possible, doing so in a fashion that provides for constituent acceptance and buy-in.
6. At the direction of the Council, the Implementation Oversight Committee will develop recommended schedules for carrying out all components of the strategic plan.

7. The Implementation Oversight Committee will develop recommendations for all components of the strategic plan that can be developed further: (a) directly by the Council, (b) via advisory entity assignments, or (c) through formation and use of a implementation development team approach, e.g., capacity reduction implementation development team(s), which would handle all of the complexities of addressing the implementation of capacity reduction. For example, there might be four teams – with industry representatives from trawl, fixed gear, open access with groundfish target, and open access with non-groundfish target. Each of these teams will also have a representative from the Implementation Oversight Committee, with a charge to develop a plan and product by "x" date. The Implementation Oversight Committee considers the work of the implementation development teams and develops the final recommendations for the Council. Clarification, input, and technical support will be available to all teams with "on-call" availability from Council staff, states, NMFS staff and General Counsel, etc.
8. It will be important to consider current conditions in the groundfish fishery, including the effects of recent changes in resource status, fishery management, and the environment, as part of the strategic plan implementation process.

Measuring Success

The Council should schedule a routine review every five years. If a Council member determines that a review should occur more frequently, the member could seek to have the review placed on the Council agenda in the same manner that other actions are placed on the agenda. When the review takes place, the Council should follow the standard Council meeting process and take written and oral public comment, and involve the appropriate advisory entities.

APPENDIX B - **Groundfish Fishery Strategic Plan Implementation Oversight Committee – Recommended List of Priorities**

Item	Staffing Cost (states/NMFS/Council/tribal)	$ cost	Rank	Development Team Needed
Buyback – all gears	med/med/low [5/]	very high	1.a [7/]	
Trawl permit stacking[1/]	low - high		1.b [7/]	yes
Observers -- develop full program[2/]	med/high/low	high	2	no [8/]
Review and improve groundfish management process	low/low/low	low	3	no [8/]
Fixed gear permit stacking -- sablefish[1/]	low/high/med		4	no [8/]
Open access limited entry	high/high/high	high	5	yes
Allocation*	high/high/high	high	6*	yes
Marine reserves[3/]	high/high/high/yes	high	7	yes
Nearshore rockfish delegation	high/med/med/yes		8	yes
Implement harvest policy recommendations	low/low/low	low	9	no [8/]
Fixed gear spp endorsements & stacking – non-sablefish	high/high/high	high	10	yes
Explore regulations to (1) reduce bycatch and (2) access allocations	med/med/med	high	11	yes
Explore regulatory incentives (regs/gear) to minimize impacts on habitat	high/high/high	high	11	yes
Implement Strategic Plan science recommendations[4/]	high/high/high	very high		
Implement Strategic Plan Council process recommendations [4/]				
*Elements of Allocation Category	Rank w/in 6			
"A" v "B" v "C" v Sport permits (overfished species)	6.a			
Sport v Commercial	6.b			
Limited entry trawl v Fixed gear (rockfish, lingcod)	6.c			
"B" v "C" permits (selected species)	Part of 5 above [6/]			

1/ As first step toward IFQ
2/ $2.25 million -- federal base funding (annual). "Full" means a comprehensive program with an adequate annual budget
3/ Tool within the larger context of the Strategic Plan. Adopted as a tool, but no use of the tool scheduled.
4/ Critical element, not accorded rank -- overrides other topics. Include comment to this effect in introduction.
5/ Currently, industry lobbying for. Near-term low workload NMFS/Council. If Congress authorizes, NMFS/Council workload will be large.
6/ Allocation will occur as part of O/A to L/E
7/ Priority may change depending on Congressional action.

8/ Program in place, under development, or under review – no development team needed.

STATUS OF THREE CAPACITY-RELATED INITIATIVES

The Council is in various stages of addressing three capacity control and reduction priorities for the groundfish fishery:

fixed gear permit stacking
trawl fleet reduction (buyback or permit stacking)
limiting access to the open access fishery

Fixed Gear Permit Stacking

After completing its strategic plan, the Council took final action on Groundfish Fishery Management Plan (FMP) Amendment 14. This FMP Amendment and the accompanying regulatory amendment allowed for the stacking of fixed gear permits (up to three per vessel) and extended the season from a 9 day season to a 7 month season. Using stacked permits, vessels are able to fish multiple sablefish cumulative limits associated with the permit tier assignments but may not fish additional cumulative limits for other species. The season extension was allowed under a special congressional exemption from the individual fishing quota (IFQ) moratorium, a moratorium established as part of the Magnuson-Stevens Fishery Conservation and Management Act. All final elements of the regulatory package are scheduled to be implemented for the 2003 fishery with the exception of a refinement of the owner-on-board grandfather clause. The Council has indicated an interest in considering three issues related to fixed gear permit stacking:

- requiring 30% ownership for an owner to qualify for an exemption to the owner-on-board provisions.
- raising the cap on the number of permits that an individual may lease from 3 to 6.
- raising the overall stacking limit to 6 (limit on number of permits that may be registered for use on a single vessel).

Ownership Required for Exemption to Owner-on-Board Requirement--The owner-on-board provision requires owners to be on-board their vessel during fixed gear sablefish operations when the vessel is fishing against the cumulative limit associated with its permit. The owner-on-board grandfather clause allows anyone who owned a permit as of November 1, 2000 to be exempt from the owner-on-board requirement. This refinement, recommended by the Council at its April 2002 meeting, would require that in order to qualify for this exemption the individual must have owned at least a 30% interest in the permit as of November 1, 2000. Additional analysis of this provision will be required before it can be implemented. Clarification is needed on the form this analysis will take. Will the required analysis be in the form of an EA and if so what other options will be considered, or can the analysis be performed as part of an addendum to the previous analysis.

Cap on Leased Permits--Raising the cap on the number of permits that an individual may lease may resolve problems that some families and businesses may have encountered with the 3 permit holding limit. A person is considered to hold a permit if (a) the person owns some part of the permit, (b) the person leases a permit, (c) the person owns a vessel on which a permit is being used. Thus, a person owning two vessels may stack three permits on their vessel and lease out a second vessel. However, if the lessee registers a fixed gear sablefish permit for use on the leased vessel that permit counts against the vessel lessor's 3 permit holding limit, putting the vessel lessor in violation of that limit.

Cap on Stacked Permits--During the development of specifications for the 2003 season a request was received to raise the limit on the number of fixed gear sablefish permits that can be stacked on a single vessel from the 3 permit limit to 6 permits per vessel. Proponents indicated an increase in the stacking limit would increase the economic viability of sablefish fishing operations and reduce the number of nonsablefish limits (when permits are stacked only sablefish limits accumulate, no additional opportunity is

provided for the vessel to take nonsablefish species). Stacking limits were created to prevent excessive consolidation in the fleet.

The Council will need to decide how it wishes to proceed on these three issues in the context of its other management priorities for management action.

Trawl Fleet Reduction

The Council established a trawl permit stacking work group to develop a program for trawl permit stacking. This committee last met in February 2002. At that time it developed problem statements, goals and objectives. Further, it provided the Council with the following statement:

> *Even though work has begun on developing a trawl permit stacking alternative, the Work Group believes the Council should continue to support a trawl permit buyback program as the first priority for addressing overcapacity in the trawl fleet.*

Alternatives to status quo presented for consideration were: (1) buyback, (2) trawl permit stacking, (3) individual quotas, (4) fleet reduction by requiring requalification of permits based on landings. The work group was uncertain about the degree to which each of these alternatives should be developed.

The committee deferred convening another meeting recognizing that Council workload would prevent substantial progress on this issue until after the annual specifications process sometime in the fall.

Limiting Entry to the Open Access Groundfish Fishery (Open Access Conversion)

The open access committee meet several times in 2001 and 2002, suspending its efforts in the spring of 2002 due to other workload priorities. The committee has developed a draft problem statement, history of the open access fishery and example qualifying criteria. The committee also developed a comprehensive list of directed and incidental open access fisheries and a report describing those fisheries. When the committee suspended its activities in the spring of 2002, the next work item was to have been an evaluation and refinement of the criteria used to distinguish directed open access groundfish landings from incidental open access groundfish landings. The Council had also directed the committee to consider an option put forward in public comment that would have required that vessels qualify for limited entry permits based on landing requirements and qualifying period similar to those used for the original limited entry program.

The following are tentative determinations and priorities set at previous Council meetings. These determinations are not final and may be modified by the Council as it deems appropriate at this time.

- Limiting entry to the open access fisheries should be considered for formal FMP plan amendment process after the trawl permit stacking initiative.
- Work should proceed that is preparatory to the formal plan amendment process. Increasing pressure on nearshore fisheries necessitate continued consideration of capacity reduction.
- Council policy on this fishery should not wait on state efforts but should be coordinated with such efforts.
- Focus should be on consideration of permits for the directed open access vessels. Consideration of an incidental permit should be revisited after development of the historic analysis.
- Allocation is a critical step in development of license limitation for the open access fisheries.

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON FURTHER REFINEMENT OF AMENDMENT 16 - REBUILDING PLANS

The Groundfish Advisory Subpanel (GAP) reviewed the options being considered for Amendment 16 to the Groundfish fishery management plan (FMP) and makes the following recommendations. Our comments are made in reference to Exhibit G.10, Attachment 1.

In regard to Issue 1, Form and Required Elements; the GAP recommends adopting Option 1C. This option provides the Council with the greatest amount of flexibility in dealing with potential changes to rebuilding plans and schedules. The GAP notes that some species designated as "overfished", such as Pacific whiting, have the potential to reach rebuilding targets more quickly than anticipated. Further, additional data during a rebuilding period may require more or less severe rebuilding measures than might be called for in the initial rebuilding plan. Using a regulatory rather than an amendment approach will give the Council greater ability to deal with these unforseen fluctuations in abundance.

In regard to Issue 2, Periodic Review; the GAP recommends adopting Option 2A. The GAP believes the law is clear in requiring a two-year review. As more data becomes available with the increase in stock surveys, it is imperative that a full review be conducted at the legally required intervals in order to ensure that rebuilding targets are being met and to take account of changes in stock abundance. Again, this approach, while cumbersome, will actually provide greater flexibility to the Council n dealing with species designated as "overfished".

In regard to Issue 3, Amending Plans and Adequacy of Progress; the GAP recommends adopting a combination of Options 3D and 3E. Again, flexibility in dealing with stocks that fluctuate and with varying data quality is the key. Adequacy standards can best be set for individual stocks rather than using a "one size fits all" approach. Further, this will allow changes in plans as rebuilding parameters change. The GAP is concerned, however, the term "significant change" in Option 3D is undefined. Significance, like beauty, can be in the eye of the beholder. The term would benefit from a definition.

In regard to Issue 4, Endangered Species Act (ESA) Listed Species; the GAP recommends adoption of Option 4A. In other fisheries outside the jurisdiction of the Pacific Council, the courts have given precedence to ESA listed species, regardless of Magnuson-Stevens Act provisions. The GAP believes this option will be sufficient to protect ESA listed species and that no special efforts need to be made within the context of the groundfish FMP.

PFMC
10/30/02

GROUNDFISH MANAGEMENT TEAM STATEMENT
ON FURTHER REFINEMENT OF AMENDMENT 16 - REBUILDING PLANS

Dr. Dahl and Mr. Seger briefed the Groundfish Management Team (GMT) on the process and standards for incorporating rebuilding plans into the Pacific Groundfish Fishery Management Plan (FMP) or into regulations. The GMT identified Issue 1, the form and required elements of rebuilding plans, as the most substantive issue under consideration. Consistent with its advice at the June Council meeting, the Team recommends rebuilding plan specifications that are incorporated in FMPs or regulations remain as flexible as possible. Rebuilding specifications, such as T_{MIN} (the minimum time to rebuild), T_{MAX} (the maximum allowable time to rebuild), P_{MAX} (the probability to rebuild within the maximum allowable time), B_0 (estimated unfished biomass), the minimum stock size threshold for declaring a stock overfished (typically 25% of B_0), and the rebuilding target B_{MSY} (typically 40% of B_0) all change every time a stock is assessed. The specified rebuilding parameter of T_{TARGET} (the specified rebuilding period) or P_{MAX} are considered the most logical choices for fixed rebuilding parameters. However, the GMT does not advise specifying both parameters since rebuilding plans would have to be amended with every stock assessment. The Team notes that the Magnuson-Stevens Act (MSA) requires a specified duration for rebuilding overfished stocks leaving T_{TARGET} as the logical choice for a fixed specification. All other rebuilding parameters should be frameworked in the FMP as algorithms derived consistently with the SSC Terms of Reference for groundfish rebuilding analyses. The Team recommends that T_{TARGET} be specified in regulatory amendments (Option 1c). Specifically, the FMP should have flexible formulaic rebuilding parameters with specific parameters incorporated into regulations.

Under Issue 2, the process for periodically reviewing rebuilding plans, the GMT recommends Option 2b.

Consistent with the Team's recommendation for Issue 1, options under Issue 3, defining events or standards that would trigger revision of a rebuilding plan, should have alternatives that specify T_{TARGET} given the MSA mandate to specify a rebuilding duration. T_{TARGET} can direct a rebuilding strategy. The Team recommends Option 3e where the SSC and GMT decide what changes in rebuilding parameters are significant for amending the FMP.

Additionally, rebuilding plans need to include a statement explaining the rationale for determining that the species is overfished (e.g., calculation using 25% of B_0 vs. ½ B_{MSY}, etc.), but specification of value of B_0 should not be hardwired into the rebuilding plan.

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON FURTHER REFINEMENT OF AMENDMENT 16 - REBUILDING PLANS

Mr. Jim Seger updated the Scientific and Statistical Committee (SSC) on the current status of Amendment 16 options for the groundfish fishery management plan (FMP) to ensure that rebuilding plans for overfished stocks comply with the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

The SSC identified Issues 1, 2, and 3 from Sec. 2.1 of Attachment 1 of Exhibit G.10 to be the most relevant to its discussion:

Issue 1: The form and required elements of rebuilding plans.

Issue 2: The process for periodically reviewing rebuilding plans.

Issue 3: Defining events or standards that would trigger revision of a rebuilding plan.

Under Issue 1, Option 1b would require that specified elements of rebuilding plans be incorporated into the FMP by amendment, including numerical values for the rebuilding parameters: T_{MIN}, T_{MAX}, T_{TARGET}, and P_{MAX}.

As indicated in the Supplemental SSC Reports on items C.5.b from June 2002, and C.7.b from September 2002, the SSC recommends a more "flexible" approach be taken with respect to the specified elements of rebuilding plans than what currently appears in Option 1b.

Because the rebuilding analyses are complex, a natural tendency may be to specify numerical values for the rebuilding parameters in the FMP. This "fixed" approach could create a false sense of precision, and substantial administrative costs will likely be incurred as many rebuilding parameter values are updated during the normal flow of scientific information into the management process. For example, consider the recent situation with bocaccio. Results from the most recent Bocaccio Rebuilding Analysis indicate that under the SSC's Guidelines for Rebuilding Overfished Stocks, bocaccio fails to rebuild by T_{MAX} with 50% probability, even with zero fishing mortality. This unusual result stems from an update of the original bocaccio rebuilding analysis, and is explained by two unfavorable events that occurred since the original work, (1) The 1999 year-class is not considered to be as strong as previously believed, and (2) landings over the last three years were much greater than the Optimum Yield (OY) in each of those years. As new information about the strength of the 1999 year-class became available from the latest bocaccio stock assessment, the numerical values of rebuilding parameters were updated, leading to the result that bocaccio will not rebuild by T_{MAX} with 50% probability.

Therefore, the SSC recommends that only one of the rebuilding parameters should be numerically specified. After careful discussion, the SSC concluded that P_{MAX} is the most logical candidate for numerical specification by fishery managers. The specified value of P_{MAX} is constrained to be at least 50%, though a more conservative choice may be preferable. All other rebuilding parameters, including T_{MIN} and T_{MAX}, can be derived using scientific information from stock assessments, formulas, or algorithms from the SSC Terms of Reference for Groundfish Rebuilding Analyses (e.g. Exhibit F.7, April 2001).

The SSC recommends Option 1b be revised to read: "For each overfished species, the FMP would be amended to specify a numerical value for P_{MAX}, the probability of rebuilding within T_{MAX}. All other rebuilding parameters would be described by an algorithm or formula in the FMP."

The SSC also discussed options under Issue 2 for periodically reviewing rebuilding plans. The SSC

suggests that timing of reviews be closely aligned with stock assessments for the overfished stocks and recommends Option 2b.

