Agenda Item G.4
Attachment 6
(ELECTRONIC ONLY)
June 2016

PACIFIC COAST GROUNDFISH FISHERY MANAGEMENT PLAN

FOR THE CALIFORNIA, OREGON, AND WASHINGTON GROUNDFISH FISHERY

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~~MARCH~~ JUNE 2016

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This document is published by the Pacific Fishery Management Council; current National Oceanic and Atmospheric Administration Award Number NA05NMF441008.

Changes to the FMP since Amendment 4 (July 1993)

Current Chapters	Previous Chapters (July 1993 Version)	Summary of Amendment Changes
Chapter 1 Introduction	Chapter 1 Introduction	Updated by Amendment 18
Chapter 2 Goals and Objectives	Chapter 2 Goals and Objectives	Amendments and additions, no substantial change in organization. (Amendments 12, 13, 16-1, 17, 18, and 24.)
Chapter 3 Areas and Stocks Involved	Chapter 3 Areas and Stocks Involved	Amendments and additions, no substantial change in organization. (Amendment 16-1.) Specification of Ecosystem Component (EC) species added under Amendment 24. EC species shared by all four west coast FMPs added under Amendment 25. Redesignated big skate as an actively managed species under Amendment 27.
Chapter 4 Optimum Yield	Chapter 4 Optimum Yield	Substantially changed and expanded by Amendment 16-1, which moved and revised material on determining OFL, OY, precautionary thresholds, and rebuilding overfished species that was in Chapter 5 into this chapter. Amendments 16-2 and 16-3 add rebuilding plan summaries to section 4.5.4. Amendment 16-4 revises rebuilding plans in section 4.5.4. Substantially changed and expanded by Amendment 23, which provided material on specifying OFLs, redefined ABCs, ACLs, and ACTs.
Chapter 5 Specification and Apportionment of Harvest Levels	Chapter 5 Specification and Apportionment of Harvest Levels	Substantially changed by Amendment 16-1, which moved material to Chapter 4, as noted above. Discussion of DAH, DAP, JVP, and TALFF deleted. (Also Amendments 12, 13, 17, and 18.) Substantially changed by Amendment 23, which incorporated new National Standard 1 guidelines and mandates of the 2006 reauthorization of the Magnuson-Stevens Act. Default harvest control rule process added under Amendment 24.
Chapter 6 Management Measures	Chapter 6 Management Measures	Substantially reorganized and changed by Amendment 18 and 19. (Also Amendments 10, 11, 13, 16-1, 17, 20, 21, 23, and 24.)
	Chapter 7 Experimental Fisheries	Renumbered Chapter 8

Current Chapters	Previous Chapters (July 1993 Version)	Summary of Amendment Changes
	Chapter 8 Scientific Research	Renumbered Chapter 9
Chapter 7 Essential Fish Habitat		New Chapter created by Amendment 19 from substantially revised material previously in Chapter 6.
Chapter 8 Experimental Fisheries		Renumbered and revised by Amendment 18.
Chapter 9 Scientific Research		Renumbered, no other changes.
	Chapter 9 Restrictions on Other Fisheries	Deleted with material incorporated into Chapter 6.
Chapter 10 Procedures for Reviewing State Regulations	Chapter 10 Procedures for Reviewing State Regulations	Background section revised by Amendment 18.
	Chapter 11 Appendices	Published under separate cover.
	Chapter 12 Management Measures that Continue in Effect with Implementation of Amendment 4	Deleted with material incorporated into Chapter 6.
	Chapter 13 References	Moved to an unnumbered section at the end of the document.
Chapter 11 Groundfish Limited Entry	Chapter 14 Groundfish Limited Entry	Renumbered; Amendment 15 modification to section 11.2.12, current section 11.5 inserted as new. Revisions under Amendment 20 including the removal of Amendment 15 text in section 11.2.12. Changed and expanded by Amendment 21.
References		Previously Chapter 13
Guide to Appendices		Previously Chapter 11 contained descriptive information brought forward from the original FMP. This material moved to Appendix A. Three new appendices (B-D) were added by Amendment 19. Appendix E by Amendment 20. Appendix F by Amendment 16 rebuilding plans.

A note on other annotations: Amended parts of the FMP subsequent to Amendment 4, which substantially revised the original FMP, are denoted at the end of chapters or sections by amendment number.

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LIST OF ACRONYMS AND ABBREVIATIONS

ABC	Acceptable biological catch
ACL	Annual catch limit
ACT	Annual catch target
AM(s)	Accountability measure(s)
BCCA	Bottom Contact Closed Area
BTCA	Bottom Trawl Closed Area
CCA	Cowcod Conservation Area
CDFG	California Department of Fish and Game
CPUE	Catch per unit of effort
CRCZ	Columbia River Conservation Zone
CRFS	California Recreational Fisheries Survey
CV	Catcher vessel
DAH	Domestic annual harvest
DAP	Domestic annual processing
EC	Ecosystem component
EEZ	Exclusive economic zone
EFH	Essential fish habitat
EFP	Exempted fishing permit
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FMP	Fishery management plan
FMU	Fishery management unit
GAP	Groundfish Advisory Subpanel
GCA	Groundfish Conservation Area
GFA	Groundfish fishing area
GIS	Geographic information system
GMT	Groundfish Management Team
HAPC	Habitat area of particular concern
HAPC	Habitat Area of Particular Concern
HCR	Harvest control rule
HG	Harvest guideline
HSP	Habitat suitability probability
HUD	Habitat Use Database
IFQ	Individual fishing quota
IFQ	Individual fishing quota
INPFC	International North Pacific Fisheries Commission
JV	Joint-venture
JVP	Joint-venture processing
KRCZ	Klamath River Conservation Zone
LE	Limited entry
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MARPOL	International Convention for the Prevention of Pollution from Ships
MBTA	Migratory Bird Treaty Act
MFMT	Maximum fishing mortality threshold
MHHW	Mean higher high water level
MLR	Minimum landing requirement
MMPA	Marine Mammal Protection Act
MPA	Marine protected area

MRFSS	Marine Recreational Fisheries Statistical Survey
MSST	Minimum stock size threshold
MSY	Maximum sustainable yield
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
ODFW	Oregon Department of Fish and Wildlife
OFL	Overfishing limit
ORBS	Ocean Recreational Boat Survey (Oregon Department of Fish and Wildlife)
OSP	Washington Department of Fish and Wildlife Ocean Sampling Program
OY	optimum yield
PacFIN	Pacific Fishery Information Network
POP	Pacific ocean perch
PRA	Paperwork Reduction Act
PSMFC	Pacific States Marine Fisheries Commission
RCA	Rockfish Conservation Area
RecFIN	Recreational Fisheries Information Network
SAFE	Stock Assessment and Fishery Evaluation
SDC	Status determination criteria
SEBS	Shore and Estuary Boat Survey (Oregon Department of Fish and Wildlife)
Secretary	U.S. Secretary of Commerce
SFA	Sustainable Fisheries Act
SPR	Spawning biomass per recruit
SSC	Scientific and Statistical Committee
SSC	Scientific and Statistical Committee
STT	Salmon Technical Team
USFWS	U.S. Fish and Wildlife Service
VMS	Vessel monitoring system
YRCA	Yelloweye Rockfish Conservation Area

CHAPTER 1 **INTRODUCTION**

1.1 History of the FMP

The Pacific Coast Groundfish Fishery Management Plan (FMP) was approved by the U.S. Secretary of Commerce (Secretary) on January 4, 1982, and implemented on October 5, 1982. Prior to implementation of the FMP, management of domestic groundfish fisheries was under the jurisdiction of the states of Washington, Oregon, and California. State regulations have been in effect on the domestic fishery for more than 100 years, with each state acting independently in both management and enforcement. Furthermore, many fisheries overlapped state boundaries and participants often operated in more than one state. Management and a lack of uniformity of regulations had become a difficult problem, which stimulated the formation of the Pacific States Marine Fisheries Commission (PSMFC) in 1947. PSMFC had no regulatory power but acted as a coordinating entity with authority to submit specific recommendations to states for their adoption. The 1977 Fishery Conservation and Management Act (later amended and renamed the Magnuson-Stevens Fishery Conservation and Management Act or Magnuson-Stevens Act) established eight regional fishery management Councils, including the Pacific Council. Between 1977 and the implementation of the groundfish FMP in 1982, state agencies worked with the Council to address conservation issues. Specifically, in 1981, managers proposed a rebuilding program for Pacific ocean perch. To implement this program, the states of Oregon and Washington established landing limits for Pacific ocean perch in the Vancouver and Columbia management areas.

Management of foreign fishing operations began in February 1967 when the U.S. and U.S.S.R. signed the first bilateral fishery agreement affecting trawl fisheries off Washington, Oregon, and California. The U.S. later signed bilateral agreements with Japan and Poland for fishing off the U.S. west coast. Each of these agreements was renegotiated to reduce the impact of foreign fishing on important west coast stocks, primarily rockfish, Pacific whiting, and sablefish. When the U.S. extended its jurisdiction to 200 miles (upon signing the Fishery Conservation and Management Act of 1976), the National Marine Fisheries Service (NMFS) developed and the Secretary implemented the preliminary management plan for the foreign trawl fishery off the Pacific Coast. From 1977 to 1982, the foreign fishery was managed under that plan. Many of these regulations were incorporated into the FMP, which provided for continued management of the foreign fishery.

Joint-venture fishing, where domestic vessels caught the fish to be processed aboard foreign vessels, began in 1979 and by 1989 had entirely supplanted directed foreign fishing. These joint ventures primarily targeted Pacific whiting. Joint-venture fisheries were then rapidly replaced by wholly domestic processing; by 1991 foreign participation had ended and U.S.-flagged motherships, catcher-processors, and shore-based vessels had taken over the Pacific whiting fishery. Since then U.S. fishing vessels and seafood processors have fully utilized Pacific Coast fishery resources. Although the Council may entertain applications for

foreign or joint venture fishing or processing at any time, provisions for these activities have been removed from the FMP. Re-establishing such opportunities would require another FMP amendment.

Since it was first implemented in 1982, the Council has amended the groundfish FMP ~~28~~ 32 times in response to changes in the fishery, reauthorizations of the Magnuson-Stevens Act, and litigation that invalidated provisions incorporated by earlier amendments. During the first 10 years of plan implementation, up to 1992, the Secretary approved six amendments. Amendment 4, approved in 1990, was the most significant early amendment; in addition to a comprehensive update and reorganization of the FMP, it established additional framework procedures for establishing and modifying management measures. Another important change was implemented in 1992 with Amendment 6, which established a license limitation (limited entry) program intended to address overcapitalization by restricting further participation in groundfish trawl, longline, and trap fisheries.

The next decade, through 2002, saw the approval of another seven amendments. Amendment 9 modified the limited entry (LE) program by establishing a sablefish endorsement for longline and pot permits. Amendments 11, 12, and 13 were responses to changes in the Magnuson-Stevens Act due to the 1996 Sustainable Fisheries Act. These changes required FMPs to identify essential fish habitat (EFH), more actively reduce bycatch and bycatch mortality, and strengthen conservation measures to both prevent fish stocks from becoming overfished and promote rebuilding of any stocks that had become overfished. Amendment 14, implemented in 2001, built on Amendment 9 to further refine the LE permit system for the economically important fixed gear sablefish fishery. It allowed a vessel owner to "stack" up to three LE permits on one vessel along with associated sablefish catch limits. This, in combinations with a concurrent action to extend the season length, in effect established a limited tradable quota system for participants in the primary sablefish fishery.

Most of the amendments adopted since 2001 deal with legal challenges to the three Sustainable Fisheries Act of 1996 (SFA)-related amendments mentioned above, which were remanded in part by the Federal Court. These have required new amendments dealing with overfishing, bycatch monitoring and mitigation, and EFH. In relation to the first of these three issues, the Magnuson-Stevens Act now requires FMPs to identify thresholds for both the fishing mortality rate constituting overfishing and the stock size below which a stock is considered overfished. Once the Secretary determines a stock is overfished, the Council must develop and implement a plan to rebuild it to a healthy level. ~~Since these thresholds were established for Pacific Coast groundfish, nine stocks have been declared overfished.~~ The Court found that the rebuilding plan framework adopted by Amendment 12 did not comply with the Magnuson-Stevens Act. In response, Amendments 16-1, 16-2, ~~and~~ 16-3, 16-4, and 16-5 (also known as Secretarial Amendment 1) established the current regime for managing these overfished species. Amendment 16-1, approved in 2003, incorporated guidelines for developing and adopting rebuilding plans and substantially revised Chapters 4 and 5. Amendments 16-2 and 16-3, approved in 2004, incorporated key elements of rebuilding plans into Section 4.5.4. In 2005, a Court of Appeals ruling refined court interpretation of the Magnuson-Stevens Act rebuilding period requirements. Amendment 16-4, partially approved in 2006, revised the FMP to specify that rebuilding periods will be as short as possible, taking into account the status and biology of the stocks, the needs of fishing communities, and interactions of overfished stocks with the marine ecosystem. As a result of this ruling, Amendment 16-4 also revised the rebuilding periods for darkblotched rockfish, Pacific ocean perch, canary rockfish, bocaccio, cowcod, widow rockfish, and yelloweye rockfish. Amendment 16-5 established a petrale sole rebuilding plan and established new proxy reference points for managing flatfish species.

Amendment 15 was initiated in 1999 in response to provisions in the American Fisheries Act intended to shield west coast fisheries from certain effects of that legislation. Because of competing workload and no threatened imminent harm, the Council tabled action on Amendment 15 in 2001. Work on the amendment was re-initiated in 2007 in response to changes in the Pacific whiting fishery. Its purpose wa~~s~~ is to address

conservation and socioeconomic issues in the shoreside, catcher/processor, and mothership sectors of the Pacific whiting fishery by requiring vessels to qualify for an additional license to participate in a given sector, based on their historical participation. It was an interim measure, which sunsetteds with trawl rationalization program (Amendment 20) implementation.

Amendment 17 modified the periodic process the Council uses to establish and modify harvest specifications and management measures for the groundfish fishery. Although not an SFA-related issue, this change did solve a procedural problem raised in litigation. The Council now establishes specifications and management measures every two years, allowing more time for them to be developed during the Council's public meetings.

Amendment 18, approved in 2006, addresses a remand of elements in Amendment 11 related to bycatch monitoring and mitigation. It incorporates a description of the Council's bycatch-related policies and programs into Chapter 6. It also effected a substantial reorganization and update of the FMP, so that it better reflects the Council's and NMFS's evolving framework approach to management. Under this framework, the Council may recommend a range of broadly defined management measures for NMFS to implement. In addition to the range of measures, this FMP specifies the procedures the Council and NMFS must follow to establish and modify these measures. When first implemented, the FMP specified a relatively narrow range of measures, which were difficult to modify in response to changes in the fishery. The current framework allows the Council to effectively respond when faced with the dynamic challenges posed by the current groundfish fishery.

Amendment 19, also approved in 2006, revises the definition of groundfish EFH, identified habitat areas of particular concern (HAPCs), and describes management measures intended to mitigate the adverse effects of fishing on EFH. This amendment supplants the definition of EFH added to the FMP by Amendment 11.

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Amendment 20 was approved in 2010 and establishes the groundfish trawl rationalization program. Under this program, groundfish LE trawl vessels making shoreside deliveries are managed with individual fishing quotas. Motherships and associated catcher-vessels in the at-sea Pacific whiting sector are managed under a system of regulated cooperatives. Pacific whiting catcher-processors fish within a voluntary cooperative; the amendment establishes provisions to strengthen this cooperative. As noted above, Amendment 20 supersedes provisions in Amendment 15; corresponding text was replaced.

Amendment 21 was approved in 2010 and establishes long-term allocations between the trawl and non-trawl sectors of the groundfish fishery; establishes a short-term allocational split between the shoreside whiting and non-whiting fishery, necessary for implementation of the individual fishing quota (IFQ) program (established through Amendment 20); establishes darkblotched rockfish, Pacific ocean perch and widow rockfish allocations among the at-sea trawl and shoreside trawl sectors; identifies the need for initial set-asides for the at-sea trawl sectors; and establishes a Pacific halibut bycatch allowance to be provided to the trawl fishery in the form of individual bycatch quota (established through Amendment 20).

Amendment 23 was approved in 2010 to incorporate new National Standard 1 guidelines to prevent overfishing. These new National Standard 1 guidelines were developed in response to the Magnuson-Stevens Act re-authorization of 2006 which mandated an end to overfishing.

Amendment 24 was approved in February 2015 to describe the use of default harvest control rules in the biennial harvest specifications process and to clarify the descriptions of new and routine management measures that may be implemented during the biennial process. Amendment 24 also designated some species as Ecosystem Component Species and incorporated a variety of technical changes to the FMP.

Amendment 25 was approved in 2015 and added a suite of lower trophic level species to the FMP's list of ecosystem component (EC) species. Consistent with the objectives of the Council's FMPs and its Fishery Ecosystem Plan, Amendment 25 prohibits future development of directed commercial fisheries for the suite of EC species shared between all four FMPs until and unless the Council has had an adequate opportunity to both assess the scientific information relating to any proposed directed fishery and consider potential impacts to existing fisheries, fishing communities, and the greater marine ecosystem.

1.2 How This Document is Organized

The groundfish FMP is organized into 11 chapters

- Chapter 1 (this chapter) describes the development of the FMP and how it is organized.
- Chapter 2 describes the goals and objectives of the plan and defines key terms and concepts.
- Chapter 3 specifies the geographic area covered by this plan and lists the plan's Fishery Management Unit (FMU) species and Ecosystem Component (EC) species, including those EC species shared between all four of the Council's FMPs.
- Chapter 4 describes how the Council determines harvest levels. These harvest limits are related to the maximum sustainable yield (MSY) and overfishing limit (OFL) for FMU species. Precautionary reductions from these thresholds may be applied, depending on the management status of a given stock. If, according to these thresholds, a stock is determined to be overfished, the Council must recommend measures to end overfishing and develop a rebuilding plan, as specified in this chapter. Based on the thresholds, criteria, and procedures described in this chapter, the Council specifies an annual catch limit (ACL), or harvest limit, for managed stocks or stock complexes.
- Chapter 5 describes how the Council periodically specifies harvest levels and the management measures needed to prevent catches from exceeding those levels. Currently, the Council develops these specifications over the course of three meetings preceding the start of a two-year management period. This chapter also describes how the stock assessment/fishery evaluation (SAFE) document, which provides information important to management, is developed.
- Chapter 6 describes the management measures used by the Council to meet the objectives of the Magnuson-Stevens Act and this FMP. As noted above, this FMP is a framework plan; therefore, the range of management measures is described in general terms while the processes necessary to establish or modify different types of management measures are detailed. Included in the description of management measures is the Council's program for monitoring total catch (which includes bycatch) and minimizing bycatch.

- Chapter 7 identifies EFH for groundfish FMU species and the types of measures that may be used to mitigate adverse impacts to EFH from fishing.

- Chapter 8 describes procedures followed by the Council to evaluate and recommend issuing exempted fishing permits (EFPs). Permitted vessels are authorized, for limited experimental purposes, to harvest groundfish by means or in amounts that would otherwise be prohibited by this FMP and its implementing regulations. These permits allow experimentation in support of FMP goals and objectives. EFPs have been used, for example, to test gear types that result in less bycatch.

- Chapter 9 provides criteria for determining what activities involving groundfish would qualify as scientific research and could therefore qualify for special treatment under the management program.

- Chapter 10 describes the procedures used to review state regulations in order to ensure that they are consistent with this FMP and its implementing regulations.

- Chapter 11 describes the groundfish LE program.

- Appendix A contains descriptions of the biological, economic, social, and regulatory characteristics of the groundfish fishery.

- Appendix B contains detailed information on groundfish EFH.

- Appendix C describes the effects of fishing on groundfish EFH.

- Appendix D describes the effects of activities other than fishing on groundfish EFH.

- Appendix E contains a detailed description of the trawl rationalization program (see Section 6.9.3.1).
- Appendix F contains a description of overfished species rebuilding plans.

The appendices contain supporting information for the management program. Because these appendices do not describe the management framework or Council groundfish management policies and procedures, and only supplement the required and discretionary provisions of the FMP described in §303 of the Magnuson-Stevens Act, they may be periodically updated without being subjected to the Secretarial review and approval process described in §304(a) of the Magnuson-Stevens Act. These appendices are published under separate cover.
[Amended: 11, 18, 19, 16-2, 16-3, 16-4, 16-5, 15, 20, 21, 23, 24, 25]

CHAPTER 2 GOALS AND OBJECTIVES

2.1 Goals and Objectives for Managing the Pacific Coast Groundfish Fishery

The Council is committed to developing long-range plans for managing the Washington, Oregon, and California groundfish fisheries that will promote a stable planning environment for the seafood industry, including marine recreation interests, and will maintain the health of the resource and environment. In developing allocation and harvesting systems, the Council will give consideration to maximizing economic benefits to the United States, consistent with resource stewardship responsibilities for the continuing welfare of the living marine resources. Thus, management must be flexible enough to meet changing social and economic needs of the fishery as well as to address fluctuations in the marine resources supporting the fishery. The following goals have been established in order of priority for managing the west coast groundfish fisheries, to be considered in conjunction with the national standards of the Magnuson-Stevens Act.

Management Goals

Goal 1 - Conservation. Prevent overfishing and rebuild overfished stocks by managing for appropriate harvest levels and prevent, to the extent practicable, any net loss of the habitat of living marine resources.

Goal 2 - Economics. Maximize the value of the groundfish resource as a whole.