Issue 3 for evaluating rebuilding progress would be resolved by the flexible specification in the revision of Option 1b. In a routine situation, such as canary rockfish in the 2003 fishery, OY would be adjusted to ensure rebuilding of the stock according to the specified P_{MAX}. Otherwise, like the situation with bocaccio this year, progress would be inadequate, and the rebuilding plan would be amended.

PFMC
10/31/02

2.0 PROCESS AND STANDARDS ALTERNATIVES

Section 2 presents alternative formats and procedures for developing rebuilding plans and implementing measures to rebuild overfished stocks. The following section presents five sets of options, organized around relevant issues. This allows the Council to structure a preferred alternative by combining options identified for each of the five issue categories.

This amendment also makes minor technical additions, corrections, and changes to the FMP. These changes are categorically excluded from analysis as described in Section 6.03.a.3(b)(2) of NAO 216-6. These changes are summarized in Section 2.2 and documented in the amendatory language found in Appendix A, along with those substantive changes to the FMP approved under the authority of the Magnuson-Stevens Act.

2.1 Issues and Options

Four issues related to the development and adoption of rebuilding plans are considered in this section of Part A:

Issue 1:	The form and required elements of rebuilding plans
Issue 2:	The process for periodically reviewing rebuilding plans.
Issue 3:	Defining events or standards that would trigger revision of a rebuilding plan.
Issue 4:	The status of rebuilding measures for species subsequently listed under the Endangered Species Act.

A set of options have been developed for each of the issues identified above and are presented here in Section 2.1.

2.1.1 Issue 1- The Form and Required Elements of Rebuilding Plans

The MSA requires that Councils or the Secretary take action to end overfishing and rebuild any stock that is overfished or approaching an overfished condition. The standard convention for actions taken to rebuild a stock has been termed the "rebuilding plan." Options under this issue encompass the MSA mandate that rebuilding requirements take the form of an FMP amendment or regulation and the status quo where the rebuilding period was specified solely in policy documents.

Issue 1 of Part A to Amendment 16 covers the content that the Council will require and/or consider for inclusion in rebuilding plans. A central part of this issue is the question of what rebuilding parameters and other rebuilding plan elements will be set as part of an FMP or regulation and what related parameters and elements will be specified or explained in supporting policy documents. From the MSA and the NMFS 600 guidelines on the national standards it appears that the only specifically identified element of a rebuilding plan that must be set in the FMP or regulation is the rebuilding time (MSA 304(e)(4)(A)).[1/] However, when a stock has been overfished, FMP amendments or regulations must be established which

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1/ While only the target rebuilding time must be part of an FMP or regulatory amendment, there are two constraints placed on Council actions to rebuild overfished species. First, remedial actions must fairly and equitably allocate restrictions and recovery benefits among sectors (MSA 304(e)(4)(B)). This appears to be a more specific application of National Standard 6 and not a new requirement to which councils or the Secretary must respond. Second, for fisheries governed under international agreements, the rebuilding action should reflect traditional participation by fishermen of the US relative to those of other countries (MSA 304(e)(4)(C)). None of the West Coast groundfish species are currently governed under international agreements. The groundfish species most likely to be the subject of a future international agreement is Pacific whiting. Halibut and salmon fisheries do come under international agreements and could be affected by the need to substantially restrict groundfish mortality.

"end overfishing and to rebuild affected stocks" (MSA Section 304(e)(3)(b)).[2/] Under the current FMP, actions required to "end overfishing and rebuild the affected stock" are generated as regulations under the annual management process, derived from the rules for specifying and managing for the OY. As specified in the National Standard Guidelines (600.310 (f)(1)), "in the case of an overfished fishery, [OY is constrained to an amount of harvest mortality] that provides for rebuilding to a level consistent with producing MSY in such fishery." The FMP also specifies that OYs will be constrained by rebuilding needs and fishery management regulations established to meet OY. These actions therefore appear to meet the standards of Section 304(e)(3) for rebuilding actions that actions be in FMPs or regulations. However, under Amendment 12 to the Groundfish FMP, the Council set its rebuilding time targets during the annual specification process and did not include these time targets in the FMP or regulations. Thus the Council omitted from its FMP and regulations the single specifically-identified element that is required to be part of a rebuilding action. In addition, NMFS has published ancillary guidance describing a number of other parameters not identified in the MSA that should be included in rebuilding plans.[3/]

The following tables illustrates the range of possible elements that could be incorporated into an FMP by identifying (1) the parameters that describe the projected growth of the overfished stock towards its rebuilt state (see Section 1.3.2) and (2) other elements of rebuilding plans mentioned in the FMP, MSA, and/or identified through scoping. The way in which those elements would be incorporated into the FMP or regulations is another crucial consideration that is reflected in these options. A "flexible" approach would limit the number of numerically specified (as a quantity for example) parameters; instead, parameters are defined by a formula or algorithm relating the parameter to some other measure. In contrast, a "fixed" approach would specify the value of these parameters. By the same token, other elements of the rebuilding plan could be described generally or specifically. These parameters and elements are listed below with an indication of how they might be described under a flexible strategy versus a fixed strategy. Most of the parameters are defined and described in Section 1.3.2.

Parameters that describe the projected growth of the overfished stock towards its rebuilt state.		
Parameters	**Example of a Fixed Specification**	**Example of a Flexible Specification**
B_0	e.g., 1,000 mt	e.g., The product of SPR in an unfished state and the average recruitment during the early years of the fishery
B_{MSY}	e.g., 500 mt	e.g., one-half B_0
T_{TARGET}	50 years (or 2049)	$(T_{max}-T_{min})/2+T_{min}$
T_{MIN}	e.g., 41 years (or 2040)	e.g., The time the stock would be rebuilt in the absence of fishing with at least a 50% probability.

2/ CFR 50 Section 600.310 (e)(4)(ii) states that "in cases where overfishing is occurring Council action must be sufficient to end overfishing."

3/ This document, interpreting National Standard 1 Guidelines, notes that "The MSFCMA requires the Secretary of commerce to *'establish advisory guidelines (which shall not have the force and effect of law), based on the national standards, to assist in the development of fishery management plans.'*" (Restrepo, et al. 1998, emphasis in original.)

Parameters	Example of a Fixed Specification	Example of a Flexible Specification
T_{MAX}	e.g., 58 years (or 2057)	e.g., The time needed to rebuild the stock with at least a 50% probability.
Mean Generation Time	e.g., 17 years	e.g., include explicit formula
P_{MAX} (The estimated probability of reaching T_{max}, may not be less than 50%.)	e.g., 52%	must remain >50%
P_{TARGET} (The estimated probability of reaching B_{MSY} on or before T_{TARGET})	e.g., 80%	e.g., must remain >50%
Rebuilding Harvest Strategy (The harvest control rule that will be followed to rebuild a stock in T_{TARGET} years with P_{TARGET} probability. A harvest control rule associates a given stock size (or stock size proxy) with a given level of fishing mortality and a given level of potential harvest.)	e.g., E = 0.27	e.g., A constant harvest rate sufficient to rebuild by T_{TARGET} with probability P_{TARGET}

Other elements of rebuilding plans mentioned in the FMP, MSA, and/or identified through scoping.		
Element	**Example of a Fixed Specification**	**Example of a Flexible Specification**
Allocation (msa §304(E)(4)(b)	e.g., "A specified percentage of the OY will be allocated to limited entry trawl"	e.g., "Limited entry trawl fisheries will be given preference for available OY"
Bycatch	e.g., "Finfish excluders must be used by the shrimp trawl fleet"	e.g., "Bycatch will be minimized through future gear modifications"
Habitat	e.g., A specified portion of EFH for an overfished species is closed to fishing	e.g., "Measures to minimize impacts to overfished species' habitat will be evaluated"
Marine Protected Areas	e.g., A marine reserve will be created in an identified area	e.g., "Marine reserves will be evaluated as part of a species' rebuilding strategy"

Based on these considerations, the following options for the form and content of rebuilding plans have been identified by the Council:

Option 1a **There is no framework for specifying the form of rebuilding plans (status quo).** The FMP as amended by Amendment 12 directs the Council to prepare and adopt rebuilding plans as policy guidance documents as described in FMP Section 5.3.6 (Stock Rebuilding Requirements). However, the Court remanded Amendment 12 (see Section 1.3.2 of this document) without proposing specific changes to FMP language. For the purposes of describing the status quo, the remand can be interpreted to mean that all references in the FMP to rebuilding plans as policy documents submitted as part of the annual management process are struck out. Therefore, although the FMP describes the contents of rebuilding plans, it does not describe their form and there is no framework for rebuilding plan adoption. Currently management measures described in section 6.2 of the FMP—including automatic actions, notices, abbreviated rulemaking actions, and full rulemaking actions—are used to implement interim rebuilding plans.

Option 1b **Require that specified elements of rebuilding plans are incorporated into the FMP by amendment.** For each overfished species, the FMP would be amended to specify the rebuilding period as numerical values for the following parameters: (1) T_{MIN} (2) T_{MAX}, (3) T_{TARGET} (4) P_{MAX} (the probability of rebuilding within T_{MAX}) and the rebuilding trajectory and/or the target control rule designed to achieve rebuilding by T_{TARGET} (specified as a date), (5) the rebuilding harvest control rule that will set annual harvest rates for species in question and which will be applied to the current stock assessment. The FMP would also include an estimate of B_{MSY} for each overfished species, described as either a numerical value, formula or algorithm. The FMP could be amended to include other elements currently described in Section 5.3.6.2 of the FMP (as identified in the preceding table).

Option 1c **Specified elements of rebuilding plans are incorporated into regulations at 50 CFR 660.** For each overfished species, regulations would be amended to incorporate the same set of elements as described under Option 1b.

(Tables 2-1a and 2-1b provide more detailed information about these options.) As noted above, rebuilding measures are actually implemented through the annual process of specifying management measures, as described in Section 6.2.1 of the FMP. These options identify different ways that substantiative elements could be incorporated into the FMP, regulations, or both in order to obligate the Council and NMFS to manage towards identified targets and use certain measures.

What rebuilding measures and rebuilding plan parameters and elements are incorporated into the FMP or regulations, and they way in which they are incorporated (fixed or flexible), will mainly affect administrative workload; if more material is incorporated it will be correspondingly more difficult to make changes based on new information about the stock. (Issues 2 and 3 deal with the review and update of rebuilding measures.) FMP and regulatory amendments must be accompanied by substantial documentation, as required by the MSA, NEPA and other applicable law. These requirements apply to the initial amendment process and would also likely be required if parameters or elements need to be changed, based on new stock assessments, for example. Conversely, rebuilding elements that remain solely policy prescriptions to guide future Council decision making (during the annual specification of management measures, for example) could be updated by the Council with advance notice to the public and an opportunity for public comment, and as long as these changes are supported by the best available science and sufficiently documented. Although the management process may not change very much if rebuilding plan elements become part of the FMP or regulations (since the Council already adheres to interim rebuilding plans when developing annual management measures), public perceptions about the process could be influenced. If more elements are specified in the FMP or regulations, members of the public that are

skeptical that the Council will adhere to policies intended to rebuild stocks may be reassured. In addition, any changes to the rebuilding strategy, reflected in rebuilding plan elements, would be accompanied by a more extensive process with greater opportunity for public comment.

The administrative cost associated with a more involved process to incorporate rebuilding plan elements and subsequently update them can be measured as the direct value of the time and various expenses associated with the management process. Where administrative resources are limited, the costs can also be evaluated in terms of the lost opportunity for addressing other policy problems in the fishery. For example, the time and resources needed to amend a rebuilding plan may detract from managers' ability to improve capacity controls in the fishery. In this example the opportunity costs of the administrative action may be viewed as the difference in net benefits between the status quo capacity controls and the improved capacity controls that are delayed because of the need to modify a rebuilding plan.

2.1.3 Issue 2- The Process For Periodically Reviewing Rebuilding Plans

Although the MSA requires that the Secretary review rebuilding plans at least every two years (§304(e)(7)), an equivalent obligation is not assigned to the councils. Nonetheless, periodic Council review is advisable because changing environmental conditions and unanticipated events make it unlikely that overfished stocks will rebuild precisely to the trajectory that is forecast at the outset of the rebuilding period. Reviews allow the Council to decide if rebuilding measures need to be modified, which would likely entail an FMP or regulatory amendment, or both, depending on the options chosen above. Issue 4 is closely related to the periodic review process because options for the standards triggering a revision are outlined.

Option 2a **The Council reviews rebuilding plans at least every two years (status quo).** Periodic review is required (with a two-year maximum interval). The Council may propose revisions to existing plans at any time in accordance with the amendment process appropriate for the form of the plan (see Issue 1). Rebuilding plans are reviewed with respect goals 1-5 defined in Section 5.3.6.1 of the current FMP. These goals are: (1) achieve the population size and structure that will support the maximum sustainable yield within the specified time period; (2) minimize, to the extent practicable, the social and economic impacts associated with rebuilding, including adverse impacts on fishing communities; (3) fairly and equitably distribute both the conservation burdens (overfishing restrictions) and recovery benefits among commercial, recreational and charter fishing sectors; (4) protect the quantity and quality of habitat necessary to support the stock at healthy levels in the future; and (5) promote widespread public awareness, understanding and support for the rebuilding program.

Option 2b **The Council reviews rebuilding plan goals 2-5 every two years, but goal 1 only with new stock assessments.** As with option 2a, rebuilding plans are reviewed at least every two years to determine the success of the management measures in meeting rebuilding plan goals 2-5 defined in Section 5.3.6.1 of the FMP. New stock assessment data will be used to determine the success of the management measures in meeting the rebuilding plan goal 1. The Council may propose revisions to existing plans at any time, although in general this will be occur only during the annual management process. Any revisions to the rebuilding plan must also be approved by NMFS.

Option 2c **The Council reviews rebuilding plan goals 2-5 every two years; goal 1 is reviewed after stock assessments conducted according to a schedule described in the rebuilding plan.** This is the same as Option 2b except that a schedule for stock assessments is specified in the rebuilding plan and driven by the stock dynamics. For example, more frequent reviews and assessments would be conducted for more

productive stocks. The schedule is also structured so that stock assessments and rebuilding plan reviews occur more often as T_{TARGET} draws closer.

Option 2d **The Council reviews rebuilding plan goals 2-5 every two years; goal 1 is reviewed after stock assessments conducted according to a pre-specified schedule described in the FMP.** This is the same as the preceding option except that the FMP would specify the following assessment schedule for all overfished stocks: every 4 years when T_{max} is 20 years or more away and then every 2 years until the stock is rebuilt.

Option 2e **The Council will defer review to the Secretary.** The Council may propose revisions to existing plans at any time but these must be approved by NMFS. Each year the Council will compare actual harvest mortality to the harvest mortality goals identified in the rebuilding plan. They will also evaluate progress in rebuilding the stock biomass to the MSY level after each new stock assessment. This would be described in annual SAFE documents and the ongoing social and economic impacts of harvest policies necessary to rebuild overfished species would be evaluated in aggregate as part of annual specification of harvest regulations, which is supported by a NEPA analysis. The SAFE document should assist the Secretary in conducting MSA-mandated two-year reviews (§304(e)(7)). A draft of any Secretarial review will be provided to the Council so that they can make comments before it is finalized.

For options 2b, 2c, 2d, and 2e the Council's annual SAFE document will provide (1) the most recent information available on the best estimate of total fishing mortality for comparison to target fishing mortality levels described in the rebuilding plan; (2) the most recent assessment of stock size compared to the expected stock size for the rebuilding trajectory; (3) information on allocation and the social and economic status of the fishery. As noted, this information, and the record of Council actions to protect habitat and promote public awareness of rebuilding programs, would also support the MSA-mandated Secretarial review.

New assessments can result in better estimates of biological parameters or fisheries descriptors. Once incorporated into a new rebuilding analysis, this can result in a dramatic change in rebuilding parameters such as the estimated probability that a stock can rebuild in the time specified, in comparison to previous analyses. For example, as a result of the most recent canary rockfish assessment (Methot and Piner 2002) scientists concluded that the stock was less productive (in terms of expected recruitment) than previously thought because of a new estimate of the steepness of the spawner-recruit curve. This in turn increased the estimated value for T_{MIN}, and thus other rebuilding parameters. In addition, a new estimate of selectivity (the size or age classes typically removed by fishing) for a given fishery or the removals allocated to different fisheries with different selectivity patterns can change the estimated rebuilding time even though total catch remains the same. Again citing the most recent canary rockfish assessment, if the estimated proportion of total catch taken by recreational fisheries increases, the target rebuilding year will be delayed because of the generally smaller size (corresponding to younger fish) that recreational fishers take in comparison to commercial fisheries.