Goal 3 - Utilization. Within the constraints of overfished species rebuilding requirements, achieve the maximum biological yield of the overall groundfish fishery, promote year-round availability of quality seafood to the consumer, and promote recreational fishing opportunities.

Objectives. To accomplish these management goals, a number of objectives will be considered and followed as closely as practicable:

Conservation

Objective 1. Maintain an information flow on the status of the fishery and the fishery resource which allows for informed management decisions as the fishery occurs.

Objective 2. Adopt harvest specifications and management measures consistent with resource stewardship responsibilities for each groundfish species or species group. Achieve a level of harvest capacity in the fishery that is appropriate for a sustainable harvest and low discard rates, and which results in a fishery that is diverse, stable, and profitable. This reduced capacity should lead to more effective management for many other fishery problems.

Objective 3. For species or species groups that are overfished, develop a plan to rebuild the stock as soon as possible, taking into account the status and biology of the stock, the needs of fishing communities, recommendations by international organizations in which the United States participates, and the interaction of the overfished stock within the marine ecosystem.

Objective 4. Where conservation problems have been identified for non-groundfish species and the best scientific information shows that the groundfish fishery has a direct impact on the ability of that species to maintain its long-term reproductive health, the Council may consider establishing management measures to control the impacts of groundfish fishing on those species. Management measures may be imposed on the groundfish fishery to reduce fishing mortality of a non-groundfish species for documented conservation reasons. The action will be designed to minimize disruption of the groundfish fishery, in so far as consistent with the goal to minimize the bycatch of non-groundfish species, and will not preclude achievement of a quota, harvest guideline, or allocation of groundfish, if any, unless such action is required by other applicable law.

Objective 5. Describe and identify EFH, adverse impacts on EFH, and other actions to conserve and enhance EFH, and adopt management measures that minimize, to the extent practicable, adverse impacts from fishing on EFH.

Economics

Objective 6. Within the constraints of the conservation goals and objectives of the FMP, attempt to achieve the greatest possible net economic benefit to the nation from the managed fisheries.

Objective 7. Identify those sectors of the groundfish fishery for which it is beneficial to promote year-round marketing opportunities and establish management policies that extend those sectors fishing and marketing opportunities as long as practicable during the fishing year.

Objective 8. Gear restrictions to minimize the necessity for other management measures will be used whenever practicable. Encourage development of practicable gear restrictions intended to reduce regulatory and/or economic discards through gear research regulated by EFP.

Utilization

Objective 9. Develop management measures and policies that foster and encourage full utilization (harvesting and processing), in accordance with conservation goals, of the Pacific Coast groundfish resources by domestic fisheries.

Objective 10. Recognize the multispecies nature of the fishery and establish a concept of managing by species and gear or by groups of interrelated species.

Objective 11. Develop management programs that reduce regulations-induced discard and/or which reduce economic incentives to discard fish. Develop management measures that minimize bycatch to the extent practicable and, to the extent that bycatch cannot be avoided, minimize the mortality of such bycatch. Promote and support monitoring programs to improve estimates of total fishing-related mortality and bycatch, as well as those to improve other information necessary to determine the extent to which it is practicable to reduce bycatch and bycatch mortality.

Social Factors.

Objective 12. When conservation actions are necessary to protect a stock or stock assemblage, attempt to develop management measures that will affect users equitably.

Objective 13. Minimize gear conflicts among resource users.

Objective 14. When considering alternative management measures to resolve an issue, choose the measure that best accomplishes the change with the least disruption of current domestic fishing practices, marketing procedures, and the environment.

Objective 15. Avoid unnecessary adverse impacts on small entities.

Objective 16. Consider the importance of groundfish resources to fishing communities, provide for the sustained participation of fishing communities, and minimize adverse economic impacts on fishing communities to the extent practicable.

Objective 17. Promote the safety of human life at sea.

[Amended; 7, 11, 13, 16-1, 18, 16-4]

2.2 Operational Definition of Terms

Acceptable Biological Catch (ABC) is a harvest specification that accounts for the scientific uncertainty in the estimate of OFL, and any other scientific uncertainty.

Accountability Measures (AMs) are management controls, such as inseason adjustments to fisheries or annual catch targets, to prevent annual catch limits, including sector-specific annual catch limits, from being exceeded, and to correct or mitigate overages of the annual catch limit if they occur. AMs should address and minimize both the frequency and magnitude of overages and correct the problems that caused the overage in as short a time as possible.

Annual Catch Limit (ACL) is a harvest specification set equal to or below the ABC in consideration of conservation objectives, socioeconomic concerns, management uncertainty, ecological concerns, and other factors. The ACL is a harvest limit that includes all sources of fishing-related mortality including landings, discard mortality, research catches, and catches in exempted fishing permit activities. Sector-specific ACLs can be specified, especially in cases where a sector has a formal, long-term allocation of the harvestable surplus of a stock or stock complex. The ACL serves as the basis for invoking AMs.

Annual Catch Target (ACT) is a management target set below the ACL and may be used as an AM in cases where there is uncertainty in inseason catch monitoring to ensure against exceeding an ACL. Since the ACT is a target and not a limit it can be used in lieu of harvest guidelines or strategically to accomplish other management objectives. Sector-specific ACTs can also be specified to accomplish management objectives.

Biennial fishing period is defined as a 24-month period beginning January 1 and ending December 31.

Bottom (or flatfish bottom) trawl is a trawl in which the otter boards or the footrope of the net are in contact with the seabed. It includes roller (or bobbin) trawls, Danish and Scottish seine gear, and pair trawls fished on the bottom.

Bottom-contact gear by design, or as modified, and through normal use makes contact with the sea floor.

Bycatch means fish which are harvested in a fishery, but which are not sold or kept for personal use and includes economic discards and regulatory discards. Such term does not include fish released alive under a recreational catch and release fishery management program.

Chafing gear is webbing or other material attached to the codend of a trawl net to protect the codend from wear.

Charter fishing means fishing from a vessel carrying a passenger for hire (as defined in section 2101(21a) of title 46, United States Code) who is engaged in recreational fishing.

Closure, when referring to closure of a fishery, means that taking and retaining, possessing or landing the particular species or species complex is prohibited.

Council means the Pacific Fishery Management Council, including its Groundfish Management Team (GMT), Scientific and Statistical Committee (SSC), Groundfish Advisory Subpanel (GAP), and any other committee established by the Council.

Commercial fishing is (1) fishing by a person who possesses a commercial fishing license or is required by law to possess such license issued by one of the states or the Federal government as a prerequisite to taking, landing, and/or sale; or (2) fishing which results in or can be reasonably expected to result in sale, barter, trade, or other disposition of fish for other than personal consumption.

Double-walled codend is a codend constructed of two walls of webbing.

Economic discards means fish which are the target of a fishery, but which are not retained because they are of an undesirable size, sex, quality, or for other economic reasons.

Ecosystem Component Species are FMP species that are not actively managed in the fishery (i.e., no harvest specifications are specified for these species). Ecosystem component species are not targeted, are not generally retained for sale or personal use, are not subject to overfishing, and are not overfished or approaching an overfished condition (see section 4.4.4 for more detail). This FMP includes both EC species that are specific to the Groundfish FMP and EC species that are shared between all four of the Council's FMPs (referred to as "Shared EC Species").

Essential fish habitat means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.

Exploitable biomass is the biomass that is available to a unit of fishing effort. Defined as the sum of the population biomass at age (calculated as the mean within the fishing year) multiplied by the age-specific availability to the fishery. Exploitable biomass is equivalent to the catch biomass divided by the instantaneous fishing mortality rate.

F is the instantaneous rate of fishing mortality. F typically varies with age, so the F values are presented for the age with maximum F. Fish of other ages have less availability to the fishery, so a unit of effort applies a lower relative level of fishing mortality to these fish.

F_{MSY} is the fishing mortality rate that maximizes catch biomass in the long term.

$F_{SPR\ x\%}$ is the fishing mortality rate that will produce a given spawning potential ratio. The SPR is the average fecundity of a recruit over its lifetime when the stock is fished divided by the average fecundity of a recruit over its lifetime when the stock is unfished. The SPR is based on the principle that a certain biomass of fish has to survive in order to spawn and replenish the stock at a sustainable level.

Fishing means (1) the catching, taking, or harvesting of fish; (2) the attempted catching, taking, or harvesting of fish; (3) any other activity which can reasonably be expected to result in the catching, taking, or harvesting of fish; or (4) any operations at sea in support of, or in preparation for, any activity described above. This term does not include any activity by a vessel conducting authorized scientific research.

Fishing year is defined as January 1 through December 31.

Fishing community means a community which is substantially dependent on or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs and includes fishing vessel owners, operators, crew, and recreational fishers and United States fish processors that are based in such community.

Fixed gear (anchored non-trawl gear) includes longline, trap or pot, set net, and stationary hook-and-line gear (including commercial vertical hook-and-line) gears.

Gillnet is a single-walled, rectangular net which is set upright in the water.

Harvest guideline (HG) is a specified numerical harvest objective which is not a quota. Attainment of a HG does not require closure of a fishery.

Hook-and-line means one or more hooks attached to one or more lines. Commercial hook-and-line fisheries may be mobile (troll) or stationary (anchored).

Incidental catch or incidental species means groundfish species caught when fishing for the primary purpose of catching a different species.

Individual fishing quota (IFQ) means a Federal permit under a limited access system to harvest a quantity of fish expressed by a unit or units representing a percentage of the total allowable catch of a fishery that may be received or held for exclusive use by a person.

Longline is a stationary, buoyed, and anchored groundline with hooks attached, so as to fish along the seabed.

Maximum fishing mortality threshold (MFMT) is the level of fishing mortality (F), on an annual basis, above which overfishing is occurring. The MFMT or reasonable proxy may be expressed either as a single number (a fishing mortality rate or F value), or as a function of spawning biomass or other measure of reproductive potential.

Maximum sustainable yield (MSY) is an estimate of the largest average annual 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, but may be reassessed periodically based on the best scientific information available.

Midwater (pelagic or off-bottom) trawl is a trawl in which the otter boards may occasionally contact the

seabed, but the footrope of the net remains above the seabed. It includes pair trawls if fished in midwater. A midwater trawl has no rollers or bobbins on the net.

MSY stock size means the largest long-term average size of the stock or stock complex, measured in terms of spawning biomass or other appropriate units that would be achieved under an MSY control rule in which the fishing mortality rate is constant. The proxy typically used in this fishery management plan is 40 percent of the estimated unfished biomass, although other values based on the best scientific information are also authorized.

Minimum stock size threshold (MSST) is the level of biomass below which the stock or stock complex is considered to be overfished.

Non-trawl gear means all legal commercial gear other than trawl gear.

Optimum yield (OY) means the amount of fish which will provide the greatest overall benefit to the U.S., particularly with respect to food production and recreational opportunities, and taking into account the protection of marine ecosystems, is prescribed as such on the basis of the MSY from the fishery as reduced by any relevant economic, social, or ecological factor; and in the case of an overfished fishery, provides for rebuilding to a level consistent with producing the MSY in such fishery.

Overfished describes any stock or stock complex whose size is sufficiently diminished that a change in management practices is required to achieve an appropriate level and rate of rebuilding. The term generally describes any stock or stock complex determined to be below its overfished/rebuilding threshold. The default proxy is generally 25 percent of its estimated unfished biomass; however, other scientifically valid values are also authorized.

Overfishing means exceeding an OFL specified in regulations.

Overfishing limit (OFL) is the MSY harvest level or the annual abundance of exploitable biomass of a stock or stock complex multiplied by the maximum fishing mortality threshold or proxy thereof and is an estimate of the catch level above which overfishing is occurring.

Processing or to process means the preparation or packaging of groundfish to render it suitable for human consumption, retail sale, industrial uses, or long-term storage, including, but not limited to, cooking, canning, smoking, salting, drying, filleting, freezing, or rendering into meal or oil, but does not mean heading and gutting unless additional preparation is done.

Processor means a person, vessel, or facility that (1) engages in processing, or (2) receives live groundfish directly from a fishing vessel for sale without further processing.

Prohibited species are those species and species groups which must be returned to the sea as soon as is practicable with a minimum of injury when caught and brought aboard except when their retention is authorized by other applicable law. Exception may be made in the implementing regulations for tagged fish, which must be returned to the tagging agency, or for examination by an authorized observer.

Quota means a specified numerical harvest objective, the attainment (or expected attainment) of which causes closure of the fishery for that species or species group. Groundfish species or species groups under this FMP for which quotas have been achieved shall be treated in the same manner as prohibited species.

Recreational fishing means fishing for sport or pleasure, but not for sale.

Regulatory discards are fish harvested in a fishery which fishermen are required by regulation to discard whenever caught or are required by regulation to retain, but not sell.

Roller (or bobbin) trawl is a bottom trawl that has footropes equipped with rollers or bobbins made of wood, steel, rubber, plastic, or other hard material intended to keep the footrope above the seabed, thereby protecting the net.

Set-aside is the amount of yield of an actively managed stock or stock complex that is deducted from an ACL or sector allocation. A set-aside deducted from an ACL is designed to accommodate catch in Tribal fisheries, research fisheries, exempted fishing permit activities, and bycatch in non-groundfish fisheries. A set-aside deducted from a sector allocation is designed to accommodate catch for a portion of the sector where within-sector allocations are not specified (e.g., set-asides for the at-sea whiting sectors for many stocks are deducted from formal trawl allocations to accommodate expected bycatch).

Set net is a stationary, buoyed, and anchored gillnet or trammel net.

Spawning biomass is the biomass of mature female fish at the beginning of the year. If the production of eggs is not proportional to body weight, then this definition should be modified to be proportional to expected egg production.

Spawning biomass per recruit (SPR) is the expected egg production of a female fish over its lifetime. Alternatively, this is the mature female biomass of an equilibrium stock divided by the mean level of recruitment that produced this stock.

Spear is a sharp, pointed, or barbed instrument on a shaft. Spears may be propelled by hand or by mechanical means.

Stock Assessment and Fishery Evaluation (SAFE) document is a document prepared by the Council that provides a summary of the most recent biological condition of species in the fishery management unit, and the social and economic condition of the recreational and commercial fishing industries. It summarizes, on a periodic basis, the best available information concerning the past, present, and possible future condition of the stocks and fisheries managed by the FMP.

Target fishing means fishing for the primary purpose of catching a particular species or species group (the target species).

Trammel net is a gillnet made with two or more walls joined to a common float line.

Trap (or pot) is a portable, enclosed device with one or more gates or entrances and one or more lines attached to surface floats.

Vertical hook-and-line gear (commercial) is hook-and-line gear that involves a single line anchored at the bottom and buoyed at the surface so as to fish vertically.

[Amended: 5, 11, 13, 17, 18, 19, 23, 25]

CHAPTER 3 AREAS AND STOCKS INVOLVED

The management regime of this FMP applies to:

1. The U.S. EEZ of the northeast Pacific ocean that lies between the U.S.-Canada border (as specified in *Federal Register*, Volume 42, Number 44, March 7, 1977, page 12938) and the U.S.-Mexico border (Figure 3-1).

2. All foreign and domestic commercial and recreational vessels which are used to fish for groundfish in the management area.

3. All groundfish stocks which comprise this fishery management unit (see Section 3.1).

Management Areas. Upon consideration of stock distribution and domestic and foreign historical catch statistics, the following statistical areas (Figure 3-1) have been determined by the Pacific Fishery Management Council (Council) to be the most convenient administrative and biological management areas. These areas are based on International North Pacific Fisheries Commission (INPFC) statistical areas, but in some cases have been modified slightly. The areas are, from south to north:

Conception - Southern boundary of EEZ to 36°00' N latitude
Monterey - 36°00' N latitude to 40°30' N latitude
Eureka - 40°30' N latitude to 43°00' N latitude
Columbia - 43°00' N latitude to 47°30' N latitude
Vancouver - 47°30' N latitude to northern boundary of the EEZ

These areas may be modified or deleted and additional statistical reporting and management areas may be added, modified, or deleted if necessary to refine information or management of a species or species group. Changes will be implemented in accordance with the procedures in Chapters 5 and 6.

3.1 Species Managed by this Fishery Management Plan

Table 3-1 is the listing of species actively managed under this FMP.

Table 3-1. Common and scientific names of species actively managed in this FMP.

Common Name	Scientific Name
ELASMOBRANCHS	
Big skate	*Raja binoculata*
Leopard shark	*Triakis semifasciata*
Longnose skate	*Raja rhina*

Common Name	Scientific Name
Spiny dogfish	*Squalus suckleyi*
ROUNDFISH	
Cabezon	*Scorpaenichthys marmoratus*
Kelp greenling	*Hexagrammos decagrammus*
Lingcod	*Ophiodon elongatus*
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*
Blackspotted rockfish	*S. melanostictus*
Blue rockfish	*S. mystinus*
Bocaccio	*S. paucispinis*
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 rockfish	*S. goodei*
China rockfish	*S. nebulosus*
Copper rockfish	*S. caurinus*
Cowcod	*S. levis*
Darkblotched rockfish	*S. crameri*
Deacon rockfish	*S. diaconus*
Dusky rockfish	*S. ciliatus*
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	*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*

Common Name	Scientific Name
Speckled rockfish	*S. ovalis*
Splitnose rockfish	*S. diploproa*
Squarespot rockfish	*S. hopkinsi*
Sunset rockfish	*S. crocotulus*
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*
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*

[a/] The category "rockfish" includes all genera and species of the family Scorpaenidae, even if not listed, that occur in the Washington, Oregon, and California area. The Scorpaenidae genera are *Sebastes, Scorpaena, Sebastolobus, and Scorpaenodes.*

The species in Table 3-2 are designated Ecosystem Component Species (see section 4.4.4 for more details). The inclusion of all endemic skates, except longnose and big skate, and all endemic grenadiers will allow more precise catch monitoring without the need for a sorting requirement for these species since skates and grenadiers are generally landed in unidentified species market categories (e.g., Unidentified Skates).

Table 3-2. Groundfish species designated as Ecosystem Component Species.

Common Name	Scientific Name
Aleutian skate	*Bathyraja aleutica*
Bering/sandpaper skate	*B. interrupta*
~~Big skate~~	~~*Raja binoculata*~~
California skate	*R. inornata*
Roughtail/black skate	*Bathyraja trachura*
All other skates	Endemic species in the family *Arhynchobatidae*
Pacific grenadier	*Coryphaenoides acrolepis*
Giant grenadier	*Albatrossia pectoralis*
All other grenadiers	Endemic species in the family *Macrouridae*
Finescale codling (aka Pacific flatnose)	*Antimora microlepis*
Ratfish	*Hydrolagus colliei*
Soupfin shark	*Galeorhinus zyopterus*

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Table 3-3 lists EC species shared between all four of the Council's FMPs, including the Groundfish FMP.

Table 3-3. Common and scientific names of EC species shared between all four of the Council's FMPs.

Common Name	Scientific Name
Round herring	*Etrumeus teres*
Thread herring	*Opisthonema libertate, O. medirastre*
Mesopelagic fishes	Families: *Myctophidae, Bathylagidae, Paralepididae, and Gonostomatidae*
Pacific sand lance	*Ammodytes hexapterus*
Pacific saury	*Cololabis saira*
Silversides	*Atherinopsidae*
Smelts	*Osmeridae*
Pelagic squids	Families: *Cranchiidae, Gonatidae, Histioteuthidae, Octopoteuthidae, Ommastrephidae* except Humboldt squid (*Dosidicus gigas*), *Onychoteuthidae, and Thysanoteuthidae*

No directed commercial fisheries may begin for any Shared EC Species until and unless the Council has had an adequate opportunity to both assess the scientific information relating to any proposed directed fishery and consider potential impacts to existing fisheries, fishing communities, and the greater marine ecosystem.

[Amended: 11, 16-1, 24, 25, 27]

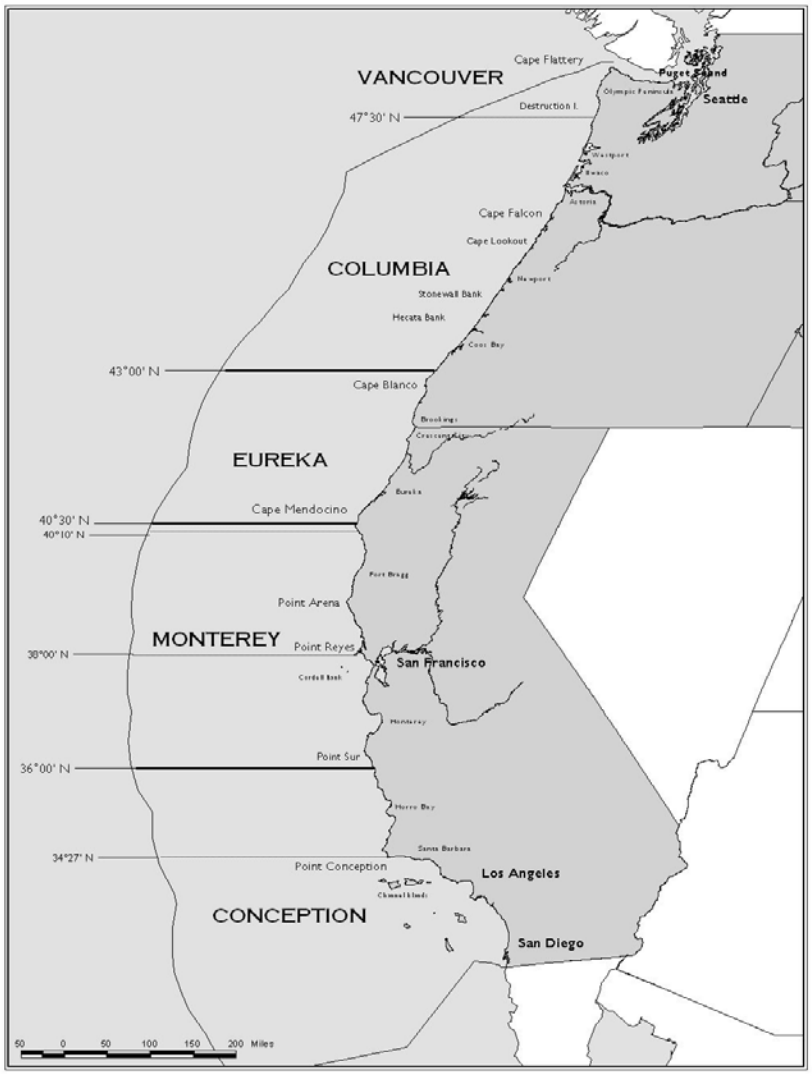

Figure 3-1. International North Pacific Fisheries Commission (INPFC) statistical areas in the U.S. exclusive economic zone seaward of Washington, Oregon, and California.