The choice between these options will mainly affect administrative burden, and to a certain degree, the distribution of that burden among agencies. Under Options 2a through 2d the Council would formally review rebuilding measures at least every two years; these reviews would provide much of the information needed by the Secretary for his MSA-mandated biennial review. Although the Council would not conduct a formal review under Option 2e, the analyses and information resulting from annual specification process would allow the Council and the Secretary to evaluate rebuilding progress and performance. More frequent review would increase administrative burden; and if such reviews required more extensive revision of the FMP or regulations (depending on the options chosen under Issue 1) this too would result in a heavier workload.

2.1.4 Issue 3- Amending Rebuilding Plans and Adequacy of Progress

Issue 2 contemplates periodic reevaluation of rebuilding measures. It is expected the rebuilding plans would be revised (and necessary FMP or regulatory amendments made) when these periodic reviews reveal a significant discrepancy between current stock status (most likely expressed as the probability of achieving rebuilding within the target time period) and that projected in the original rebuilding plan or in earlier reviews. In most cases the harvest strategy can be adjusted during the annual specification process (or at any other time if necessary) so that rebuilding targets can be met, although this could also require an FMP or regulatory amendment (based on the option chosen under Issue 1). However, there may be times when new information results in a change to some other crucial parameter (B_0 for example), affecting a whole range of other parameters. In these cases the rebuilding plan would be revised, and the FMP and/or regulations amended to change those elements incorporated therein. The options outlined below detail various standards that could be used to decide if such revisions and emendations are necessary.

Option 3a **No standards to evaluate rebuilding progress (status quo).** Currently, the FMP does not describe a standard to evaluate the adequacy of rebuilding measures and determine if rebuilding parameters or management measures need to be changed.

Option 3b **A standard based on a minimum P_{MAX} value.** If the probability of achieving T_{MAX} falls below 50% (the required minimum value), then progress will be considered inadequate and harvest strategy (constant harvest level or exploitation rate) must be adjusted to increase the probability of rebuilding within the maximum time to at least 50%. Other needed changes to rebuilding measures would also be considered. Depending on what options are chosen under Issues 1 and 2, FMP and/or regulatory amendments may be required.

Option 3c **A standard based on the specified P_{MAX} value.** This option is identical to option 3b except that the probability of achieving T_{MAX} established in the rebuilding plan (as modified during previous reviews) is used as the standard. If the measured value is below this value then the procedures identified under option 3b would be implemented.

Option 3d **Rebuilding plans will be revised whenever new information from stock assessments or rebuilding analyses reveals a significant change in rebuilding parameters.** The Council, in consultation with the SSC and GMT, will determine on a case-by-case basis whether there has been a "significant" change in a parameter.

Option 3e **A specific standard for determining when progress has been adequate is established for each plan.** No generic standard is identified in the FMP for all overfished species. Instead, the FMP would require that each rebuilding plan identify such a standard from a list of possibilities based on the options outlined above.

These options encompass a range of standards that could be used to evaluate progress in rebuilding overfished stocks.

Options 3b and 3c bracket a range of other possible policies; for example, a required rebuilding plan revision could be triggered by some other probability value, such as one halfway between the specified value (P_{MAX}) and the minimum value (50%). Generally, a standard that allows the probability to deviate significantly from the specified value risks triggering a sudden, substantial change in the harvest policy with attendant disruptive effects on fisheries. For example, if a specified P_{MAX} of 80% declines over several years to a value below 50%, the required harvest policy change at that point would result in a sudden large reduction in that year's OY, with attendant effects on the fishery. On the other hand, this

strategy, by giving relatively wide latitude for changes in P_{MAX}, would lessen the frequency of required revisions to the rebuilding plan (and attendant FMP and regulatory amendments), reducing administrative burden.

Options 3d and 3e would allow relatively more flexibility by giving the Council some control over when and whether to revise rebuilding plans. Option 3e emphasizes a procedural approach that relies on judgements made as part of the Council process. Like the choice of other more flexible components of a rebuilding process and standards framework, there is some risk that the public will not trust these judgements. Option 3e maintains flexibility by allowing standards to better match the characteristics of a particular overfished stock.

Generally, the choices reflected in these options represent tradeoffs between the rebuilding objectives, the social and economic needs of fishing communities, and benefits of the fishery to the nation. In developing rebuilding plans the Council chooses a harvest policy (harvest control rule) that accords with a given rebuilding time and probability. A determination that the rebuilding plan can be allowed to fall behind schedule so long as the probability of rebuilding in T_{MAX} is more than 50%, implies that administrative opportunity costs are sufficiently high and the short-term benefits to the community are likely to be sufficiently important that harvest levels specified in the control rule should be maintained as long as the minimum rebuilding standard is being met. (But as noted above, this approach could result in sudden large and disruptive changes in harvest policy.) In contrast, selection of a more rigid standard would entail frequent rebuilding plan revisions and FMP or regulatory amendments, implying that the administrative opportunity costs of frequent revision and amendment are low enough and potential lost opportunity from not re-evaluating the rebuilding program (in terms of future returns to the fishery for example) are so high that rebuilding measures should be re-evaluated whenever stock increases fall behind schedule.

2.1.5 Issue 4- ESA Listed Species

Option 4a **No special provisions (status quo).** There are no special provisions for rebuilding plans for species listed under the Endangered Species Act.

Option 4b **ESA jeopardy standards or recovery plans take precedence if they establish a higher standard.** A jeopardy standard or recovery plan for an overfished stock listed under the ESA will supercede the rebuilding plan only if that standard is more restrictive than what would be required for that species under the MSA. If the species were de-listed, but still not considered recovered under the MSA and the original rebuilding plan, then that plan would again determine harvest policy and other management measures until the stock is fully rebuilt. After de-listing, an the rebuilding plan may need to be revised to take into account the changed status of and new information about the overfished stock.

[The Council may wish to consider another option more closely modeled after provisions in the Salmon FMP. As part of Amendment 16 the FMP would be amended so that any rebuilding plan requirements, or other Council management objectives, would be superceded by jeopardy standards pursuant to a Biological Opinion for a listed species. Any such biological opinion would presumably take into account existing rebuilding measures in formulating jeopardy standards or recovery plan measures.]

Under Option 4a (status quo), if a groundfish stock is listed, the Council might have to develop another plan amendment to address the listing and jeopardy standard or recovery plan. Before such an amendment was approved there could also be some uncertainty about how these species should be managed in the event of a listing. Option 4b anticipates the possibility that a groundfish species could be listed under the ESA and establishes a contingency for dealing with such an event. This option is similar to a provision in the Salmon FMP under which escapement goals for a particular stock are automatically

replaced by the jeopardy standard or recovery plan when a stock is listed, except that measures under the MSA would take precedence if they establish a higher standard than the ESA. Option 4b would reduce future administrative costs by obviating the aforementioned plan amendment and by clarifying procedures and processes in the event of a listing. This would facilitate quicker reaction by the Council to any requirements of any such jeopardy standard or recovery plan.

2.2 Summary of Minor Technical Additions, Corrections and Changes to the FMP

As noted at the beginning of this chapter, various changes will be made to the FMP as part of this amendment that are not substantiative in the sense of affecting fishery management policies, procedures or measures. They are therefore categorically excluded from analysis based on the criteria established in Section 6.03.a.3(b)(2) of NAO 216-6, and 40 CFR 1500.4(p), 1508.4 and other sections of CEQ regulations. These changes are summarized here.

The species list in section 3.1. of the FMP, Species Managed by this Fishery Management Plan, is not consistent with the groundfish species list in the annual specification and management measures (FR 67 10490; March 7, 2002) or the list at 50 CFR 660.302. The proposed measure would correct all misspellings and would specifically identify the following rockfish: chameleon (*Sebastes phillipsi*), dwarf-red (*Sebastes rufianus*), freckled rockfish (*Sebastes lentiginosus*), halfbanded (*Sebastes semicinctus*), pinkrose (*Sebastes simulator*), pygmy (*Sebastes wilsoni*), swordspine (*Sebastes ensifer*), widow (*Sebastes entomelas*), yelloweye (*Sebastes ruberrimus*) yellowmouth (*Sebastes reedi*), and yellowtail (*Sebastes flavidus*).

The terms "maximum fishing mortality threshold" (MFMT) and "minimum stock size threshold" (MSST) are used in the National Standard Guidelines and are intended for use as benchmarks to decide if a stock or stock complex is being overfished or is in an overfished state. The terms used to describe these same thresholds in the FMP are different from those used in the National Standard Guidelines (i.e., MFMT is the same as the F_{MSY} control rule described in the FMP and MSST is the same as the overfished/rebuilding threshold described in the FMP.) To address consistency in terminology, the equivalent terms should be defined in Sections 4.1and 4.4 of the FMP.

The National Standard Guidelines suggest that the annual SAFE document contain a description of each stock or stock complex (50 CFR 600.315 (e)(3)). Because the MFMT and MSST are important benchmarks used to determine if overfishing has occurred or if a stock or stock complex is in an overfished state, Section 5.2 of the FMP, should call for the MFMT and MSST for stocks or stock complexes to be listed in SAFE documents. In addition, the last paragraph of Section 5.2 regarding the SAFE document availability and completion schedule is out of date and does not reflect the SAFE document schedule for 2002 and beyond.

Sections 4.2, 4.3.1, and 4.5.1 of the FMP list, summarize and/or reference the F_{MSY} proxies adopted in 1998. The 1998 values are used throughout these sections as examples in the describing F_{MSY} proxies. In spring 2000, the Council's Scientific and Statistical Committee sponsored a workshop to review the Council's groundfish exploitation rate policy. For 2001 and beyond, the Council adopted the SSC's new recommendations for harvest policies of: F40% for flatfish and whiting, F50% for rockfish (including thornyheads) and F45% for other groundfish such as sablefish and lingcod (66 FR 2338, January 11, 2001). The 1998 F_{MSY} proxy values used as examples in the FMP should be updated to reflect the Council's current policy.

References to an at-sea observer program in Sections 4.3.1.3, 4.4.2, and 4.6 indicate that no observer program exists from which data are available to upgrade stock assessments and evaluate overfishing. This text is outdated and should be updated to reflect the implementation of an at-sea observer program in 2001.

Chapter 4 contains several references to Council use of the mixed stock exception for setting OYs. These references do not comply or reference the current standards for invoking the mixed stock exception. The text needs to be updated to reflect the standards for invoking the mixed stock exception.

Chapter 5 is designated to cover the annual management process but includes numerous references to the development of rebuilding plans, which will not be on an annual cycle. Additionally, discussion of some topics is spread through numerous sections. The topic for Chapter 4 is OYs. Chapter 4 is a one page chapter in which OYs are discussed in general terms. The specific considerations and constraints that go into establishing OYs are specified in Chapter 5. A reorganization of Chapters 4 and 5 is proposed to: (1) place in Chapter 4 all considerations and constraints that go into establishing OYs, including the process and standards for establishing rebuilding plans; (2) place all provisions related to the annual management process in Chapter 5; and (3) reorganize the sections to construct a more concise document. The proposed reorganization is documented in Appendix A.

The Council may either (1) not approve these changes to the FMP, which would maintain the status quo, or (2) approve any or all of these changes:

a) revise the list of species managed under the FMP;
b) address differences in the use of the terms maximum fishing mortality threshold (MFMT) and the minimum stock size threshold (MSST) and the National Standards Guidelines;
c) change SAFE document Section 5.2 to include a description of the MFMT and MSST;
d) update last paragraph of Section 5.2 regarding the SAFE document availability and completion schedule;
e) update Sections 4.2, 4.3.1, and 4.5.1 of the FMP to include the Council adopted the SSC's new recommendations for harvest policies of: F40% for flatfish and whiting, F50% for rockfish (including thornyheads) and F45% for other groundfish such as sablefish and lingcod ;
f) update the references to an at-sea observer program in sections 4.3.1.3 , 4.4.2 and 4.6; and
g) reorganize Chapters 4 and 5 to produce a more concise document.

FURTHER REFINEMENT OF AMENDMENT 16 - REBUILDING PLANS

Situation: There are nine overfished groundfish species on the West Coast, eight of which are being managed under Council interim rebuilding measures. The Council and NMFS must formally adopt rebuilding plans for all nine species; no final rebuilding plans are currently in place.

The Council has been briefed on the intent to incorporate rebuilding plans for overfished groundfish species into the groundfish fishery management plan (FMP) as Amendment 16. The amendment includes the process and standards for developing and implementing rebuilding plans and several individual species' rebuilding plans. Based on guidance provided by the Council at its June 2002 meeting, the process and standards options, from which the Council will choose a preferred alternative, have been revised. Chapter 2 of the draft amendment, which describes these alternatives, is included as Attachment 1.

The revised options cover the following aspects of rebuilding plan adoption and review, (1) the form and required elements of rebuilding plans; (2) periodic review of rebuilding plan measures; (3) standards used to evaluate the progress of stock rebuilding; and (4) the relation between rebuilding measures and "no jeopardy" standards, which could apply if a stock were listed under the Endangered Species Act (ESA). Several issues relate to the Council's choice of a preferred alternative (representing a combination of these options).

First, the Council must determine what specific elements will be incorporated into either the FMP or into regulations. The first issue, as revised, has three options. The two action options identify five numerically-specified parameters which would be incorporated into either the FMP or federal regulations. (The Council could also choose to develop an option that specifies certain elements adopted by regulation and others by FMP amendment.) Second, the Council may decide how often rebuilding plans would be reevaluated, and specific standards for any reevaluation. The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), at §304(e)(7), requires a two-year review schedule under the auspices of the Secretary of Commerce (Secretary). The Council may wish to assume this task on behalf of the Secretary. The 5 options under (2) above present different criteria for determining how frequently different measures in rebuilding plans would be reviewed. The five options under (3) above identify evaluation standards, based on specific parameters related to stock rebuilding. Finally, the Council may choose whether to implement provisions that anticipate ESA-listing of an overfished stock. If a stock were listed, management would be determined to a large degree by requirements of the ESA and management based on the Magnuson-Stevens Act would have to be adjusted to accommodate these requirements. Anticipating this possibility would obviate the need for an amendment to address this issue.

The Council may also wish to provide guidance on the schedule for completion of the process and standards component of Amendment 16 and any rebuilding plans that will be included in the amendment package. (The June draft package included rebuilding plans for four overfished species.) Note that adoption of individual rebuilding plans is contingent on the Council choosing a preferred alternative based on the set of options described in Attachment 1 (or any modification of the options presented). A public review draft of the amendment package can be finished once the Council finalizes a set of process and standards options (whether or not a preferred alternative is chosen). In addition, the (draft) rebuilding plans need modifying to include information not provided in the original rebuilding analyses, many individual rebuilding plan alternatives require further analysis, and the final contents of individual rebuilding plans also depend on the preferred alternative chosen by the Council for the process and standards.

Council Action:

1. Provide direction for final revisions.

References Materials:

1. Process and Standards Alternatives (Chapter 2 of Amendment 16), (Exhibit G.10, Attachment 1).

Agenda Order:

a. Agendum Overview — Kit Dahl
b. Reports and Comments of Advisory Bodies
c. Public Comment
d. **Council Action:** Provide Direction for Final Revisions

Groundfish Fishery Strategic Plan (GFSP) Consistency Analysis

Rebuilding overfished species, as mandated by the Magnuson-Stevens Fishery Conservation and Management Act, was a primary motive for developing and implementing the GFSP. Many sections of the GFSP describe how rebuilding plans factor into short- and long-term Council priorities for conducting groundfish conservation and management. GFSP objectives such as developing sustainable and effective harvest policies (Sec. II.A.2), achieving fleet capacity reduction (Sec. II.A.3.(b)), allocating groundfish resources (Sec. II.A.4), developing an effective Observer Program (Sec. II.A.5), and development of marine reserves as a groundfish management tool (Sec. II.A.6) are grounded by the need to accomplish the goal of rebuilding overfished groundfish stocks.

PFMC
10/16/02

Supplemental Reference Materials

2. Appendix A: Amendments to FMP Language (Exhibit G.10, Supplemental Attachment 2).
3. Exhibit G.10.b, Supplemental GAP Report.
4. Exhibit G.10.b, Supplemental SSC Report.
5. Exhibit G.10.b, Supplemental GMT Report.

Appendix A
Amendments to FMP Language

This appendix documents revisions to the language of the FMP which could result from Council action under each of the four issues presented in Chapter 2 of this document.