CHAPTER 4 PREVENTING OVERFISHING AND ACHIEVING OPTIMUM YIELD

4.1 National Standard 1 Guidelines

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 600.310(a)).

The determination of optimum yield (OY) is a decisional mechanism for resolving the Magnuson-Stevens Act's multiple purposes and policies, implementing an FMP's objectives and balancing the various interests that comprise the national welfare. 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 (50 CFR Section 600.310):

- Estimating MSY, estimated the MSY biomass and setting the MSY control rule (50 CFR 600.310(c); Section 4.3 of this chapter).
- Specifying stock status determination criteria (maximum fishing mortality threshold and minimum stock size threshold, or reasonable proxies thereof) (50 CFR 600.310(d); Section 4.5 of this chapter).
- Actions for ending overfishing and rebuilding overfished stocks (including the development and adoption of rebuilding plans) (50 CFR 600.310(e); Section 4.6 of this chapter).
- Setting OY and apportionment of harvest levels (50 CFR 600.310(f); Section 4.7 of this chapter).

In establishing OYs for west coast groundfish, this FMP uses the interim step of calculating OFLs, acceptable biological catch (ABC), and ACLs for major stocks or management units (groups of species). OFL is the MSY harvest level associated with the current stock abundance. Over the long term, if OFLs are fully harvested, the average of the OFLs would be MSY. ABC is a threshold below the OFL, which accounts for scientific uncertainty in the estimate of OFL. ACL is a harvest specification set at or below ABC and is intended to prevent overfishing.

The ACLs are established to achieve OY in the fishery. The OY for a stock or stock complex is the long-term average of the stock or stock complexes ACLs.

OYs and ACLs are set and apportioned under the procedures outlined in Chapter 5.

[Added: 16-1, Amended 16-4 and 23]

4.2 Species Categories

B_{MSY}, OFL, and the 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. For the purpose of setting MSY, OFL, the maximum fishing mortality threshold (MFMT), the minimum stock size threshold (MSST), ABC, OY, ACL and rebuilding standards, three categories of species are identified. The first are the relatively few species for which a relatively data-rich, quantitative stock assessment can be conducted on the basis of catch-at-age, catch-at-length, or other data. OFLs and overfished/rebuilding thresholds can generally be calculated for these species. ABCs can also be calculated for these species based on the uncertainty of the biomass estimated within an assessment or the variance in biomass estimates between assessments for all species in this category. The second category includes a large number of species for which some biological indicators are available, including a relatively data-poor quantitative assessment or a non-quantitative assessment. 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. OFLs and 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, there is limited data to quantitatively determine MSY, OFL, or an overfished threshold. Typically, catch-based methods (e.g., depletion-based stock reduction analysis (DBSRA), depletion-corrected average catch (DCAC), and average catches) are used to determine the OFL for category 3 species.

A fourth category of species is identified as ecosystem component (EC) species. These species are not "in the fishery" and therefore not actively managed. EC species are not targeted in any fishery and are not generally retained for sale or personal use. EC species are not determined to be subject to overfishing, approaching an overfished condition, or overfished, nor are they likely to become subject to overfishing or overfished in the absence of conservation and management measures. While EC species are not considered to be "in the fishery," the Council should consider measures for the fishery to minimize bycatch and bycatch mortality of EC species consistent with National Standard 9, and to protect their associated role in the ecosystem. EC species do not require specification of reference points but should be monitored to the extent that any new pertinent scientific information becomes available (e.g., catch trends, vulnerability, etc.) to determine changes in their status or their vulnerability to the fishery. If necessary, they should be reclassified as "in the fishery."
[Amended: 16-1, 23]

4.3 Determination of MSY, or MSY Proxy, and B_{MSY}

Harvest policies are to be specified according to standard reference points such as MSY (MSY, interpreted as a maximum average achievable catch under prevailing ecological and environmental conditions over a prolonged period). The long-term average biomass associated with fishing at F_{MSY} is 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 generally the proxy for the MSY control rule. Fishing rates above F_{MSY} eventually result in biomass smaller than B_{MSY} and produce less harvestable fish on a sustainable basis. 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. During periods of unfavorable environmental conditions 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 2015 default F_{MSY} proxies are: $F_{30\%}$ for flatfish, $F_{40\%}$ for whiting, $F_{50\%}$ for rockfish (including thornyheads), $F_{50\%}$ for elasmobranchs, and $F_{45\%}$ for all species such as sablefish and lingcod. The default F_{MSY} proxies ($F_{30\%}$, $F_{40\%}$, $F_{45\%}$, and $F_{50\%}$) are science-based values that are expected to be modified from time to time as scientific knowledge improves. The default F_{MSY} proxies in use for the current biennial harvest specifications period can be found in the Groundfish Stock Assessment and Fishery Evaluation (SAFE) document. 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.

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At this time, it is generally believed that, for many species, $F_{45\%}$ 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 $F_{45\%}$ 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 45 percent 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 B_{MSY} proxy is less than 45 percent of the unfished biomass. A biomass level of 40 percent is a reasonable proxy for B_{MSY}. The short-term yield under an $F_{45\%}$ 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~~ 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 declines below the overfished levels in the 1990s were due in large part to harvest rate policies that were later discovered to not be sustainable. More recent stock assessments indicate that west coast groundfish stocks likely have lower levels of productivity than other similar species worldwide. Based on this retrospective information, harvest rate policies in the 1990s were too high to maintain stocks at B_{MSY}. The Council revised its harvest rate policies for lower levels of production, described below.

Scientific information as of 1997 (Clark 1993; Ianelli and Heifetz 1995; Mace 1994) indicated 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 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 the estimate of F_{MSY}. Consequently, the estimated spawning biomass per recruit (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 (Mace 1994) recommended the use of $F_{40\%}$ as the target mortality rate when the stock-recruitment relationship is unknown. Lastly, Ianelli and Heifetz (Ianelli and Heifetz 1995) determined that $F_{44\%}$ was a good F_{MSY} proxy for Gulf of Alaska Pacific ocean perch, although they 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 GMT, 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 proxy was later revised based on further Scientific and Statistical Committee (SSC) investigation into the appropriate F_{MSY} proxies in 2000.

In the spring of 2000, the Council's 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 $F_{35\%}$. 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 some 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.* 2000) showed that some 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 1977-1978, 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 $F_{40\%}$ 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: $F_{40\%}$ for flatfish and whiting, $F_{50\%}$ for rockfish (including thornyheads) and $F_{45\%}$ for other groundfish such as sablefish and lingcod. In 2009, based on an SSC meta-analysis of flatfish productivity and the relationship between stock-recruitment steepness and fishing mortality rate, the SSC recommended and the Council adopted a new proxy F_{MSY} harvest rate for assessed flatfish species of $F_{30\%}$.

In the past, F_{MSY} 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 thresholds 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.

While B_{MSY} may be set based on the averaged unfished abundance ($B_{unfished}$), there are many possible approximations and estimates of mean $B_{unfished}$. The option currently preferred by the SSC is to set $B_{unfished}$ to the equilibrium point of the stock-recruitment relationship in the absence of exploitation.

[Amended: 5, 11, 16-1, 23]

4.4 Determination of OFL and ABC

In establishing OYs and ACLs for west coast groundfish, this FMP utilizes the interim step of calculating OFLs and ABCs for major stocks or management units (groups of species). OFL is the MSY harvest level associated with the current stock abundance. Over the long term, if OFLs are fully harvested, the average of the OFLs would be MSY. The SSC recommends the OFL based on application of a proxy or deterministic F_{MSY} harvest rate to the estimated exploitable biomass of the stock or, for unassessed stocks, an historical catch-based approach (e.g., average catch, depletion-corrected average catch, or depletion-based stock reduction analysis).

The ABC is a harvest specification set below the OFL and is a threshold that incorporates a scientific uncertainty buffer against overfishing (i.e., exceeding the OFL). The ABC is adopted by the Council based on its preferred level of risk aversion in combination with the recommendations of the SSC regarding scientific uncertainty. The ABC is based on a percentage reduction of the OFL. In cases where scientific uncertainty associated with estimating an OFL (σ) is quantified by the SSC, the percentage reduction that defines the scientific uncertainty buffer and the ABC can be determined by translating the estimated σ to a range of probability of overfishing (P*) values. Each P* value is then mapped to its corresponding buffer fraction[1]. The Council then determines the preferred level of risk aversion by selecting an appropriate P* value, accordingly. In cases where the P* approach is used, the upper limit of P* values considered will be 0.45.

4.4.1 Stocks with OFL and ABC Set by Relatively Data-Rich Quantitative Assessments, Category 1

The stocks with relatively data-rich quantitative assessments are those that have recently been assessed by a catch-at-age or catch-at-length analysis and judged to be informative for deciding stock-specific harvest specifications by the SSC. Annual evaluation of the appropriate MSY proxy (e.g., $F_{45\%}$) for species in this category will require some specific information in the SAFE document. Estimated age- or length-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, and fishing mortality are also required to determine whether recent trends indicate a point of concern. In general, OFL will be calculated by applying $F_{45\%}$ (or $F_{40\%}$, $F_{50\%}$, 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, OFL may be intended to remain constant over a period of ~~three~~ two or more years.

The ABC, which incorporates a scientific uncertainty buffer against overfishing, can be calculated ~~for category 1 species~~ using the probability of overfishing (P*) approach. The SSC quantifies the variability in biomass estimates (σ) for category 1 species from stock assessments and the Council chooses the P* as described above to determine the size of the scientific uncertainty buffer. The SSC has also recommended larger biomass variance (σ) proxy values for category 2 and 3 stocks. In cases where the biomass variance estimated for a category 1 stock is greater than the proxy value for category 1 stocks, the internally estimated biomass variance is used instead for calculating the ABC buffer for that stock.