GUIDE TO SECTIONS AFFECTED BY ISSUES CONSIDERED IN THE FMP AMENDMENT

	Issue	Affected Sections
Issue 1	Form & Required Elements of Species Rebuilding Plans	4.5.2 4.5.2.2 4.5.2.3
Issue 2	Process for Periodic Review and Rebuilding Plans	4.5.2.1 4.5.2.2 -Option 2c Only 4.5.2.4
Issue 3	Events or Standards that Would Trigger Revision of a Rebuilding Plan	4.5.2.1 4.5.2.2 -Option 3e Only 4.5.2.4
Issue 4	ESA Listed Species	4.5.2.5
	Housekeeping Measures	All Sections of Chapters 4 and 5

The following is the table of contents for the affected sections.

TABLE OF CONTENTS FOR THE AFFECTED SECTIONS OF THE FMP

KEY:
Bold italic underline = new text
Strikeout or Bold Strikeout = old text that may be removed

3.0 AREAS AND STOCKS INVOLVED

* * *

3.1 Species Managed by this Fishery Management Plan

Table 3-1 is the listing of species managed under this FMP.

TABLE 3-1. Common and scientific names of species included in this FMP.

Common Name	Scientific Name
	SHARKS
Leopard shark	*Triakis semifasciata*
Soupfin shark	*Galeorhinus zyopterus*
Spiny dogfish	*Squalus acanthias*
Big skate	*Raja binoculata*
California skate	*R. inornata*
Longnose skate	*R. rhina*
	RATFISH
Ratfish	*Hydrolagus colliei*
	MORIDS
Finescale codling	*Antimora microlepis*
	GRENADIERS
Pacific rattail	*Coryphaenoides acrolepis*
	ROUNDFISH
Lingcod	*Ophiodon elongatus*
Cabezon	*Scorpaenichthys marmoratus*
Kelp greenling	*Hexagrammos decagrammus*
Pacific cod	*Gadus macrocephalus*
Pacific whiting (hake)	*Merluccius productus*
Sablefish	*Anoplopoma fimbria*
	ROCKFISH [a/]
Aurora rockfish	*Sebastes aurora*
Bank rockfish	*S. rufus*
Black rockfish	*S. melanops*
Black and yellow rockfish	*S. chrysomelas*
Blackgill rockfish	*S. melanostomus*
Blue rockfish	*S. mystinus*
Bocaccio	*S. paucispinis*
~~**Bronze spotted**~~ ***Bronzespotted*** rockfish	*S. gilli*
Brown rockfish	*S. auriculatus*
Calico rockfish	*S. dallii*
California scorpionfish	*Scorpaena gutatta*
Canary rockfish	*Sebastes pinniger*
Chameleon rockfish	***S. phillipsi***
Chilipepper	*S. goodei*
China rockfish	*S. nebulosus*
Copper rockfish	*S. caurinus*
Cowcod	*S. levis*
Darkblotched rockfish	*S. crameri*
Dusky rockfish	*S. ciliatus*

TABLE 3-1. Common and scientific names of species included in this FMP.

Common Name	Scientific Name
Dwarf-red rockfish	***S. rufinanus***
Flag rockfish	*S. rubrivinctus*
Freckled rockfish	***S. lentiginosus***
Gopher rockfish	*S. carnatus*
Grass rockfish	*S. rastrelliger*
Greenblotched rockfish	*S. rosenblatti*
Greenspotted rockfish	*S. chlorostictus*
Greenstriped rockfish	*S. elongatus*
Halfbanded rockfish	***S. semicinctus***
Harlequin rockfish	*S. variegatus*
Honeycomb rockfish	*S. umbrosus*
Kelp rockfish	*S. atrovirens*
Longspine thornyhead	*Sebastolobus altivelis*
Mexican rockfish	*Sebastes macdonaldi*
Olive rockfish	*S. serranoides*
Pink rockfish	*S. eos*
Pinkrose rockfish	***S. simulator***
Pygmy rockfish	***S. wilsoni***
Pacific ocean perch	~~***Sebastes***~~ ***S.*** *alutus*
Quillback rockfish	*S. maliger*
Redbanded rockfish	*S. babcocki*
Redstripe rockfish	*S. proriger*
Rosethorn rockfish	*S. helvomaculatus*
Rosy rockfish	*S. rosaceus*
Rougheye rockfish	*S. aleutianus*
Sharpchin rockfish	*S. zacentrus*
Shortbelly rockfish	*S. jordani*
Shortraker rockfish	*S. borealis*
Shortspine thornyhead	*Sebastolobus alascanus*
Silvergray rockfish	*Sebastes brevispinis*
Speckled rockfish	*S. ovalis*
Splitnose rockfish	*S. diploproa*
Squarespot rockfish	*S. hopkinsi*
Starry rockfish	*S. constellatus*
Stripetail rockfish	*S. saxicola*
Swordspine rockfish	***S. ensifer***
Tiger rockfish	*S. nigrocinctus*
Treefish	*S. serriceps*
Vermilion rockfish	*S. miniatus*
Widow rockfish	***S. entomelas***
Yelloweye rockfish	***S. ruberrimus***
Yellowmouth rockfish	***S. reedi***
Yellowtail rockfish	***S. flavidus***
	FLATFISH
Arrowtooth flounder (turbot)	*Atheresthes stomias*
Butter sole	*Isopsetta isolepis*
Curlfin sole	*Pleuronichthys decurrens*
Dover sole	*Microstomus pacificus*
English sole	*Parophrys vetulus*
	FLATFISH (continued)
Flathead sole	*Hippoglossoides elassodon*
Pacific sanddab	*Citharichthys sordidus*
Petrale sole	*Eopsetta jordani*
Rex sole	*Glyptocephalus zachirus*
Rock sole	*Lepidopsetta bilineata*
Sand sole	*Psettichthys melanostictus*
Starry flounder	*Platichthys stellatus*

TABLE 3-1. Common and scientific names of species included in this FMP.

Common Name	Scientific Name

a/ The category "rockfish includes all genera and species of the family ~~Scopaenidae~~ ***Scorpaenidae***, even if not listed, that occur in the Washington, Oregon, and California area. The ~~Scopaenidae~~ ***Scorpaenidae*** genera are *Sebastes*, ~~*Scorpana*~~ ***Scorpaena***, *Sebastolobus, and* ~~*Scorp*~~ ***Scorpaenodes***.

* * *

4.0 ***PREVENTING OVERFISHING AND ACHIEVING*** OPTIMUM YIELD

National Standard 1 requires that "Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the OY from each fishery for the U.S. fishing industry." (50 CFR Section 600.310(a))

"The determination of OY is a decisional mecahnism for resolving the MSA's multiple purposes and policies, implementing an FMP's objectives and balancing the various interests that comprise the national welfare. OY is based on MSY, or on MSY as it may be reduced . . . [in consideration of social, economic or ecological factors] . . .The most important limitation on the specification of OY is that the choice of OY and the conservation and management measures proposed to achieve it must prevent overfishing." (50 CFR Section 600.310(b))

This chapter addresses the essential considerations suggested for National Standard 1, as identified in the NMFS guidelines on the standard (600.310):

- ***estimating MSY, estimated the MSY biomass and setting the MSY control rule (50 CFR Section 600.310(c)) [Section 4.2 of this Chapter]***
- ***specifying stock status determination criteria (maximum fishing mortality threshold and minimum stock size threshold, or reasonable proxies thereof) (50 CFR Section 600.310(d)) [Section 4.4 of this Chapter]***
- ***actions for ending overfishing and rebuilding overfished stocks (including the development and adoption of rebuilding plans) (50 CFR Section 600.310(e)) [Section 4.5 of this Chapter]***
- ***setting OY and apportionment of harvest levels (50 CFR Section 600.310(f)) [Section 4.6 of this Chapter]***

In establishing OYs for West Coast groundfish, this FMP utilizes the interim step of calculating ABCs for major stocks or management units (groups of species). ABC is the MSY harvest level associated with the current stock abundance. Over the long term, if ABCs are fully harvested, the average of the ABCs would be MSY.

OY is set and apportioned under the procedures outlined in Chapter 5.

4.1 Species Categories (Previously portions of 5.3, as indicated)

~~ABC,~~ B_{msy}, ***ABC*** and overfished/rebuilding stock size threshold cannot be precisely defined for all species, because of the absence of available information for many species managed under the FMP. [PRECEDING SENTENCE FROM SECTION 5.3, PARA 2, 1ST SENTENCE]. ***For the purpose of setting MSY, ABC, MFMT, MSST, OY and rebuilding standards,*** ~~T~~three categories of species are identified. [FOLLOWING WAS PREVIOUSLY SECTION 5.3, PARA 3] The first are the ***relatively*** few species for which a quantitative stock assessment can be conducted on the basis of catch-at-age or other data. ABCs and overfished/rebuilding thresholds can generally be calculated for these species. The second category includes a large number of species for which some biological indicators are available, but a quantitative analysis cannot be conducted. It is difficult to estimate overfished and overfishing thresholds for the second category of species *a priori*, but indicators of long term, potential overfishing can be identified. ABCs for species in this category are typically set at a constant level and some monitoring is necessary to determine if this level of

catch is causing a slow decline in stock abundance. The third category includes minor species which are caught, but for which there is, at best, only information on landed biomass. For species in this category, it is impossible to determine MSY, ABC, or an overfished threshold.

4.2 Determination of MSY or MSY Proxy and B_{msy} (Previously 5.2)

Harvest policies are to be specified according to standard reference points such as MSY (MSY, interpreted as ~~an~~ ***a maximum*** average achievable catch ***under prevailing ecological and environmental conditions*** over a prolonged period), ***the long-term average biomass associated with fishing at Fmsy is Bmsy.*** ~~the biomass that produces MSY (B_{msy}) and the fishing rate (F_{msy}) that tends to hold biomass near B_{msy}.~~ In this FMP, MSY generally refers to a constant F control rule that is assumed to produce the maximum average yield over time while protecting the spawning potential of the stock. ***Thus the constant F control rule is genearlly the proxy for the MSY control rule.*** ~~(Pacific whiting is generally based on a variable F control rule.)~~ Fishing rates above F_{msy} eventually result in biomass smaller than B_{msy} and produce less harvestable fish on a sustainable basis. Accordingly, management should avoid fishing rates that hold biomass below B_{msy} for long periods. ***The biomass level that produces MSY (i.e., B_{msy}) is generally unknown and assumed to be variable over time due to long-term fluctuations in ocean conditions, so that no single value is appropriate.*** [PREVIOUS SENTENCE MOVED FROM BELOW] ~~This is especially important during periods of unfavorable environment in which resources may be less productive than usual and the risk of stock depletion is greater.~~ ***During periods of unfavorable environment it is important to account for reduced sustainable yield levels.***

The problem with an F_{msy} control rule is that it is tightly linked to an assumed level of density-dependence in recruitment, and there is insufficient information to determine the level of density-dependence in recruitment for many West Coast groundfish stocks. Therefore, the use of approximations or proxies is necessary. Absent a more accurate determination of F_{msy}, the Council will apply default MSY proxies. The current (~~1998~~ ***2001***) ***proxies are: $F_{40\%}$ for flatfish and whiting, $F_{50\%}$ for rockfish (including thornyheads) and $F_{45\%}$*** ~~$F_{35\%}$~~ for all species ***such as sablefish and lingcod*** ~~except rockfish and $F_{40\%}$ for rockfish[1/]~~. However, ~~these~~ values (~~$F_{35\%}$~~ ***$F_{40\%}$, $F_{45\%}$*** and ~~$F_{40\%}$~~ ***$F_{50\%}$***) are provided here as examples only and are expected to be modified from time to time as scientific knowledge improves. If available information is sufficient, values of F_{msy}, B_{msy}, and more appropriate harvest control rules may be developed for any species or species group. ~~For example, the Council generally has applied a variable F control rule for management of Pacific whiting.~~

At this time, it is generally believed that, for many species, ~~$F_{35\%}$~~ $F_{45\%}$ strikes a balance between obtaining a large fraction of the MSY if recruitment is highly insensitive to reductions in spawning biomass and preventing a rapid depletion in stock abundance if recruitment is found to be extremely sensitive to reductions in spawning biomass. The long-term expected yield under an ~~$F_{35\%}$~~ $F_{45\%}$ policy depends upon the (unknown) level of density-dependence in recruitment. The recommended level of harvest will reduce the average lifetime egg production by each female entering the stock to ~~35%~~ ***45%*** of the lifetime egg production for females that are unfished.

Because the level of recruitment is expected to decline somewhat as a stock is fished at $F_{45\%}$, the expected Bmsy proxy is less than 45% of the unfished biomass. A biomass level of 40% is a reasonable proxy for B_{msy}. The short-term yield under an ~~$F_{35\%}$~~ ***$F_{45\%}$*** policy will vary as the abundance of the exploitable stock varies. This is true for any fishing policy that is based on a constant exploitation rate. The abundance of the stock will vary, because of the effects of fishing, and because of natural variation in recruitment. When stock abundance is high (i.e., near its average unfished level), short-term annual yields can be approximately two to three times greater than the expected long-term average annual yield. For many of the long-lived groundfish species common on the West Coast, this "fishing down" transition can take decades. Many of the declines in ABC that occurred during the 1980s were the result of this transition from a lightly exploited, high abundance stock level to a fully exploited, moderately abundant stock level. ***Further***

~~1/ In the rest of this document use of $F_{35\%}$ will be taken to mean $F_{40\%}$ in the case of rockfish, and the hybrid fishing mortality rate strategy for Pacific whiting.~~

declines below the overfished levels in the 1990s were due mostly to much lower than expected recruitment.

~~Recent work (Clark 1993, Mace 1994, and Ianelli 1995) indicates that $F_{35\%}$ may not be the best approximation of F_{msy}, given more realistic information about recruitment than was initially used by Clark in 1991. In his 1993 publication Clark extended his 1991 results by improving the realism of his simulations and analysis. In particular he (1) modeled stochasticity into the recruitment process, (2) introduced serial correlation into recruitment time series, and (3) performed separate analyses for the Ricker and Beverton-Holt spawner-recruit functions. For rockfish, these changes improved the realism of his spawning biomass per recruit (SPR) harvest policy calculations, because these species are known to have stochastic recruitment and they appear to display serial correlation in recruitments (especially on interdecadal time scales), and because the Beverton-Holt spawner-recruit curve may be biologically the most plausible recruitment model. The effect of each of these changes, in isolation and in aggregate, was to decrease F_{msy}. Consequently, the estimated SPR reduction needed to provide an optimal F_{msy} proxy (defined as that level of fishing which produces the largest assured proportion of MSY), must necessarily be increased. Clark concluded that $F_{40\%}$ is the optimal rate for fish stocks exhibiting recruitment variability similar to Alaska groundfish stocks. Likewise, Mace (1994) recommended the use of $F_{40\%}$ as the target mortality rate when the stock-recruitment relationship is unknown. Lastly, Ianelli (1995) determined that $F_{44\%}$ was a good F_{msy} proxy for Gulf of Alaska Pacific ocean perch, although he subsequently indicated that a recent recruitment to that stock was larger than expected and that $F_{44\%}$ may be too conservative in that case.~~

~~Based on this information and advice by its Groundfish Management Team, in 1997 the Council concluded that $F_{40\%}$ should be used as the proxy for F_{msy} for rockfish in the absence of specific knowledge of recruitment or life history characteristics which would allow a more accurate determination of F_{msy}. This and other proxies may be revised on the basis of further information and experience.~~

In spring 2000, the Council's Scientific and Statistical Committee (SSC) sponsored a workshop to review the Council's groundfish exploitation rate policy. The workshop explored the historic use of different fishing mortality (F) rates, and found that the Council's past practices have generally changed in response to new information from the scientific community. Starting in the early 1990s, the Council used a standard harvest rate of F35%. The SSC's workshop participants reported that new scientific studies in 1998 and 1999 had shown that the $F_{35\%}$ and F_{40}% rates used by the Council had been too aggressive for Pacific coast groundfish stocks, such that some groundfish stocks could not maintain a viable population over time. A 1999 study, "The Meta-Analysis of the Maximum Reproductive Rate for Fish Populations to Estimate Harvest Policy; a Review" (Myers, et al.) showed that Pacific coast groundfish stocks, particularly rockfish, have very low productivity compared to other, similar species worldwide. One prominent theory about the reason for this low productivity is the large-scale, North Pacific climate shifts that are thought to cycle Pacific coast waters through warm and cool phases of 20-30 years duration. Pacific coast waters shifted to a warm phase around 1977-78, with ocean conditions less favorable for Pacific coast groundfish and other fish stocks. Lower harvest rates are necessary to guard against steep declines in abundance during these periods of low productivity (low recruitment). After an intensive review of historic harvest rates, and current scientific literature on harvest rates and stock productivity, the SSC workshop concluded that F40% is too aggressive for many Pacific coast groundfish stocks, particularly for rockfish. For 2001 and beyond, the Council adopted the SSC's new recommendations for harvest policies of: F40% for flatfish and whiting, F50% for rockfish (including thornyheads) and F45% for other groundfish such as sablefish and lingcod.

In the past, *F_{msy}* ~~these~~ fishing rates were treated by the Council (as intended) as targets. Under the Magnuson-Stevens Act as amended in 1996, these fishing rates are more appropriately considered to be ~~limits~~ *thresholds* ~~which~~ *that* should not be exceeded (see Section 4.4).

The Council will consider any new scientific information relating to calculation of MSY or MSY proxies and may adopt new values based on improved understanding of the population dynamics and harvest of any species or group of species.

~~The biomass level that produces MSY (i.e., B_{msy}) is also generally unknown and assumed to be variable over time due to long-term fluctuations in ocean conditions, so that no single value is appropriate. Current scientific thought is that B_{msy} (and/or the natural range of biomass under F_{msy}) usually falls somewhere between 0.3 to 0.5 of the average unfished abundance (mean $B_{unfished}$), and rarely falls below one quarter of that amount, (i.e., B_{msy} > 0.25 mean $B_{unfished}$). Rebuilding, or at least a reduced harvest rate, may be required if abundance falls below these levels.~~

While B_{msy} may be set based on the averaged unfished abundance ($B_{unfished}$) ~~T~~there are many possible approximations and estimates of mean $B_{unfished}$. If the necessary data exist, the following standard methodology is the preferred approach:

mean $B_{unfished}$ = mean R * SP**R**(F=0)

note: spawning biomass per recruit (SPR)

Where mean R is the average estimated recruitment ***expected under unfished conditions*** ~~over all reliable years~~, and SP***R***(F=0) is the spawning potential per recruit at zero fishing mortality rate. ~~Alternative reference points based on mean R * SP($F_{35\%}$) or reconstruction of mean $B_{unfished}$ from stock-recruitment relationships may also be used.~~ SP***R***(F=0) is normally available as part of the calculation leading to determination of ~~$F_{35\%}$~~ ***F45% and is equilavent to F100%.***

4.3 Determination of ABC ~~*OY, Precautionary Threshold, and (Overfished/Rebuilding Threshold)*~~ (Previously 5.3)

~~The Magnuson-Stevens Act as amended in 1996 defines OY as the amount of fish that is prescribed on the basis of MSY from the fishery as reduced by any relevant economic, social, or ecological factors. By this definition, overfishing occurs if a stock is harvested at a level in excess of F_{msy}. Moreover, overfished stocks (i.e., those that have declined to below a specified (overfished/rebuilding threshold)) are to be rebuilt to a level that is consistent with producing MSY.~~ In establishing OYs for West Coast groundfish, this FMP utilizes the interim step of calculating ABCs for major stocks or management units (groups of species). ***ABC is the MSY harvest level associated with the current stock abundance. Over the long term, if ABCs are fully harvested, the average of the ABCs would be MSY.***

~~ABC, B_{msy}, and overfished/rebuilding stock size threshold cannot be precisely defined for all species, because of the absence of available information for many species managed under the FMP.~~ PREVIOUS SENTENCE MOVED TO START OF 5.1. REMAINDER OF PARAGRAPH MOVED TO 4.4.2. ~~In this FMP, the term "overfishing" is used to denote situations where catch exceeds or is expected to exceed the established ABC or MSY proxy ($F_{x\%}$). The term "overfished" describes a stock who's abundance is below its overfished/rebuilding threshold). Overfished/rebuilding thresholds in general, are linked to the same productivity assumptions that determine the ABC levels. The default value of this threshold is 25% of the estimated unfished biomass level or 50% of B_{msy}, if known.~~

PARAGRAPH THREE OF 5.3, ON SPECIES CATEGORIES, HAS BEEN MOVED TO SECTION 4.1
PARAGRAPH FOUR OF 5.3, ON THE PRECAUTIONARY THRESHOLD, HAS BEEN MOVED TO SECTION 4.4.1

4.3.1 Determination of ABC (Previously 5.3.1)

4.3.1.1 Stocks with Quantitative Assessments, Category 1 (Previously 5.3.1.1)

The stocks with quantitative assessments are those that have recently been assessed by a catch-at-age analysis. Annual evaluation of the appropriate MSY proxy (e.g., ~~$F_{35\%}$~~ ***$F_{45\%}$***) for species in this category will

require some specific information in the SAFE document. Estimated age-specific maturity, growth, and availability to the fishery (with evaluation of changes over time in these characteristics) are sufficient to determine the relationship between fishing mortality and yield-per-recruit and spawning biomass-per-recruit. The estimated time series of recruitment, spawning biomass, fishing mortality are also required to determine whether recent trends indicate a point of concern. In general, ABC will be calculated by applying ~~$F_{35\%}$~~ ***$F_{45\%}$*** (or $F_{40\%}$ ***or $F_{50\%}$*** or other established MSY proxy) to the best estimate of current biomass. This current biomass estimate may be for a single year or the average of the present and several future years. Thus, ABC may be intended to remain constant over a period of three or more years. ~~All ABCs will remain in effect until revised, and, whether revised or not, will be announced at the beginning of the year along with other specifications.~~ LAST SENTENCE MOVED BACK TO CHAPTER 5.

4.3.1.2 Stocks with ABC Set by Nonquantitative Assessment, Category 2 (Previously 5.3.1.2)

These stocks with ABC set by nonquantitative assessments typically do not have a recent, quantitative assessment, but there may be a previous assessment or some indicators of the status of the stock. Detailed biological information is not routinely available for these stocks, and ABC levels have typically been established on the basis of average historical landings. Typically, the spawning biomass, level of recruitment, or the current fishing mortality rate for Category 2 stocks are unknown. The Council places high priority on improving the information for managing these stocks so that they may be moved to Category 1 status.

4.3.1.3 Stocks Without ABC Values, Category 3 (Previously 5.3.1.3)

Of the 83 groundfish species managed under the FMP, ABC values have been established for only about 25. The remaining species are incidentally landed and usually are not listed separately on fish landing receipts. Information from fishery independent surveys are often lacking for these stocks, because of their low abundance or they are not vulnerable to survey sampling gear. ~~**Without an**~~ ***Until sufficient quantities of*** at-sea observer program ***data are available or surveys of other fish habitats are conducted,*** it is unlikely that ***there*** ~~**a data base**~~ will be ~~**developed in the future for these stocks to**~~ ***sufficient data to*** upgrade the assessment ~~**capability**~~ ***capabilities*** or ***to*** evaluate their overfishing potential. Interim ABC values may be established for these stocks based on qualitative information, including advice from the Council's advisory entities.

4.4 Precautionary Thresholds and Overfishing Status Determination Criteria (NEW SECTION TITLE)

The National Standard Guidelines define two thresholds that are necessary to maintain a stock at levels capable of producing MSY: the maximum fishing mortality threshold (MFMT) and a minimum stock size threshold (MSST). These two limits are intended for use as benchmarks to decide if a stock or stock complex is being overfished or is in an overfished state. The MFMT and MSST are intrinsically linked through the MSY Control Rule that specifies how fishing mortality or catches could vary as a function of stock biomass in order to achieve yields close to MSY. (PRECEDING WAS MOVED FROM SECTION 4.2)

4.4.1 Determination of Precautionary Thresholds (Previously 5.3.3)

The precautionary threshold is the biomass level at which point the harvest rate will be reduced to help the stock return to the MSY level ***(see Section 4.5.1 "Default Precautionary and Interim Rebuilding OY Calculation"). The precautionary biomass threshold is in addition to the overfishing and overfished/rebuilding thresholds required under ths MSA (MFMT and MSST). The precautionary biomass threshold is higher than the overfished biomass (MSST). Because B_{msy} is a longterm average, biomass will by definition be below B_{msy} in some years and above B_{msy} in other years. Thus, even in the absence of overfishing, biomass may decline to levels below B_{msy} due to natural fluctuation. By decreasing harvest rates when biomass is below B_{msy} but maintaining MSY control rule (or proxy control rule) harvest rates for biomass levels above MSY, the precautionary threshold and accompanying response effectively constitute a control rule that manages for harvests lower than MSY and an average biomass above MSY.***

The precautionary threshold is established only for category 1 species. The precautionary threshold will be the B_{msy} level, if known. The default precautionary threshold will be 40% of the estimated unfished biomass level. The Council may recommend different precautionary thresholds for any species or species group based on the best scientific information about that species or group. It is expected the threshold will be between 25% and 50% of the estimated unfished biomass level.

~~For category 1 species, in addition to the overfished/rebuilding threshold, a precautionary threshold is established. The default value will be 40% of mean $B_{unfished}$. This level of biomass is expected to be near B_{msy}, and if abundance is between the overfished/rebuilding threshold and the precautionary threshold, a precautionary reduction in harvest will implemented to avoid further declines in abundance.~~ (PRECEDING PARAGRAPH MOVED FROM SECTION 5.3 THEN DELETED AS BEING REDUNDANT WITH EXISTING/NEW TEXT)

4.4.2 Determination of Overfishing Threshold (NEW SECTION)

In this FMP, ***for Category 1 species***, the term "overfishing" is used to denote situations where catch exceeds or is expected to exceed the established ABC or MSY proxy ($F_{x\%}$). ***This can also be expressed as where catch exceeds or is expected to exceed the MFMT.*** The term "overfished" describes a stock who's abundance is below its overfished/rebuilding threshold). Overfished/rebuilding thresholds in general, are linked to the same productivity assumptions that determine the ABC levels. The default value of this threshold is 25% of the estimated unfished biomass level or 50% of B_{msy}, if known. (PRECEDING WAS MOVED FROM SECTION 5.3) ***The MFMT is simply the value(s) of fishing mortality in the MSY control rule.*** **Technically, e**Exceeding F_{msy} ~~**now**~~ constitutes overfishing. (PRECEDING WAS MOVED FROM SECTION 5.2)

THE FOLLOWING PARAGRAPHS ON CATEGORY 2 AND CATEGORY 3 SPECIES WERE MOVED FROM SECTION 5.3.6.2.

For Category 2 species, the following may be evaluated as potential indicators of overfishing:

catch per effort from logbooks
catch area from logbooks
index of stock abundance from surveys
stock distribution from surveys
mean size of landed fish

If declining trends persist for more than three years, then a focused evaluation of the status of the stock, its ABC, and overfishing threshold will be quantified. If data are available, such an evaluation should be conducted at approximately five year intervals even when negative trends are not apparent. In fact, many stocks are in need of re-evaluation to establish a baseline for monitoring of future trends. Whenever an evaluation indicates the stock may be declining and approaching an overfished state, the Council should:

1. Improve data collection for this species so it can be moved to Category 1.

2. Determine the rebuilding rate that would allow the stock to return to MSY in no longer than ten years.

For Category 3 species, information from fishery independent surveys are often lacking for these species because of their low abundance or they are not vulnerable to survey sampling gear. Without an at-sea observer program, it is unlikely that a data base will be developed in the future for these species to evaluate the risk of overfishing.

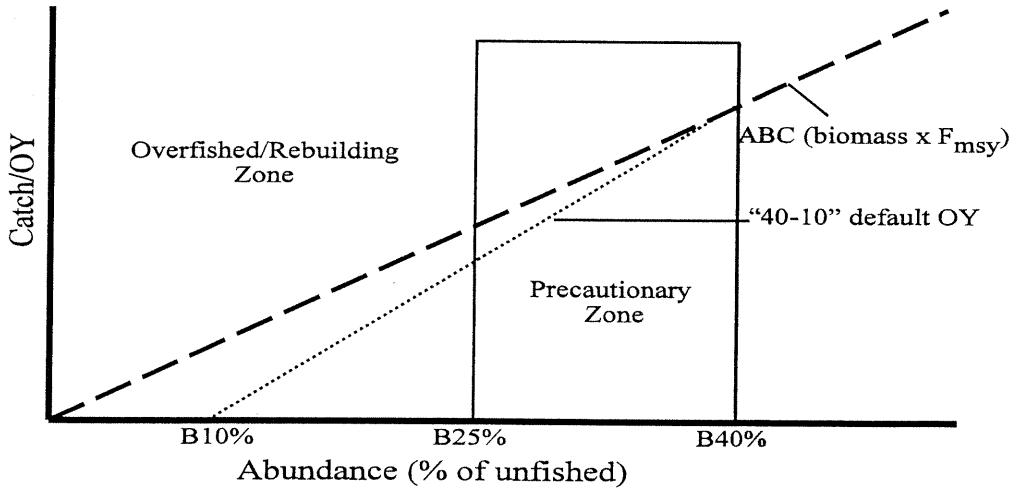
4.4.3 Determination of Overfished/Rebuilding Thresholds (Previously 5.3.4)

The MSST (overfished/rebuilding threshold) is the default value of 25% of the estimated unfished biomass level or 50% of B_{msy}, if known. (PRECEDING WAS MOVED FROM SECTION 4.2) ~~As described~~

~~in section 5.3, T~~the overfished/rebuilding threshold (***also refered to as $B_{rebuild}$ ~~MSST),~~*** ~~$B_{rebuild}$,~~ is generally in the range of 25% to 40% of $B_{unfished}$, and may also be written as

$B_{rebuild}$ = x% * mean R * SP***R***(F=0)

The default overfished/rebuilding threshold for category 1 groundfish is .25$B_{unfished}$. The Council may establish



different thresholds for any species based on information provided in stock assessments, the SAFE document, or other scientific or groundfish management-related report. For example, if B_{msy} is known, the overfished threshold may be set equal to 50% of that amount. The Council may also specify a lower level of abundance where catch or fishing effort is reduced to zero. This minimum abundance threshold (B_{min}) would correspond to an abundance that severely jeopardizes the stock's ability to recover to B_{msy} in a reasonable length of time; ~~likely values fall between five percent and ten percent of the average unfished level.~~

4.5 Ending Overfishing and Rebuilding (New Section Title)

4.5.1 Default Precautionary and Interim Rebuilding OY Calculation (Previously 5.3.5)

The precautionary threshold, defined in Section 4.4.1, is used to trigger a precautionary management approach. If biomass declines to a level that requires rebuilding (below the MSST), the precautionary management approach also provides an interim rebuliding harvest control policy to guide the setting OY until the Council sets a new rebuilding policy specific to the conditions of the stock and fishery.
The default OY/rebuilding ~~plan~~ ***policy*** can be described as an "ICES-type catch-based approach" that consists of a modification of the catch policy, where catch (C) declines from C(F_{msy}) at the precautionary threshold in a straight line to F=0 at the minimum abundance threshold of ten percent of the estimated mean unfished biomass (sometimes called pristine or virgin biomass or reproductive potential). This approach could also be described as an OY based on a variable F_{SPR} that is progressively more conservative at low biomass levels. The abbreviated name for this is the "40-10" default adjustment. In most cases, there is inadequate information to estimate F_{msy}; in such cases, the best proxy for F_{msy} will be used. The default proxy values will be $F_{40\%}$ for flatfish and whiting, $F_{~~40\%~~50\%}$ for rockfish in the *Sebastes* complex and $F_{~~35\%~~45\%}$ for other species ***such as sablefish and lingcod***. The Council anticipates scientific information about the population dynamics of the various stocks will improve over time and that this information will result in improved estimates of appropriate harvest rates and MSY proxies. Thus, these initial default proxy values will be replaced from time to time. Such changes will not require amendment to the FMP, but the scientific basis for new values must be documented.

The greater amount of catch reduction applied below the precautionary threshold will foster quicker return to the MSY level. If a stock falls below its overfished/rebuilding threshold, this line would be used as the interim rebuilding plan during the year until the Council develops a formal rebuilding plan. The point at which the line intersects the horizontal axis does not necessarily imply zero catch would be allowed, but rather is for determining the slope of the line.

In order to apply this default approach, a minimal amount of information is necessary; only stocks in Category 1 can be managed in this way. For stocks with inadequate information to apply this approach, the Council will consider other methods of ensuring that overfishing will be avoided. The Council will consider the approaches discussed in the National Standard Guidelines in developing such recommendations for stocks in Categories 2 and 3.