Approaches to quantifying the variability on biomass estimates include using the standard error about the estimated biomass of a stock in the most recently approved assessment and estimating the between-

[1] Since estimated OFLs are median estimates, there is a 50% probability that the OFL is overestimated. Therefore, a P* of 0.5 equates to no scientific uncertainty or, in other words, the ABC is set equal to the OFL.

assessment variance in biomass estimates for a stock with multiple assessments or for all category 1 stocks with multiple assessments in the meta-analysis. A proxy variance (sigma) can be calculated using this latter approach for all or some category 1 species. These approaches are not exclusive and the SSC may recommend additional approaches to quantifying scientific uncertainty for category 1 species, including approaches that are specific to individual stocks. Once scientific uncertainty is quantified, it is mapped to an estimated P*. The Council chooses the ABC from the SSC recommended range based on its choice of P*, which is a risk-assessment policy decision. The P*-Sigma approach for quantifying scientific uncertainty will be the default approach for category 1 species unless an SSC-recommended method is adopted by the Council during the biennial specification process.

4.4.2 Stocks with OFL and ABC Set by Relatively Data-Poor Quantitative ~~or Non-quantitative~~ Assessment, Category 2

These stocks with OFL set by relatively data-poor or data-moderate quantitative ~~or non-quantitative~~ assessments ~~typically do not have a recent, quantitative assessment~~are less robust and more uncertain than category 1 assessments, but ~~there may be a previous assessment or some indicators of the status of the stock~~do inform stock status by including at least one time series index of relative abundance. Category 2 stocks may also have a recent assessment that was judged to be relatively data-poor by the SSC. Detailed biological information (i.e., age and/or length composition data) is not routinely available or used in an assessment for these stocks, and OFL levels have typically been established on the basis of a data-moderate assessment which uses an historical catch-based approach ~~(e.g., average catch, depletion-corrected average catch, or depletion-based stock reduction analysis),~~coupled with at least one index of relative abundance ~~trends in a fishery independent survey or some other index of current biomass~~. ~~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~~ category 1 status.

Since there is greater scientific uncertainty for category 2 stocks relative to category 1 stocks, the scientific uncertainty buffer is generally greater than that recommended for category 1 stocks. A P* approach can be used to determine the ABC. In such cases, the SSC recommends a value for σ, which is typically larger than an associated σ for category 1 stocks, and the Council chooses the P* value to determine the size of the scientific uncertainty buffer.

The following approaches can be considered for setting the ABC for category 2 stocks:

- Continue to apply a buffer of .25 for category 2 stocks for consistency with current practice until the SSC has developed and applied an appropriate analytical framework; or
- Set the value of sigma for category 2 stocks to two times the coefficient of variation (CV) for category 1 stocks. These specific values are not based on a formal analysis of assessment outcomes and could change substantially when the SSC reviews additional analyses.

These approaches for quantifying scientific uncertainty will be the default approaches for category 2 species unless an SSC-recommended method is adopted by the Council during the biennial specification process.

4.4.3 Stocks with OFL and ABC Values Set by Less Quantitative or Non-quantitative Assessment, Category 3

Of the 100-plus groundfish species managed under the FMP, OFL values have been established for only about 32 based on category 1 or 2 assessments. The remaining species are incidentally landed and usually are not listed separately on fish landing receipts. Information from fishery independent surveys is often lacking for these stocks, because of their low abundance or they are not vulnerable to survey sampling gear.

Until sufficient quantities of at-sea observer program data are available or surveys of other fish habitats are conducted, it is unlikely that there will be sufficient data to upgrade the assessment capabilities or to ~~evaluate the overfishing potential~~determine status of these stocks. ~~Interim~~ OFL values are established for these category 3 stocks based on an historical catch-based approach (e.g., average catch, depletion-corrected average catch, or depletion-based stock reduction analysis) or qualitative information, including advice from the Council's advisory entities.

Since there is greater scientific uncertainty for category 3 stocks relative to category 1 or 2 stocks, the scientific uncertainty buffer for such stocks is generally greater than that recommended for category 1 and 2 stocks. A P* approach can be used to determine the ABC. In such cases, the SSC recommends a value for σ, which is typically larger than an associated σ for category 1 or 2 stocks, and the Council chooses the P* value to determine the size of the scientific uncertainty buffer.

The following approaches can be considered for setting the ABC for category 3 stocks:

- Continue to apply a buffer of 0.5 for category 3 stocks for consistency with current practice until the SSC has developed and applied an appropriate analytical framework; or
- Set the value of sigma for category 3 stocks to four times the CV for category 1 stocks. These specific values are not based on a formal analysis of assessment outcomes and could change substantially when the SSC reviews additional analyses.

These approaches for quantifying scientific uncertainty will be the default approaches for category 3 species unless an SSC-recommended method is adopted by the Council during the biennial specification process.

4.4.4 Ecosystem Component Stocks Without OFL Values

Ecosystem Component species do not require specification of reference points (i.e., OFLs, ABCs, and ACLs) but are monitored to the extent that any new pertinent scientific information becomes available (e.g., catch trends, vulnerability, etc.) to determine changes in their status or their vulnerability to the fishery. For this classification, such species should:

1) be a non-target species or stock;
2) not be determined to be subject to overfishing, approaching overfished, or overfished;
3) not be likely to become subject to overfishing or overfished, according to the best available information, in the absence of conservation and management measures; and
4) not generally be retained for sale or personal use.

Categorizing FMP species as Category 1, 2 or 3 species may be done biennially in the specifications decision process; however, recategorizing species as in the fishery or as Ecosystem Component species requires an FMP amendment. A productivity and susceptibility assessment (Patrick, *et al.* 2009) can be done for FMP species in the biennial specifications process to guide a decision on whether stocks are actively managed with harvest specifications (i.e., category 1, 2, or 3 stocks) or are monitored as Ecosystem Component species.

EC species include both those species exclusive to this FMP (Section 3.2) and those species shared between all four of the Council's FMPs (Section 3.3). EC species shared between all four FMPs may not become the subject of directed commercial fisheries until and unless the Council has had an adequate opportunity to both assess the scientific information relating to any proposed directed fishery and consider potential impacts to existing fisheries, fishing communities, and the greater marine ecosystem. The Council may have additional data and analysis requirements for changing the species categorization of EC species that are shared between all four FMPs, beyond those requirements already applying to EC species specific to the Groundfish FMP.

[Amended: 11, 12, 16-1, 23, 25]

4.5 Precautionary Thresholds and Overfishing Status Determination Criteria

The National Standard Guidelines define two thresholds that are necessary to maintain a stock at levels capable of producing MSY: the MFMT and a 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, which specifies how fishing mortality or catches could vary as a function of stock biomass in order to achieve yields close to MSY.

4.5.1 Determination of Precautionary Thresholds

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 4.6.1). The precautionary biomass threshold is in addition to the overfishing and overfished/rebuilding thresholds required under the Magnuson-Stevens Act (MFMT and MSST). The precautionary biomass threshold is higher than the overfished biomass MSST. Because B_{MSY} is a long-term 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 and 2 species since an estimate of stock status is needed to understand when a stock is beyond the precautionary threshold. The precautionary threshold will be the B_{MSY} level, if known. The default precautionary threshold will be 40 percent of the estimated unfished biomass level for actively managed non-flatfish species. The precautionary threshold for actively managed flatfish stocks is 25 percent 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 percent and 50 percent of the estimated unfished biomass level.

4.5.2 Determination of Overfishing Threshold

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 OFL. The term "overfished" describes a stock whose abundance is below its overfished/rebuilding threshold, or MSST. Overfished/rebuilding thresholds, in general, are linked to the same productivity assumptions that determine the OFL levels. The default value of this threshold is 25 percent of the estimated unfished biomass level for non-flatfish stocks or 50 percent of B_{MSY}, if known. The MSST for flatfish stocks is 12.5 percent of the estimated unfished biomass level. The MFMT is simply the value(s) of fishing mortality in the MSY control rule, which is used to calculate the OFL. Technically, exceeding F_{MSY} constitutes overfishing; therefore, exceeding the OFL is used in this FMP to constitute overfishing since all stocks classified as "in the fishery" have specified OFLs.

~~For Category 2 species, the following may be evaluated as potential indicators of overfishing:~~

- ~~catch that exceeds the OFL or an effective harvest rate higher than F_{MSY}~~
- ~~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 OFL, 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 or as prescribed in an adopted rebuilding plan.

Information from fishery independent surveys is often lacking for Category 3 species because of their low abundance or because they are not vulnerable to survey sampling gear. Until sufficient data become available from the at-sea observer program, the risk of overfishing these species cannot be fully evaluated.

4.5.3 Determination of Overfished/Rebuilding Thresholds

The MSST (overfished/rebuilding threshold) is the default value of 25 percent of the estimated unfished biomass level or 50 percent of B_{MSY}, if known for non-flatfish stocks and 12.5 percent for flatfish stocks. ~~The overfished/rebuilding threshold (also referred to as $B_{rebuild}$), is generally in the range of 25 percent to 40 percent of $B_{unfished}$.~~

The default overfished/rebuilding threshold for category 1 and 2 groundfish is $0.25B_{unfished}$. 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. For example, if B_{MSY} is known, the overfished threshold may be set equal to 50 percent 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.

[Amended: 11, 12, 16-1, 23]

4.6 Ending Overfishing and Rebuilding

4.6.1 Default Precautionary and Interim Rebuilding ACL Calculation

The precautionary threshold, defined in Section 4.5.1, 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 rebuilding harvest control policy to guide the setting of ACL until the Council sets a new rebuilding policy specific to the conditions of the stock and fishery. The default ACL/rebuilding 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 five percent (flatfish) or ten percent (non-flatfish) of the estimated mean unfished biomass (sometimes called pristine or virgin biomass or reproductive potential). This approach could also be described as an ACL 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 for species managed to a $B_{40\%}$ B_{MSY} target (Figure 4-1) and, in the case of flatfish species that are managed to a $B_{25\%}$ target, the "25-5" adjustment (Figure 4-2). 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 $F_{30\%}$ for flatfish, $F_{40\%}$ for whiting, $F_{50\%}$ for rockfish and elasmobranchs, and $F_{45\%}$ 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 an amendment to the FMP, but the scientific basis for new values must be documented.

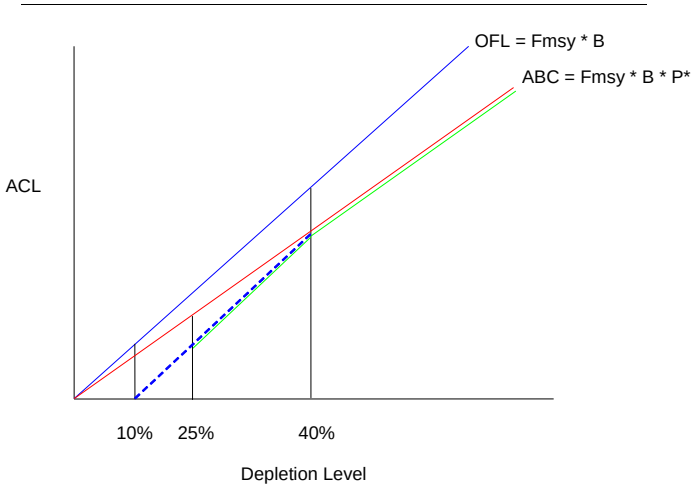

Figure 4-1. Illustration of the default "40-10" ACL rule compared to OFL and ABC as adopted under Amendment 23. This rule applies to all assessed non-flatfish species.