4.5.2 Stock Rebuilding ***Plan Elements and Processes*** ~~Requirements~~ (Previously 5.3.6)

As required by the Magnuson-Stevens Act within one year of being notified by the Secretary that a stock is overfished or approaching a condition of being overfished, the Council will prepare a recommendation to end the overfished condition and rebuild the stock(s) or to prevent the overfished condition from occurring.

A new rebuilding plan or revision to an existing rebuilding plan proposed by the Council will be submitted to the Secretary-

OPTION 1a- ***as a policy document to accompany the annual management recommendations developed as part of the regular annual management process (see Chapter 5).***

OPTION 1b- ***an FMP amendment and management regulations designed to achieve the harvest control rules developed as part of the regular annual management process (see Chapter 5).***

OPTION 1c- ***a regulatory amendment and management regulations designed to achieve the harvest control rules developed as part of the regular annual management process (see Chapter 5).***

~~**along with annual management recommendations as part of the regular annual management process.**~~
THE FOLLOWING SENTENCE IS INSECTION 4.5.2.3. ~~**Once approved by the Secretary, a rebuilding plan will remain in effect for the specified duration of the rebuilding program, or until modified.**~~ The Council will ***also*** make all approved rebuilding plans available in the annual SAFE document or by other means. The Council may recommend the Secretary implement interim measures to reduce overfishing until the Council's program has been developed and implemented.

The Council intends its stock rebuilding plans to provide targets, checkpoints and guidance for rebuilding overfished stocks to healthy and productive levels. ~~**The rebuilding plans themselves will not be regulations but principles and policies.**~~ They are intended to provide a clear vision of the intended results and the means to achieve those results. They will provide the strategies and objectives that regulations are intended to achieve, and proposed regulations and results will be measured against the rebuilding plans. It is likely that rebuilding plans will be revised over time to respond to new information, changing conditions and success or lack of success in achieving the rebuilding schedule and other goals. As with all Council activities, public participation is critical to the development, implementation and success of management programs.

In order to facilitate implementation of rebuilding plans in a fair and equitable manner the Council made the following allocational decisions as part of Amendment 12 to the FMP:
THE FOLLOWING TWO PROVISIONS WERE PREVIOUSLY PART OF SECTION 4.6.

(1) For any stock that has been declared overfished, the open access/limited entry allocation shares may be temporarily revised for the duration of the rebuilding period by amendment to the regulations in accordance with the normal allocation process described in this FMP. However, the Council may at any time recommend the shares specified in chapter 12 of this FMP be reinstated without requiring further analysis. Once reinstated, any change may be made only through the allocation process.

(2) For any stock that has been declared overfished, any vessel with a limited entry permit may

be prohibited from operating in the open access fishery when the limited entry fishery has been closed.

4.5.2.1 Goals and Objectives of Rebuilding Plans (Previously 5.3.6.1)

The ***overall*** goals of rebuilding programs are to (1) achieve the population size and structure that will support the maximum sustainable yield within the specified time period; (2) minimize, to the extent practicable, the social and economic impacts associated with rebuilding, including adverse impacts on fishing communities; (3) fairly and equitably distribute both the conservation burdens (overfishing restrictions) and recovery benefits among commercial, recreational and charter fishing sectors; (4) protect the quantity and quality of habitat necessary to support the stock at healthy levels in the future; and (5) promote widespread public awareness, understanding and support for the rebuilding program. ***More specifc goals and objectives may be developed in the rebuilding plan for each overfished species.***

To achieve the rebuilding goals, the Council will strive to (1) explain the status of the overfished stock, pointing out where lack of information and uncertainty may require that conservative assumptions be made in order to maintain a risk-averse management approach; (2) identify present and historical harvesters of the stock; (3) ***where adequate harvest sharing plans are not already in place*** develop harvest sharing plans for the rebuilding period and for when rebuilding is completed; (4) set harvest levels that will achieve the specified rebuilding schedule ; (5) implement any necessary measures to allocate the resource in accordance with harvest sharing plans; (6) promote innovative methods to reduce bycatch and bycatch mortality of the overfished stock; (7)

OPTIONS 2a, 2b, 2c, OR 2d: monitor fishing mortality and***, using available stock assessment information,*** the condition of the stock at least every two years to ensure the goals and objectives are being achieved ***(see Section 4.5.2.4 for additional details)***;

OPTION 2e: monitor fishing mortality ***annually*** ~~and the condition of the stock at least every two years~~ ***and compare stock biomass with respect to that expected under the rebuilding harvest control rule each time a new stock assessment is provided*** ~~to ensure the goals and objectives are being achieved;~~

(8) identify any critical or important habitat areas and implement measures to ensure their protection; and (9) promote public education regarding these goals, objectives and the measures intended to achieve them. (THIS PARAGRAPH WAS PREVIOUSLY THE FIRST PARAGRAPH OF 5.3.6.2)

4.5.2.2 Contents of Rebuilding Plans (Previously 5.3.6.2 (corrected from 5.6.3.2))

FIRST PARAGRAPH OF 5.6.3.2 MOVED TO 4.5.2.1 (PREVIOUSLY 5.3.6.1)

The rebuilding plan ***for overfished species*** will specify ~~any individual~~ ***rebuilding*** goals and objectives ***for that species*** including***:*** ~~**a time period for ending the overfished condition and rebuilding the stock and the target biomass to be achieved,**~~ INSERT LIST OF REQUIRED ELEMENTS BASED ON COUNCIL RECOMMENDATIONS FROM ISSUE 1, INCLUDING SPECIFICATION OF WHETHER THE ELEMENT IS TO BE PART OF A POLICY DOCUMENT, FMP, OR REGULATION, AND WHETER THE ELEMENT IS TO BE A FIXED VALUE OR A FORMULA/ALGORITHM/TABLE WHICH WILL WILL BE USED TO UPDATE THE VALUE AS NEW INFORMATION BECOMES AVAILABLE. **OPTION 2c*: A schedule for stock assessments will be specified in the rebuilding plan and driven by the stock dynamics (more frequent reviews and assessments will be conducted for more productive stocks). That schedule will specify an increase in the frequency of stock assessments and rebuilding plan reviews as Tmax draws closer.*** **OPTION 3e: *Each rebuilding plan will be required to include a specific standard for determining when progress has been adequate.*** BASED ON THE COUNCIL'S FINAL RECOMMENDATIONS ON ISSUE 1, ADJUST THE FOLLOWING TWO SENTENCES TO INDICATE WHICH, IF ANY, OF THE FOLLOWING WILL BE REQUIRED TO BE PART OF AN FMP AMENDMENT OR REGULATION. The ***rebuilding*** plan will explain how the rebuilding period was determined, including any calculations that demonstrate the scientific validity of the rebuilding period. The plan will identify potential or likely allocations among sectors, identify the types of management measures that will likely be imposed to ensure rebuilding in the specified period, and provide other information that may be useful to achieve the goals and objectives. THE FOLLOWING SENTENCE

WAS MOVED FROM SECTION 4.6. ***For fisheries managed under an international agreement, Council rebuilding plans must reflect traditional participation in the fishery, relative to other nations, by fishermen of the United States.***

The Council may consider a number of factors in determining the time period for rebuilding, including:

1. The status and biology of the stock or stock complex.
2. Interactions between the stock or stock complex and other components of the marine ecosystem or environmental conditions.
3. The needs of fishing communities.
4. Recommendations by international organizations in which the United States participates.
5. Management measures under an international agreement in which the United States participates.

The lower limit of the specified time period for rebuilding will be determined by the status and biology of the stock or stock complex and its interactions with other components of the marine ecosystem or environmental conditions and is defined as the amount of time that would be required for rebuilding if fishing mortality were eliminated entirely.

If the lower limit is less than ten years, then the specified time period for rebuilding may be adjusted upward to the extent warranted by the needs of fishing communities and recommendations by international organizations in which the United States participates, except that no such upward adjustment may result in the specified time period exceeding ten years, unless management measures under an international agreement in which the United States participates dictate otherwise.

If the lower limit is ten years or greater, then the specified time period for rebuilding may be adjusted upward to the extent warranted by the needs of fishing communities and recommendations by international organizations in which the United States participates, except that no such upward adjustment can exceed the rebuilding period calculated in the absence of fishing mortality, plus one mean generation time or equivalent period based on the species' life-history characteristics. For example, if a stock could be rebuilt within 12 years in the absence of any fishing mortality, and has a mean generation time of eight years, the rebuilding period could be as long as 20 years.

THE FOLLOWING SENTENCE WAS MOVED FROM SECTION 4.6. ***Any new rebuilding program will commence as soon as the first measures to rebuild the stock or stock complex are implemented. Rebuilding target control rules for individual species may include: constant catch strategy - where catch is held constant over time unit the stock reaches B_{MSY}; a constant fishing mortality rate- where a constant proportion of the stock is removed annually until the stock reaches B_{MSY}, or a combination of these starategies.***

The rebuilding plan will also consider the following possible measures to promote rebuiding: BASED ON COUNCIL FINAL RECOMMENDATIONS FROM ISSUE 1 INSERT LIST OF THE REBUILDING ACTIONS THAT REBUILDING PLANS ARE REQUIRED TO CONSIDER, IF ANY (AS OPPOSED TO REQUIRED TO INCLUDE).

~~In general, t~~*T*he Council will ~~*also*~~ consider the following questions in developing rebuilding plans.

1. What is the apparent cause of the current condition (historical fishing patterns, a declining abundance or recruitment trend, a change in assessment methodology, or other factors)?
2. Is there a downward trend in recruitment that may indicate insufficient compensation in the spawner-recruitment relationship?
3. Based on an comparison of historical harvest levels (including discards) relative to recommended ABC levels, has there been chronic over harvest?
4. Is human-induced environmental degradation implicated in the current stock condition? Have natural environmental changes been observed that may be affecting growth, reproduction, and/or survival?
5. Would reduction in fishing mortality be likely to improve the condition of the stock?
6. Is the particular species caught incidentally with other species? Is it a major or minor component in a

mixed-stock complex?

7. What types of management measures are anticipated and/or appropriate to achieve the biological, social, economic and community goals and objectives of the rebuilding plan?

THE FOLLOWING SECTIONS ON CATEGORY 2 AND 3 WERE MOVED TO SECTION 4.4.2.

~~For Category 2 species, the following may be evaluated as potential indicators of overfishing:~~

- ~~catch per effort from logbooks~~
- ~~catch area from logbooks~~
- ~~index of stock abundance from surveys~~
- ~~stock distribution from surveys~~
- ~~mean size of landed fish~~

~~If declining trends persist for more than three years, then a focused evaluation of the status of the stock, its ABC, and overfishing threshold will be quantified. If data are available, such an evaluation should be conducted at approximately five year intervals even when negative trends are not apparent. In fact, many stocks are in need of re-evaluation to establish a baseline for monitoring of future trends. Whenever an evaluation indicates the stock may be declining and approaching an overfished state, the Council should:~~

~~1. Improve data collection for this species so it can be moved to Category 1.~~

~~2. Determine the rebuilding rate that would allow the stock to return to MSY in no longer than ten years.~~

~~For Category 3 species, information from fishery independent surveys are often lacking for these species because of their low abundance or they are not vulnerable to survey sampling gear. Without an at-sea observer program, it is unlikely that a data base will be developed in the future for these species to evaluate the risk of overfishing.~~

4.5.2.3. Process for Development and Approval of Rebuilding Plans (Previously 5.3.6.3, corrected from 5.6.3.3)

The Rebuilding Plan

Upon receiving notification that a stock is overfished, the Council will identify one or more individuals to draft the rebuilding plan. ~~If possible, the Council will schedule review and adoption of the proposed rebuilding plan to coincide with the annual management process.~~ ~~OPTION 1b: *The rebuilding plan will be developed as a single policy document that will contain within it or be accompanied by an FMP amendment to (1) implement any rebuilding actions required under Section 304(e) of the MSA that are not already authorized under the existing FMP, (2) specify in the FMP the rebuilding period required under Section 304(e)(4)(A) of the MSA, and (3) specify the following additional measures as part of the FMP* (INSERT LIST OF ELEMENTS REQUIRED TO BE PART OF A REBUILDING FMP AMENDMENT AS SPECIFIED BY THE COUNCIL IN ITS FINAL DECISION ON ISSUE 1, SEE SECTION 2 OF THE MAIN TEXT OF THIS DOCUMENT). *For portions of the rebuilding plan to be implented in the form of an FMP, the proposed actions will meet the standard procedural and analytical requirements for consideringa nd implementing and FMP amendment under the MSA and other applicable law.* OPTIONS 1a AND 1b:~~ A draft of the rebuilding plan will be reviewed and preliminary action taken (tentative adoption or identification of preferred alternatives), followed by final adoption at a subsequent meeting. The tentative plan or alternatives will be made available to the public and considered by the Council at a minimum of two meetings unless stock conditions suggest more immediate action is warranted. Upon completing it***s*** final recommendations, the Council will submit the proposed rebuilding plan or revision to an existing plan to NMFS for concurrence. ~~In most cases, this will be concurrent with its recommendations for annual management measures.~~ OPTION 1b *(*REPLACE PREVIOUS THREE SENTENCES WITH THE FOLLOWING*): A rebuilding plan will be developed following the standard procedures for considering and implementing an FMP amendment under the MSA and other applicable law.* OPTION 1c (REPLACE PREVIOUS THREE SENTENCES WITH THE FOLLOWING*): A rebuilding plan will be developed*

following the standard procedures for implementing a regulatory amendment under the MSA and other applicable law.

FOLLOWING PARAGRAPH WAS MOVED FROM THE END OF THE SECTION TO THIS POSITION.
OPTIONS 1a: NMFS will review the Council's recommendations and supporting information upon receipt and may approve, disapprove, or partially approve each rebuilding plan. The Council will be notified in writing of the NMFS decision. If NMFS does not concur with the Council's recommendation, reasons for the disapproval will be included in the notification. **FOR OPTIONS 1b AND 1c, DELETE THE PREVIOUS THREE SENTENCES.** Once approved, a rebuilding plan will remain in effect for the length of the specified rebuilding period or until revised ***(i.e. stock reaches target biomass).***

Implementation of Actions Required Under the Rebuilding Plan

MOVED FROM MIDDLE OF FIRST PARAGRAPH OF THIS SECTION
Once a rebuilding plan is established, certain measures required in the rebuilding plan may need to be implemented through authorities and processes already established in the FMP. Management actions to achieve OY harvest and objectives related to rebuilding, requirements of the MSA and goals and objectives of the FMP (each of which may require a slightly different process) include: automatic actions, notices, abbreviated rulemaking actions, and full rulemaking actions (these actions are detailed ~~at~~ in Section 4.6, Chapter 5 and Section 6.2). Allocation proposals require consideration at a minimum of three Council meetings, as specified in the allocation framework. ~~In addition, a~~Any proposed regulations, to implement the ***rebuilding*** plan will be developed in accordance with the framework procedures of this FMP. (ORDER OF LAST TWO SENTENCES SWITCHED)

Any rebuilding management measures that are not already authorized under the framework of the existing FMP will be implemented through a plan amendment process. The plan amendment may establish the needed measures or expand the framework to allow the implementation of the needed measures under framework procedures.

The Council may designate a state or states to take the lead in working with its citizens to develop management proposals to achieve the rebuilding. (MOVED FROM FIRST PARAGRAPH OF THIS SECTION ON "IMPLEMENTATION OF ACTIONS . . . ")

4.5.2.4 Process for Review and Update of Rebuilding Plans **OPTIONS 2c AND 2d:** ***and Schedule for Stock Assessments for Overfished Stocks*** (New section title inserted)

(FOLLOWING WAS PREVIOUSLY PART OF 5.3.6.3)

OPTION 2a (STATUS QUO): Rebuilding plans will be reviewed periodically, at least every 2 years and the Council may propose revisions to existing plans at any time ~~although in general this will occur only during the annual management process.~~ ***in accordance with the amendment process appropriate for the form of the plan*** **(DETERMINED UNDER ISSUE 1).** ***Rebuilding plans will be reviewed with respect goals 1-5 defined in Section 4.5.2.1 of the FMP.*** Any revisions to a rebuilding plan must ~~also~~ be approved by NMFS.

OPTION 2b, 2c, AND 2d: Rebuilding plans will be reviewed periodically, at least every 2 years and the Council may propose revisions to existing plans at any time ~~although in general this will occur only during the annual management process.~~ ***in accordance with the amendment process appropriate for the form of the rebuilding plan*** **(AS DETERMINED BY THE COUNCIL'S FINAL RECOMMENDATION WITH RESPECT TO ISSUE 1).** ***Rebuilding plans will be reviewed with respect to goal 1 Section 4.5.2.1 of the rebuilding plan only when new stock assessment information is available. All other reviews will assess progress only with respect goals 2-5 defined in Section 4.5.2.1 of the FMP. Any revisions to a rebuilding plan must also be approved by NMFS.***

OPTION 2c (ADD THE FOLLOWING TEXT TO THE PREVIOUS PARAGRAPH): ***A schedule for stock assessments will be specified in the rebuilding plan and driven by the stock dynamics (more frequent reviews and assessments will be conducted for more productive stocks). That schedule will specify an increase in the frequency of stock assessments and rebuilding plan reviews as T_{target} draws closer.***

OPTION 2d (ADD THE FOLLOWING TEXT TO THE PREVIOUS PARAGRAPH): ***Stock assessments will be conducted once every 2 years when T_{max} is less than 20 years away and at least every 4 years when Tmax is 20 or more years away.***

OPTION 2e: ~~Rebuilding plans will be reviewed periodically, at least every 2 years, and t~~The Council may propose revisions to existing plans at any time~~, although in general this will be occur only during the annual management process~~. Any revisions to a rebuilding plan must ~~also~~ be approved by NMFS. ***The Council will track harvest mortality in comparison to the harvest mortality goals under the rebuilding plan each year and will assess progress in rebuilding the stock biomass to the MSY level whenever new stock assessments are produced. Information in the Council SAFE document is expect to assist the Secretary in conducting the two year Secretarial reviews of progress under rebuilding plans. A draft of any Secretarial review will be provided to allow an opportunity for Council comment prior to the time the Secretarial review is finalized.***

OPTIONS 2b, 2c, 2d, AND 2e: ***The Council's annual SAFE document will provide (1) the most recent information available on the best estimate of total fishing mortality as compared to target fishing mortality levels pursuant to the rebuilding plan; (2) the most recent assessment of stock size compared to the expected stock size for the rebuilding trajectory; (3) information on allocation and the social and economic status of the fishery.***

Amendment of rebuilding plans will be mandatory if it is determined that progress is inadequate.

OPTION 3b: ***If the probability of achieving T_{MAX} falls below 50% (the required minimum value), then progress will be considered inadequate and harvest strategy (constant harvest level or exploitation rate) must be adjusted to increase the probability of rebuilding within the maximum time to at least 50%. Other needed changes to rebuilding measures would also be considered. Depending on what options are chosen under Issues 1 and 2, FMP and/or regulatory amendments may be required.***

OPTION 3c ***If the probability of achieving the T_{MAX} established in the rebuilding plan (as modified during previous reviews) falls below 50% (the required minimum value), then progress will be considered inadequate and harvest strategy (constant harvest level or exploitation rate) must be adjusted to increase the probability of rebuilding within the maximum time to at least 50%. Other needed changes to rebuilding measures would also be considered.***

OPTION 3d: ***The Council, in consultation with the SSC and GMT, will determine on a case-by-case basis whether there has been a "significant" change in a parameter, requiring the modification of a rebuilding plan.***

OPTION 3e: ***Each rebuilding plan will identify standards for measuring the adequacy of progress (see Section 4.5.2.2).***

OPTION 4b: ADD THE FOLLOWING AS A NEW SECTION

Section 4.5.2.5 Incorporation of ESA Jeopardy Standards or Recovery Plans (New Section)

A jeopardy standard or recovery plan for an overfished stock listed under the ESA will supercede the rebuilding plan for the overfished species only if that standard is more restrictive than would be required for that species under the MSA. If a stock is delisted, the rebuilding plan will come back into effect until such time as the stock is fully rebuilt. After delisting, an amendment to the rebuilding plan may be necessary to take into account the revised status and information on the overfished stock.

4.6 Determination of OY (Previously 5.3.2)

THE FOLLOWING FIVE PARAGRAPHS PREVIOUSLY COMPRISED THE ENTIRETY OF CHAPTER 4
Optimum yield (OY) is defined in the Magnuson-Stevens Fishery Conservation and Management Act

(Magnuson-Stevens Act) as the amount of fish which will provide the greatest overall benefit to the Nation. The Magnuson-Stevens Act also specifies that OY is based on maximum sustainable yield (MSY), and may be equal to or less than MSY. The fishery management plan (FMP) authorizes establishment of a numerical or non-numerical OY for any groundfish species or species group and lays out the procedures the Council will follow in determining appropriate numerical OY values. An OY may be specified for the fishery management area as a whole or for specific subareas. Numerical OYs will be specified annually, based on acceptable biological catches (ABCs) for major species or species groups, which are in turn based on quantitative or qualitative stock assessments. "Control rules" for determining the numerical values of OYs ensure they will not exceed the ABCs except under tightly limited conditions.

Most of the 83 species managed by the FMP have never been assessed in either a quantitative or qualitative manner. In some cases even basic catch statistics are unavailable, because many species (rockfish, for example) are not sorted unless specifically required by regulation. Species of this type have generally not been subject to numerical harvest limits, but rather harvest is limited by gear restrictions and market demand. Other management measures which determine the total amount of harvest each year include trip landing and frequency limits. Those species without a specified OY and not included in a multi-species OY will be included in a non-numerical OY, which is defined as all the fish that can be taken under the regulations, specifications, and management measures authorized by the FMP and promulgated by the U.S. Secretary of Commerce. This non-numerical OY is not a predetermined numerical value, but rather the harvest that results from regulations, specifications, and management measures as they are changed in response to changes in the resource and the fishery. In many cases, the absence of a numerical specification reflects the absence of basic management information, such as abundance estimates and catch statistics. The non-numerical OY concept allows for a variable amount of groundfish to be harvested annually, limited by such constraints as gear restrictions, management measures for other species, and/or absence of consumer acceptance or demand.

The close spatial relationship of many groundfish species throughout the management area results in commercial and recreational catches often consisting of mixtures of several species. This is especially the case in the trawl fishery where fishermen may target on one species, but unavoidable harvest several other species. In such cases, the optimum harvest strategy often is to target on a group (complex or assemblage) of groundfish species. ~~The grouping of groundfish species into multispecies numerical and non-numerical OYs provides the flexibility to manage to obtain the optimum public benefit from the groundfish fishery as a whole rather than the maximum yield from each species. In other cases, single species management may be necessary to provide adequate resource protection, bycatch controls, or equitable allocation. In such cases, the Council may determine it more appropriate to use individual species management by means of quotas, harvest guidelines, allocations by gear type, and other management measures.~~

~~Managing multiple species complexes for OY from the complex as a whole necessarily may result in some degree of overfishing or failure to allow recovery to the MSY level for some individual stocks.~~ The Council will ~~strive, to the extent practicable, to~~ avoid overfishing individual stocks ***and control harvest mortality to allow overfished stocks to rebuild*** ~~or preventing a stock from recovering~~ to the MSY level. In the event the Council determines that greater long-term benefits will be gained from the groundfish fishery by overfishing individual stocks or by preventing a stock from recovering to its MSY level, it will justify the action in writing in accordance with the procedures ***and standards identified in this section and Section 600.310 of the National Standard Guidelines.*** ~~in Section 5.3.6 (Stock Rebuilding) or in Section 5.5 (Annual Implementation Procedures for Specifications and Apportionments).~~ Conversely, the Council may determine that greater benefits will accrue from protecting an individual stock by constraining the multiple species complex or specific components of that complex.

Prior to implementation of the FMP in 1982, the states of Washington, Oregon, and California managed the groundfish fishery without the use of quotas. State regulations since the mid-1940s took the form of area closures (such as San Francisco Bay), legal gear definitions, minimum codend mesh regulations, size limits, bag limits, and other nonquota management measures. Implementation of the FMP built upon those historical management practices by increasing the level of catch monitoring, improving the assessment of stock conditions, and establishing other mechanisms for responding to management needs. It provides for continuation of the historical fishery on traditionally harvested groundfish species while allowing for the development of new fisheries for underutilized species. The FMP, as amended, provides for the

establishment of resource conservation measures such as harvest guidelines or quotas through the annual specification procedure and annual and inseason management measures through the "points of concern" and socioeconomic framework mechanisms.

THE REMAINDER OF THIS SECTION PREVIOUSLY COMPRISED THE ENTIRETY OF SECTION 5.3.2 EXCEPT AS NOTED.

Reduction in catches or fishing rates for either precautionary or rebuilding purposes is an important component of converting values of ABC to values of OY. This relationship is specified by the harvest control rule. All OYs will remain in effect until revised, and, whether revised or not, will be announced at the beginning of the year along with other specifications (see Chapter 5).

Groundfish stock assessments generally provide the following information to aid in determination of ABC and OY.

1. Current biomass (~~or~~ ***and*** reproductive potential) estimate.

2. F_{msy} or proxy, translated into exploitation rate.

3. Estimate of MSY biomass (B_{msy}), ***or proxy,*** unfished biomass (based on average recruitment), precautionary threshold, and/or overfished/rebuilding threshold.

4. Precision estimate (e.g., confidence interval) for current biomass estimate.

Determination of Numerical OYs If Stock Assessment Information Is Available (Category 1)

The Council will follow these steps in determining numerical OYs. The recommended numerical OY values will include any ~~necessary~~ ***adjustments to harvest mortality needed*** ~~actions~~ to rebuild any stock determined to be below its overfished/rebuilding threshold and may include adjustments to address uncertainty in the status of the stock.

1. ABC: Multiply the current **fishable** biomass estimate times the F_{msy} exploitation rate or its proxy to get ABC.

2. Precautionary adjustment: If the abundance is above the specified precautionary threshold, OY may be equal to or less than ABC. If current biomass estimate is less than the precautionary threshold (Section 4.4.1), the harvest rate will be reduced according to the harvest control rule specified in Section 4.5.1 in order to accelerate a return of abundance to optimal levels. If the abundance falls below the overfished/rebuilding threshold (Section 4.4.2), the harvest control rule will generally specify a greater reduction in exploitation as an interim management response toward rebuilding the stock while a formal rebuilding plan is being developed. The rebuilding plan will include a specific harvest control rule designed to rebuild the stock, and that control rule will be used in this stage of the determination of OY.

3. Uncertainty adjustments: In cases where there is a high degree of uncertainty about the biomass estimate and other parameters, OY may be further reduced accordingly.

4. Other adjustments to OY: ***Adjustments to OY for*** ~~O~~***o***ther social, economic, or ecological considerations ***may be made. There will be*** ~~, including~~ reduction***s*** for anticipated bycatch ***mortality (i.e. mortality of discarded fish)*** ~~, may be made~~. Amounts of fish harvested as compensation for private vessels participating in NMFS resource survey activities will also be deducted from ABC prior to setting OY.

5. OY recommendations will be consistent with established rebuilding plans and achievement of their goals and objectives unless otherwise adjusted in accordance with section 6 below.
   (a) In cases where overfishing is occurring, Council action will be sufficient to end overfishing.
   (b) In cases where a stock or stock complex is overfished, Council action will specify ***OY in a manner***

that complies with rebuilding plans developed in accordance with Section 4.5.2. THE FOLLOWING IS ELIMINATED BECAUSE IT DUPLICATES PROVISIONS OF SECTION 4.5.2. ~~a time period for rebuilding the stock or stock complex that satisfies the requirements of section 304(e)(4)(A) of the Magnuson-Stevens Act.~~

~~(i) The Council will consider a number of factors in determining the time period for rebuilding:~~

~~(1) The status and biology of the stock or stock complex.~~

~~(2) Interactions between the stock or stock complex and other components of the marine ecosystem (also referred to as "other environmental conditions").~~

~~(3) The needs of fishing communities.~~

~~(4) Recommendations by international organizations in which the United States participates.~~

~~(5) Management measures under an international agreement in which the United States participates.~~

~~(ii) These factors enter into the specification of the time period for rebuilding as follows:~~

~~(1) The lower limit of the specified time period for rebuilding is determined by the status and biology of the stock or stock complex and its interactions with other components of the marine ecosystem and is defined as the amount of time that would be required for rebuilding if fishing mortality were eliminated entirely.~~

~~(2) If the lower limit is less than ten years, then the specified time period for rebuilding may be adjusted upward to the extent warranted by the needs of fishing communities and recommendations by international organizations in which the United States participates, except that no such upward adjustment can result in the specified time period exceeding ten years, unless management measures under an international agreement in which the United States participates dictate otherwise.~~

~~(3) If the lower limit is ten years or greater, then the specified time period for rebuilding may be adjusted upward to the extent warranted by the needs of fishing communities and recommendations by international organizations in which the United States participates, except that no such upward adjustment can exceed the rebuilding period calculated in the absence of fishing mortality, plus one mean generation time or equivalent period based on the species' life-history characteristics. For example, suppose a stock could be rebuilt within twelve years in the absence of any fishing mortality, and has a mean generation time of eight years. The rebuilding period, in this case, could be as long as 20 years.~~

PARAGRAPH (iii) WAS MOVED TO SECTION 4.5.2.2.

~~(iii) Any new rebuilding program will commence as soon as the first measures to rebuild the stock or stock complex are implemented.~~

PARAGRAPH (iv) IS ELIMINATED BECAUSE THERE ARE NO PRE-EXISTING REBUILDING PLANS.

~~(iv) Any pre-existing rebuilding plans will be reviewed to determine whether they are in compliance with all requirements of the Magnuson-Stevens Act. (Note: Only Pacific ocean perch falls into this category.)~~

(c) For fisheries managed under an international agreement, Council action must reflect traditional participation in the fishery, relative to other nations, by fishermen of the United States.

(d) For any stock that has been declared overfished, the open access/limited entry allocation shares may be temporarily revised for the duration of the rebuilding period by amendment to the regulations in accordance with the normal allocation process described in this FMP. However, the Council may at any time recommend the shares specified in chapter 12 of this FMP be reinstated without requiring further analysis. Once reinstated, any change may be made only through the allocation process.

(e) For any stock that has been declared overfished, any vessel with a limited entry permit may be prohibited from operating in the open access fishery when the limited entry fishery has been closed.

6. Adjustments to OY could include increasing OY above the default value up to the overfishing level as long as the management still allows achievement of established rebuilding goals and objectives. In limited circumstances, these adjustments could include increasing OY above the overfishing level as long as the harvest meets the standards of the mixed stock exception in the National Standard Guidelines:

(a) The Council demonstrates by analysis that such action will result in long-term net benefits to the Nation.

(b) The Council demonstrates by analysis that mitigating measures have been considered and that a similar level of long-term net benefits cannot be achieved by modifying fleet behavior, gear selection/ configuration, or other technical characteristic in a manner such that no overfishing would occur.
(c) The resulting rate or level of fishing mortality will not cause any species or evolutionarily significant unit thereof to require protection under the Endangered Species Act.

7. For species complexes (such as Sebastes complex), the OY will generally be set equal to the sum of the individual component ABCs, HGs, and/or OYs, as appropriate.

Determination of a Numerical OY If ABC Is Based on Nonquantitative Assessment (Category 2)

1. ABC may be based on average of past landings, previous nonquantitative assessment, or other qualitative information.

2. Precautionary adjustments, if any, would be based on relevant information. In general, the Council will follow a risk-averse approach and may recommend an OY below ABC if there is a perception the stock is below its MSY biomass level. If a declining trend persists for more than three years, then a focused evaluation of the status of the stock, its ABC, and the overfishing parameters will be quantified. If data are available, such an evaluation should be conducted at approximately five-year intervals even when negative trends are not apparent. In fact, many stocks are in need of re-evaluation to establish a baseline for monitoring of future trends. Whenever an evaluation indicates the stock may be declining and approaching an overfished state, then the Council should:
   a. Recommend improved data collection for this species.
   b. Determine the rebuilding rate that would increase the multispecies value of the fishery.

3. Uncertainty adjustment: In cases where there is a high degree of uncertainty about the condition of the stock or stocks, OY may be reduced accordingly.

4. Amounts of fish harvested as compensation for industry research activities will also be deducted.

5. These adjustments could include increasing OY above the default value as indicated for Category 1 stocks, items 5 and 6 above.

Non-numerical OY for Stocks with No ABC Values (Category 3)

Fish of these species are incidentally landed and usually are not listed separately in fish landing receipts. Information from fishery-independent surveys are often lacking for these stocks, because of their low abundance or they are not vulnerable to survey sampling gear. ***Until sufficient quantities of*** ~~**Without an**~~ at-sea observer program ***data are available or surveys of other fish habitats are conducted*** and/or requirements that landings of all species be recorded separately, it is unlikely that ***there*** ~~**a data base**~~ will be ~~**developed in the future for these stocks to**~~ ***sufficient data to*** upgrade the assessment ~~**capability**~~ ***capabilities*** or ***to*** evaluate their overfishing potential.