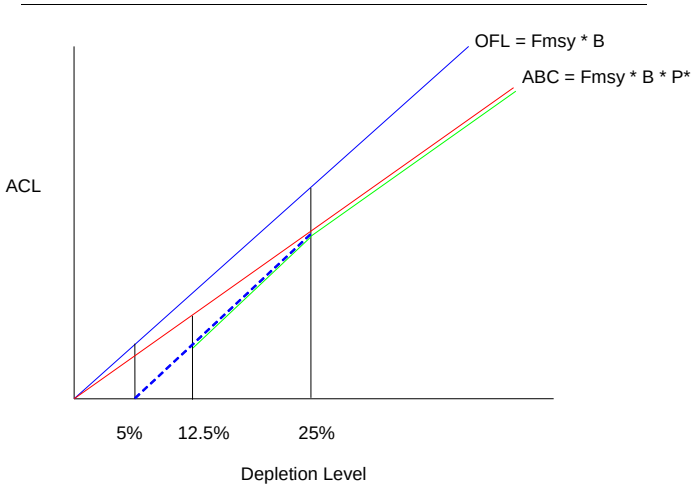

Figure 4-2. Illustration of the default "25-5" ACL rule compared to OFL and ABC as adopted under Amendment 16-5. This rule only applies to assessed flatfish species.

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The greater amount of catch reduction applied below the precautionary threshold will foster a 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 category 1 and 2 stocks ~~in Category 1 and those Category 2 stocks~~ with a quantitative assessment of estimated biomass can be managed in this way. For stocks with inadequate information to apply this approach, the Council will strive to develop the information necessary to estimate biomass and employ this harvest control mechanism if needed.

4.6.2 Procedures for Calculating Rebuilding Parameters

The Magnuson-Stevens Act and National Standard Guidelines provide a descriptive framework for developing strategies to rebuild overfished stocks. This framework identifies three parameters: a minimum time in which an overfished stock can rebuild to its target biomass (denoted T_{MIN}), a maximum permissible time period for rebuilding the stock to its target biomass (T_{MAX}), and a target year, falling within the time period between T_{MIN} and T_{MAX} and representing the year by which the stock can be rebuilt, as soon as possible, taking into account the status and biology of the stock, the needs of fishing communities, and the interaction of the stock of fish within the marine ecosystem (T_{TARGET}).

T_{MIN}, 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 T_{MIN} is less than ten years, then the specified time period for rebuilding may be adjusted upward so that the rebuilding period is as short as possible, taking into account the status and biology of the stock, the needs of fishing communities, and the interaction of the stock of fish within the marine ecosystem, except that no such upward adjustment may result in the specified time period exceeding ten years (which would then constitute T_{MAX}), unless management measures under an international agreement in which the United States participates dictate otherwise.

If T_{MIN} is ten years or greater, then the specified time period for rebuilding may be adjusted upward so that the rebuilding period is as short as possible, taking into account the status and biology of the stock, the needs of fishing communities, and the interaction of the stock of fish within the marine ecosystem, 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 maximum allowable time to rebuild would be 20 years, which is T_{MAX}.

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.

4.6.2.1 Calculating Rebuilding Probabilities

Stock assessment results form the basis of a rebuilding analysis, which in turn is used to develop rebuilding policies and choose the rebuilding parameters identified in each rebuilding plan. The elements of rebuilding analyses are described in the SSC Terms of Reference for Rebuilding Analyses (SSC 2001). This guidance has been incorporated into a computer program (Punt 2002). In the analysis, the probability that the overfished stock will reach its target biomass is determined with respect to T_{MIN}, T_{MAX}, and T_{TARGET}. The methods for calculating the values of these parameters are described below. This is a simplified explanation of the current methodology; for example, equations and technical specifications are omitted. The SSC may revise their terms of reference in the future as the computer program undergoes continued refinement and elaboration.

The rebuilding analysis program uses "Monte Carlo simulation" to derive a probability estimate for a given rebuilding strategy. This method projects population growth many times in separate simulations. It accounts for possible variability by randomly choosing the value of a key variable, in this case total recruitment or recruits per spawner from a range of values. These values can be specified empirically, by listing some set of historical values, or by a relationship based on a model. The SSC recommends that the rebuilding analyses use historical values. Because of this variability in a key input value, each simulation will show a different pattern of population growth. As a result, a modeled population may reach the target biomass that defines a rebuilt stock (B_{MSY}) in a different year in each of the simulations.

This technique is first used to calculate T_{MIN} in probabilistic terms, which is defined as the time needed to reach the target biomass in the absence of fishing with a 50 percent probability. In other words, in half the simulations the target biomass was reached in some year up to and including the computed T_{MIN}. Given T_{MIN}, T_{MAX} is computed as 10 years or by adding the value of one mean generation time to T_{MIN}, if T_{MIN} is greater than or equal to 10 years.

A target year, T_{TARGET}, is set as a year at T_{MIN} or greater, which does not exceed T_{MAX} ,and which is as short as possible, taking into account the status and biology of the stock, the needs of fishing communities, and the interaction of the stock of fish within the marine ecosystem. Prior to Amendment 16-4, the Council set T_{TARGET} in part by considering the probability of rebuilding the stock by T_{MAX}. The Council may continue to review the probability of rebuilding the stock by T_{MAX} given differing F rates, a reference parameter known as "P_{MAX}." The Magnuson-Stevens Act, however, simply requires that rebuilding periods be as short as possible, taking into account:

- the status and biology of any overfished stocks of fish;
- the needs of fishing communities;
- recommendations by international organizations in which the United States participates; and
- the interaction of the overfished stock of fish within the marine ecosystem (§304(e)(4)(A)(i)).

It is important to recognize that some of the terms introduced and described above represent policy decisions at the national level and the Council **does not have a choice** in setting their values. The dates for T_{MIN} and T_{MAX} are determined based on guidelines established at the national level. Mean generation time is a biological characteristic that cannot be chosen by policymakers. Thus, the Council cannot choose these values and then use them as a basis for management. Defined in national guidelines, T_{MIN} is a consequence of the productivity of the fish stock and is calculated by fishery biologists based on information they get

from a particular stock. Similarly, T_{MAX}, which is calculated from T_{MIN}, does not represent a Council choice.

Policy flexibility comes into play in determining T_{TARGET}, or the time by which the stock is projected to rebuild. As explained earlier, the time to rebuild must be as short as possible, taking into account the status and biology of the stock, the needs of fishing communities, and the interaction of the stock of fish within the marine ecosystem. When developing a management strategy the Council can choose a fishing mortality rate and corresponding annual level of fishing. However, when rebuilding overfished species, the choice of F is based on the value of T_{TARGET}, keeping in mind that these values cannot be chosen independently of one another. In other words, the Council may choose one value and derive the other from it, but they cannot choose these values independently of the other.

4.6.3 Stock Rebuilding Plans

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. For a stock that is overfished, the rebuilding plan will specify a time period for ending the overfished condition and rebuilding the stock. Overfishing restrictions and recovery benefits should be fairly and equitably allocated among sectors of the fishery.

Certain elements of a rebuilding plan developed by the Council, as specified in Section 4.6.3.2 (Contents of Rebuilding Plans), will be submitted to the Secretary as an FMP amendment and implementing regulations. Changes to key rebuilding plan elements will be accomplished through full (notice and comment) rulemaking. 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 make all approved rebuilding plans available in the annual SAFE document or by other means. The Council may recommend that 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. They should 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. If, in response to these revisions, the Council recommends changes to the management target for a particular stock, such changes will be published through full (notice and comment) rulemaking as described in Section 6.2 of this FMP. As with all Council activities, public participation is critical to the development, implementation and success of management programs.

4.6.3.1 Goals and Objectives of Rebuilding Plans

The overall goals of rebuilding programs are to (1) achieve the population size and structure that will support the MSY within a specified time period that is as short as possible, taking into account the status and biology of the stock, the needs of fishing communities, and the interaction of the stock of fish within the marine ecosystem; (2) minimize, to the extent practicable, the adverse social and economic impacts associated with rebuilding, including adverse impacts on fishing communities; (3) fairly and equitably distribute both the conservation burdens (overfishing restrictions) and recovery benefits among commercial, recreational, and charter fishing sectors; (4) protect the quantity and quality of habitat necessary to support the stock at healthy levels in the future; and (5) promote widespread public awareness,

understanding and support for the rebuilding program. More specific 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) monitor fishing mortality and use available stock assessment information to evaluate the condition of the stock; (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.

4.6.3.2 Contents of Rebuilding Plans

Generally, rebuilding plans will contain:

1. A description of the biology and status of the overfished stock and fisheries affected by stock rebuilding measures.

2. A description of how rebuilding parameters for the overfished stock were determined (including any calculations that demonstrate the scientific validity of parameters).

3. Estimates of rebuilding parameters ($B_{unfished}$, B_{MSY}, T_{MIN}, T_{MAX}, and the probability of reaching target biomass by this date, and T_{TARGET}) at the time of rebuilding plan adoption.

4. A description of the fishing communities' needs that were considered at the time of adoption of the plan.

5. The process, and any applicable standards, that will be used during periodic review to evaluate progress in rebuilding the stock to the target biomass (see Section 4.6.3.6).

6. Any management measures the Council may wish to specifically describe in the FMP, which facilitate stock rebuilding in the specified period. (These measures would be in addition to any existing measures typically implemented through annual or biennial management. See Section 4.6.3.4 for more information.)

7. Any goals and objectives in addition to or different from those listed in the preceding section.

8. Potential or likely allocations among sectors.

9. For fisheries managed under international agreement, a discussion of how the rebuilding plan will reflect traditional participation in the fishery, relative to other nations, by fishermen of the United States.

10. Any other information that may be useful to achieve the rebuilding plan's goals and objectives.

The following questions also serve as a guide 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 a comparison of historical harvest levels (including discards) relative to recommended ACLs, 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 likely improve the condition of the stock?

6. What types of fishing communities rely on catch of this particular stock, or on catch of stocks that co-occur with this stock?

7. Is the particular species caught incidentally with other species? Is it a major or minor component in a mixed-stock complex?

8. 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?

Rebuilding plan documents are distinct from the analytical documents required by the National Environmental Policy Act (NEPA) and other legal mandates, although they will reflect the contents of those analyses in a much briefer form. Rebuilding plan elements incorporated into the FMP (see Appendix F)) summarize the contents enumerated in this section. Rebuilding plans as a whole will be updated in Appendix F after their approval.