These species typically may be included in a non-numerical OY that is defined as all the fish that can be taken under the regulations, specifications, and management measures authorized by the FMP and promulgated by the Secretary. Such an OY may not be a predetermined numerical value, but rather that harvest that results from regulations, specifications, and management measures as they are changed in response to changes in the resource and the fishery. Nothing in this FMP prevents inclusion of these species in a numerical OY if the Council believes that is more appropriate.

5.0 ***ANNUAL*** SPECIFICATION AND APPORTIONMENT OF HARVEST LEVELS

The ability to establish and adjust harvest levels is the first major tool at the Council's disposal to exercise its resource stewardship responsibilities. Each fishing year, the Council will assess the biological, social, and economic condition of the Pacific coast groundfish fishery and update maximum sustainable yield (MSY) estimates or proxies for specific stocks (management units) where new information on the population dynamics is available. The Council will make this information available to the public in the form of the *Stock Assessment and Fishery Evaluation (SAFE)* document described in Section 5.1. Based upon the best

scientific information available, the Council will evaluate the current level of fishing relative to the MSY level for stocks where sufficient data are available. Estimates of the acceptable biological catch (ABC) for major stocks will be developed, and the Council will identify those species or species groups which it proposes to be managed by the establishment of numerical harvest levels (optimum yields [OYs], harvest guidelines [HGs], or quotas). For those stocks judged to be below their overfished/rebuilding threshold, the Council will develop a stock rebuilding management strategy.

The process for specification of numerical harvest levels includes the estimation of ABC, the establishment of OYs for various stocks, calculation of specified allocations between harvest sectors, and the apportionment of numerical specifications to domestic annual processing (DAP), joint venture processing (JVP), total allowable level of foreign fishing (TALFF), and the reserve. The specification of numerical harvest levels described in this chapter is the process of designating and adjusting overall numerical limits for a stock either throughout the entire fishery management area or throughout specified subareas. The process normally occurs annually between September and November, but can occur, under specified circumstances at other times of the fishing year. The Council will identify those OYs which should be designated for allocation between limited entry and open access sectors of the commercial industry. Other numerical limits which allocate the resource or which apply to one segment of the fishery and not another are imposed through the socioeconomic framework process described in Chapter 6 rather than the specification process.

The National Marine Fisheries Service (NMFS) Regional Administrator will review the Council's recommendations, supporting rationale, public comments, and other relevant information; and, if it is approved, will undertake the appropriate method of implementation. Rejection of a recommendation will be explained in writing.

The procedures specified in this chapter do not affect the authority of the U.S. Secretary of Commerce (Secretary) to take emergency regulatory action as provided for in Section 305(c) of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) if an emergency exists involving any groundfish resource or to take such other regulatory action as may be necessary to discharge the Secretary's responsibilities under Section 305(d) of the Magnuson-Stevens Act.

This chapter describes the steps in this process.

5.1 General Overview of Annual Specifications Process (New Section, text moved from introduction to Chapter 5)

The annual specification process, in general terms, occurs as follows:

1. The Council will determine the MSY or MSY proxy and ABC for each major stock. Typically, the MSY proxy will be in terms of a fishing mortality rate ($F_{x\%}$) and ABC will be the $F_{x\%}$ applied to the current biomass estimate. ***The MSY is the maximum long-term average yield expected from annual application of the MSY (or proxy) harvest policy under prevailing ecological and environmental conditions.***

2. Every species will either have its own designated OY or be included in a multispecies OY. Species which are included in a multispecies OY may also have individual OYs, have individual HGs, or be included in a HG for a subgroup of the multispecies OY. Stocks without quantitative or qualitative assessment information may be included in a numerical or non-numerical OY.

3. To determine the OY for each stock, the Council will determine the best estimate of current abundance and its relation to its precautionary and overfished thresholds. If the abundance is above the precautionary threshold, OY will be equal to or less than ABC. If abundance falls below the precautionary threshold, OY will be reduced according to the harvest control rule for that stock. If abundance falls below the overfished/rebuilding threshold, OY will be set according to the interim rebuilding rule until the Council develops a formal rebuilding plan for that species.

4. ***For any stock or stock complex where the Secretary identifies that overfishing is occuring the Council will take remedial action to end overfishing. For any stock or stock complex the Secretary***

has identified as approaching the overfished condition the Council will take remedial action to prevent the stock or stock complex from falling below the minimum stock size threshold or from fishing For any stock the Secretary has declared overfished ~~or approaching the overfished condition, or for any stock the Council determines is in need of rebuilding,~~ ***the Council will implement such annual management measures as are necessary to rebuild the stock through of control harvest mortality, habitat impacts or other effects of fishing activities that are subject to regulation under this annual process.*** ~~the Council will develop a rebuilding plan and submit it in the same manner as recommendations of the annual management process. Once approved, a rebuilding plan will remain in effect for the specified duration or until the Council recommends and the Secretary approves revision.~~

5. The Council may reserve and deduct a portion of the ABC of any stock to provide for compensation for vessels conducting scientific research authorized by NMFS. Prior to the research activities, the Council will authorize amounts to be made available to a research reserve. However, the deduction from the ABC will be made in the year after the "compensation fishing"; the amounts deducted from the ABC will reflect the actual catch during compensation fishing activities.

6. The Council will identify stocks which are likely to be fully harvested (i.e., the ABC, OY, or HG achieved) in the absence of specific management measures and for which allocation between limited entry and open access sectors of the fishery is appropriate.

7. The groundfish resource is fully utilized by U.S. fishing vessels and seafood processors. The Council may entertain applications for foreign or joint venture fishing or processing at any time, but fishing opportunities may be established only through amendment to this FMP. This section supercedes other provisions of this FMP relating to foreign and joint venture fishing.

5.2 SAFE Document (Previously 5.1)

For the purpose of providing the best available scientific information to the Council for evaluating the status of the fisheries relative to the MSY and overfishing definition, developing ABCs, determining the need for individual species or species group management, setting and adjusting numerical harvest levels, assessing social and economic conditions in the fishery, and updating the appendices of this fishery management plan (FMP); a SAFE document is prepared annually. Not all species and species groups can be reevaluated every year due to limited state and federal resources. However, the SAFE document will in general contain the following information:

1. A report on the current status of Washington, Oregon, and California groundfish resources by major species or species group.

2. Specify and update estimates of harvest control rule parameters for those species or species groups for which information is available. ***(The Council anticipates scientific information about the population dynamics of the various stocks will improve over time and that this information will result in improved estimates of appropriate harvest rates and MSY proxies. Thus, initial default proxy values will be replaced from time to time. Such changes will not require amendment to the FMP, but the scientific basis for new values must be documented.)*** COPIED FROM 4.5.

3. Estimates of MSY and ABC for major species or species groups.

4. Catch statistics (landings and value) for commercial, recreational, and charter sectors.

5. Recommendations of species or species groups for individual management by OYs.

6. A brief history of the harvesting sector of the fishery, including recreational sectors.

7. A brief history of regional groundfish management.

8. A summary of the most recent economic information available, including number of vessels and economic

characteristics by gear type.

9. Other relevant biological, social, economic, ecological, and essential fish habitat information which may be useful to the Council.

10. ***A description of the maximum fishing mortality threshold (MFMT) and the minimum stock size threshold (MSST) for each stock or stock complex, along with other information the Council may use to determine whether overfishing is occurring or a stock or stock complex is overfished. (The default overfished/rebuilding threshold for category 1 groundfish is .25B$_{unfished}$. The Council may establish different thresholds for any species based on information provided in stock assessments, the SAFE document, or other scientific or groundfish management-related report.)*** PREVIOUS TWO SENTENCES COPIED FROM 4.4.2

11. A description of any rebuilding plans currently in effect, a summary of the information relevant to the rebuilding plans, and any management measures proposed or currently in effect to achieve the rebuilding plan goals and objectives.

12. A list of annual specifications and management measures that have been designated as routine under processes described in the FMP at Section 6.2.

The ~~**preliminary**~~ ***stock assessment section of the*** SAFE document is normally completed ~~late in the year, generally late October,~~ when the most current stock assessment and fisheries performance information is available and prior to the meeting at which the Council approves its final management recommendations for the upcoming year. The Council will make the ~~**preliminary**~~ ***stock assessment*** ~~***and fishery evaluation section***~~ of the SAFE document available to the public by such means as mailing lists or newsletters and will provide copies upon request. ~~**A final**~~ ***The fishery evaluation section of the*** SAFE may be prepared after the Council has made its final recommendations, ***an estimate of the previous year's catch, and*** ~~**including**~~ ***summaries of*** ~~**proposed and pre-existing**~~ ***rebuilding plans.*** ~~**The final SAFE document, if prepared, will also**~~ ***and*** be made available upon request.

5.3 Authorization and Accounting for Fish Taken as Compensation for Authorized Scientific Research Activities. (Previously 5.4)

At a Council meeting, NMFS will advise the Council of upcoming resource surveys that would be conducted using private vessels with groundfish as whole or partial compensation. For each proposal, NMFS will identify the maximum number of vessels expected or needed to conduct the survey, an estimate of the species and amounts of compensation fish likely to be needed to compensate vessels for conducting the survey, when the fish would be taken, and when the fish would be deducted from the ABC in determining the OY/harvest guideline. NMFS will initiate a competitive solicitation to select vessels to conduct resource surveys. NMFS will consult with the Council regarding the amounts and types of groundfish species to be used to support the surveys. If the Council approves NMFS' proposal, NMFS may proceed with awarding the contracts, taking into account any modifications requested by the Council. If the Council does not approve the proposal to use fish as compensation to pay for resource surveys, NMFS will not use fish as compensation.

Because the species and amounts of fish used as compensation will not be determined until the contract is awarded, it may not be possible to deduct the amount of compensation fish from the ABC or harvest guideline in the year that the fish are caught. Therefore, the compensation fish will be deducted from the ABC the year after the fish are harvested. During the annual specification process, NMFS will announce the total amount of fish caught during the year as compensation for conducting a resource survey, which then will be deducted from the following year's ABCs in setting the OYs.

5.4 Annual Implementation Procedures for Specifications and Apportionments (Previously 5.6)

Annually, the Council will develop recommendations for the specification of ABCs, OYs, any HGs or quotas, ~~and apportionments to DAH, DAP, JVP, and TALFF and the reserve over the span of two Council meetings.~~

In addition during this process, the Council may recommend establishment of HGs and quotas for species or species groups within an OY.

The Council will develop preliminary recommendations at the first of two meetings (usually in August or September) based upon the best stock assessment information available to the Council at the time and consideration of public comment. After the first meeting, the Council will provide a summary of its preliminary recommendations and their basis to the public through its mailing list as well as providing copies of the information at the Council office and to the public upon request. The Council will notify the public of its intent to develop final recommendations at its second meeting (usually October or November) and solicit public comment both before and at its second meeting.

At its second meeting, the Council will again consider the best available stock assessment information which should be contained in the recently completed SAFE report and consider public testimony before adopting final recommendations to the Secretary. Following the second meeting, the Council will submit its recommendations along with the rationale and supporting information to the Secretary for review and implementation.

Upon receipt of the Council's recommendations supporting rationale and information, the Secretary will review the submission, and, if approved, publish a notice in the *Federal Register* making the Council's recommendations effective January 1 of the upcoming fishing year. All ABCs, ***OYs, and any HGs or quotas*** will remain in effect until revised, and, whether revised or not, will be announced at the beginning of the year along with other specifications. PREVIOUS SENTENCE MOVED FROM 5.3.1.1.

In the event that the Secretary disapproves one or more of the Council's recommendations, he may implement those portions approved and notify the Council in writing of the disapproved portions along with the reasons for disapproval. The Council may either provide additional rationale or information to support its original recommendation, if required, or may submit alternative recommendations with supporting rationale. In the absence of an approved recommendation at the beginning of the fishing year, the current specifications in effect at the end of the previous fishing year will remain in effect until modified, superseded, or rescinded.

5.5 Inseason Procedures for Establishing or Adjusting Specifications and Apportionments (Previously 5.7)

5.5.1 Inseason Adjustments to ABCs

Occasionally, new stock assessment information may become available inseason that supports a determination that an ABC no longer accurately describes the status of a particular species or species group. However, adjustments will only be made during the annual specifications process and a revised ABC announced at the beginning of the next fishing year. The only exception is in the case where the ABC announced at the beginning of the fishing year is found to have resulted from incorrect data or from computational errors. If the Council finds that such an error has occurred, it may recommend the Secretary publish a notice in the *Federal Register* revising the ABC at the earliest possible date.

5.5.2 Inseason Establishment and Adjustment of OYs, HGs, and Quotas

OYs and HGs may be established and adjusted inseason (1) for resource conservation through the "points of concern" framework described in Chapter 6; (2) in response to a technical correction to ABC described above; or, (3) under the socioeconomic framework described in Chapter 6.

Quotas~~, except for apportionments to DAH, DAP, JVP, TALFF,~~ and reserve, may be established and adjusted inseason only for resource conservation or in response to a technical correction to ABC.

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON PLANNING FOR BYCATCH AND B_0/MSY WORKSHOPS

The Scientific and Statistical Committee (SSC) and Northwest Fisheries Science Center (NWFSC) will organize a three-day bycatch workshop in the last week of January in Seattle, Washington. The objectives of this workshop are to review the methodological aspects of the bycatch model currently developed by Dr. Jim Hastie and how the new observer data will be applied in the model. The chair of the SSC Economics Subcommittee will chair the workshop and coordinate with NWFSC to develop the terms of reference. The panel will include representatives from the SSC, Groundfish Management Team, and Groundfish Advisory Subpanel, as well as independent experts.

Considering time constraints, the SSC recommends deferring the B_0/MSY workshop to an "off" year under the future multi-year management process.

PFMC
10/31/02

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON PLANNING FOR BYCATCH AND B_0/MSY WORKSHOPS

Due to scheduling conflicts, the Groundfish Advisory Subpanel (GAP) did not have an opportunity to meet with the Scientific and Statistical Committee or NMFS representatives to discuss plans for workshops on several scientific issues, including definitions and calculations of maximum sustainable yield and B_0, or unfished biomass. Nevertheless, the GAP reiterates its previous recommendation that a stock assessment review-type workshop on calculation of unfished biomass be convened as soon as possible. The calculation of unfished biomass during the stock assessment process is a key component in determining whether a stock will be designated overfished. Unfortunately, there are several different ways that unfished biomass has been calculated, especially in regard to stocks that may be influenced more by environmental conditions than by harvesting. Since the determination of unfished biomass is so important, the GAP believes that a proper scientific review of this process is imperative.

PFMC
10/31/02

Exhibit G.11
Situation Summary
November 2002

PLANNING FOR BYCATCH AND B_0/MSY WORKSHOPS

Situation: At past meetings, the Pacific Fishery Management Council (Council) has discussed the need for a workshop to address bycatch issues in the West Coast groundfish fishery. The Council has also discussed the need for a workshop to explore the concepts of virgin biomass (B_0) and maximum sustainable yield (MSY) relative to West Coast fisheries, in general. The Scientific and Statistical Committee (SSC) will report on preliminary discussions about these topics and considerations for establishing the two workshops. State and tribal representatives and the Council's groundfish advisors will provide comments on these matters. Based on the information provided and public testimony, the Council is scheduled to consider the need for these workshops and whether to proceed with logistical arrangements.

Council Action:

1. Consider Need and Process for Workshops.

Reference Materials:

1. Exhibit G.11.b, Supplemental SSC Report. received 10-31-02

Agenda Order:

a. Agendum Overview — Dan Waldeck
b. Report of the Scientific and Statistical Committee (SSC) — Tom Jagielo
c. Agency and Tribal Reports and Comments
d. Reports and Comments of Advisory Bodies
e. Public Comment
f. **Council Action:** Consider Need and Process for Workshops

Groundfish Fishery Strategic Plan (GFSP) Consistency Analysis

The Strategic Plan notes the difficulty of describing fish stock productivity and the resulting uncertainty in setting important management reference points, including F_{MSY}; the level of stock biomass that produces MSY (B_{MSY}); and virgin biomass (B_0). The plan also emphasizes the need for improved fishery dependent data, particularly for total fishery removals. Workshops to explore and address these issues would be consistent with the objectives of the Strategic Plan.

PFMC
10/15/02

Supplemental Reference Materials

2. Exhibit G.11.d, Supplemental GAP Report.