Any new rebuilding program will commence as soon as the first measures to rebuild the stock or stock complex are implemented.

Fishing communities need a sustainable fishery that: is safe, well-managed, and profitable; provides jobs and incomes; contributes to the local social fabric, culture, and image of the community; and helps market the community and its services and products.

4.6.3.3 Process for Development and Approval of Rebuilding Plans

Upon receiving notification that a stock is overfished, the Council will identify one or more individuals to draft the rebuilding plan. A draft of the 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 its final recommendations, the Council will submit the proposed rebuilding plan or revision to an existing plan to NMFS for concurrence. A rebuilding plan will be developed following the standard procedures for considering and implementing an FMP amendment (if necessary) under the Magnuson-Stevens Act and other applicable law.

The following elements in each rebuilding plan will be incorporated into the FMP in Appendix F and will constitute the rebuilding plans for all overfished species. Appendix F will be modified as appropriate to reflect the most recent rebuilding plan for each overfished species.

1. A brief description of the status of the stock and fisheries affected by stock rebuilding measures at the time the rebuilding plan was prepared.

2. The methods used to calculate stock rebuilding parameters, if substantially different from those described in Section 4.6.2.

3. An estimate at the time the rebuilding plan was prepared of:
   - unfished biomass ($B_{unfished}$ or B_0) and target biomass (B_{MSY});
   - the year the stock would be rebuilt in the absence of fishing (T_{MIN});
   - T_{MIN} plus one mean generation time (T_{MAX}); and
   - the year in which the stock would be rebuilt based on the application of stock rebuilding measures that achieve rebuilding as soon as possible, taking into account the status and biology of the stock, the needs of fishing communities, and the interaction of the overfished stock within the marine ecosystem (T_{TARGET}).

4. A description of the harvest control rule (e.g., constant catch or harvest rate) and the specification of this parameter. The types of management measures that will be used to constrain harvests to the level implied by the control rule will also be described (see Appendix F). These two elements, the harvest control rule and a description of management measures, represents the rebuilding strategy intended to rebuild the stock by the target year.

It is likely that over time the parameters listed above will change. It must be emphasized that the values enumerated in the FMP represent estimates at the time the rebuilding plan is prepared. Therefore, the FMP need not be amended if new estimates of these values are calculated. The values for these parameters found in the FMP are for reference, so that managers and the public may track changes in the strategy used to rebuild an overfished stock. However, any new estimates of the parameters listed above will be published in the SAFE documents as they become available.

4.6.3.4 Updating Key Rebuilding Parameters

In addition to an initial specification in the FMP in Appendix F, the target year (T_{TARGET}) and the harvest control rule (type and numerical value) will also be specified in regulations. If new information indicates a need to change the value of either of these two parameters, such a change will be accomplished through full (notice and comment) rulemaking as described in Section 6.2 of this FMP and reflected in Appendix F. The target year is the year by which the stock would be rebuilt to its target biomass. Therefore, if a subsequent analysis identifies an earlier target year for the current fishing mortality rate (based on the harvest control rule), there is no obligation to change in regulations either the target year (to the computed earlier year) or the harvest control rule (to delay rebuilding to the original target year). Stock assessments for overfished species are typically conducted every two years. Stock assessments and rebuilding analyses use mathematical models to predict a stock's current abundance, as well as project future abundance and recruitment. In any mathematical model that uses a variety of data sources, as the stock assessments do, model results tend to vary from one assessment to the next within some range of values. This expected variation means that, when the Council and SSC review a new overfished species stock assessment and rebuilding model, they must also consider whether the result of that model or models show a rebuilding trajectory that varies from the previously-predicted trajectory to a significant degree. If the variation between the stock assessments and rebuilding analyses for a particular species do not show significant

differences in the rebuilding trajectory for that species, they are mathematically considered to be essentially the same. In that circumstance, the Council will likely not need to revise the T_{TARGET} or harvest control rule for that species. Since the target year is the key rebuilding parameter, it should only be changed after careful deliberation. For example, the Council might recommend that the target year be changed if, based on new information about the status and/or biology of the stock, they determine that the existing target year is later than the recomputed maximum rebuilding time (T_{MAX}) or if a recomputed harvest control rule would result in such a low optimum yield as to cause substantial socioeconomic impacts. These examples are not definitive: the Council may elect to change the target year because of other circumstances. However, any change to the target year or harvest control rule must be supported by commensurate analysis that demonstrates that the new target year is a target to rebuild the stock as soon as possible, taking into account the status and biology of the stock, the needs of fishing communities, and the interaction of the stock within the marine ecosystem.

4.6.3.5 Implementation of Actions Required Under the Rebuilding Plan

NMFS will implement or adjust, with the adoption of the rebuilding plan, any management measures not already in effect that are necessary to implement the rebuilding plan. Many necessary measures may already be in place through the standard management process. Because of the complex nature of the fishery and the interaction of various stocks, regulations will need to be adjusted over the periods of the rebuilding plans. Management measures will be adjusted, or new measures will be developed and implemented in the future, in order to best implement each rebuilding plan throughout the life of that plan.

Once a rebuilding plan is adopted, certain measures required in the rebuilding plan may need to be implemented through authorities and processes already described in the FMP. Management actions to achieve OY harvest, and objectives related to rebuilding requirements of the Magnuson-Stevens Act 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 in Section 4.7, Chapter 5, and Section 6.2.) Allocation proposals require consideration as specified in the allocation framework (see Section 6.3.1). Any proposed regulations to implement the rebuilding plan will be developed in accordance with the framework procedures of this FMP.

Any rebuilding management measures that are not already authorized under the framework of the existing FMP, or specified in the FMP consequent of rebuilding plan adoption, will be implemented by further FMP amendments. These plan amendments 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 stock rebuilding.

4.6.3.6 Periodic Review of Rebuilding Plans

Rebuilding plans will be reviewed periodically, but at least every two years, although the Council may propose revisions to an adopted rebuilding plan at any time. These reviews will take into account the goals and objectives listed in Section 4.6.3.1, recognizing that progress towards the first goal, to achieve the population size and structure that will support MSY within the specified time period, will only be evaluated on receipt of new information from the most recent stock assessment.

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 such that the chosen management target must be revised. If, based on this review, the Council decides that the harvest control rule or target year must be changed, the

procedures outlined in Section 4.6.3.3 will be followed. Regardless of the Council's schedule for reviewing overfished species rebuilding plans, the Secretary of Commerce, through NMFS, is required to review the progress of overfished species rebuilding plans toward rebuilding goals every two years, per the Magnuson-Stevens Act at 16 U.S.C. ' 304(e)(7).

4.6.3.7 Precedence of a Recovery Plan or "No Jeopardy" Standard Issued Pursuant to the Endangered Species Act

Like rebuilding plans pursuant to National Standard 1 in the Magnuson-Stevens Act, a recovery plan pursuant to the Endangered Species Act (ESA) outlines measures for the conservation and survival of the designated species. Under Section 7 of the Endangered Species Act an agency must consult NMFS when any activity permitted, funded, or conducted by that agency may affect a listed marine species or its designated critical habitat. (In the case of fishery management actions, NMFS is both the action and consulting agency.) As part of these consultations, a biological opinion is produced describing standards that must be met when permitting or implementing the action to ensure that the action is not likely to jeopardize the continued existence of the listed species; these are referred to as no jeopardy standards.

Measures under a recovery plan or "no jeopardy" standards in a biological opinion will supersede rebuilding plan measures and targets if they will result in the stock rebuilding to its target biomass by an earlier date than the target year identified in the current rebuilding plan. (If expressed probabilistically, any ESA standard expressed as a combination of date and probability that constitutes a higher standard will take precedence over the equivalent target and probability in the rebuilding plan. For example, an ESA standard requiring recovery by the rebuilding plan target year, but with a higher probability, would take precedence over the rebuilding plan.) If a stock is de-listed before reaching its target biomass, the rebuilding plan will come back into effect until such time as the stock is fully rebuilt.

[Amended: 11, 12, 16-1, 16-5, 23]

4.7 Determination of OY, ACL and ACT

Optimum yield (OY) is defined in the Magnuson-Stevens Act as the amount of fish which will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities and taking into account the protection of marine ecosystems; that is prescribed on the basis of the MSY from the fishery, as reduced by any relevant economic, social, or ecological factor; and, in the case of an overfished fishery, that provides for rebuilding to a level consistent with producing the MSY in such fishery. OY may be established at the stock or stock complex level, or at the fishery level. Achieving, on a continuing basis, the "optimum yield from each fishery" means producing, from each stock, stock complex, or fishery: a long-term series of catches such that the average catch is equal to the OY, overfishing is prevented, the long-term average biomass is near or above B_{MSY}, and overfished stocks and stock complexes are rebuilt consistent with timing and other requirements of section 304(e)(4) of the Magnuson-Stevens Act. OYs are considered long-term harvest objectives and are not necessarily set every year or during every biennial management cycle. The Magnuson-Stevens Act also specifies that OY is based on MSY, and may be equal to or less than MSY. The 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.

The ACL is a level of annual catch, which counts all sources of annual fishing-related mortality, including discard mortalities, and is the harvest threshold used to manage west coast fisheries. The ACL is decided in a manner to achieve OY without exceeding a specified ABC. ACLs are specified for each stock or stock

complex actively managed in the fishery and serves as the basis for invoking AMs. The ACL may not exceed the ABC and may be set equal to the ABC if the Council and NMFS judge there are no reasons to buffer the ABC to account for management uncertainty, socioeconomic concerns, ecological concern, rebuilding concerns, etc. If ACLs are exceeded more often than one in four years, then AMs, such as catch monitoring and inseason adjustments to fisheries, need to improve or additional AMs may need to be implemented. Such additional AMs may include setting an annual catch target (ACT), which is a level of harvest below the ACL. The ACT may be especially important for a stock subject to highly uncertain inseason catch monitoring. Unlike an ACL, the ACT can be exceeded annually. ACLs ~~and ACTs, if needed,~~ are annual specifications that are determined ~~every other year~~ in the biennial specifications process described in Section 5.4. ACTs are annual accountability measures that are determined ~~every other year~~ in the biennial specifications process described in Section 5.4.

ACLs and ACTs can be specified for sectors of a fishery as well as for the entire fishery. In such cases, the sector-specific ACLs and/or ACTs would sum to the ACL or ACT specified for the stock for the entire fishery. Sector-specific ACLs may be decided for sectors with a formal, long-term allocation of the harvestable surplus of a stock (see Section 6.3.2). A sector-specific ACT may serve as a harvest guideline for a sector or used strategically in a rebuilding plan to attempt to reduce mortality of an overfished stock more than the rebuilding plan limits prescribe.

Total fishing mortality must be accounted in the stock or stock complex ACL, including mortality resulting from tribal fisheries, incidental open access fisheries (e.g., non-groundfish fisheries that impact groundfish stocks), scientific research, and removals under EFPs. These types of mortality can be deducted from either the ACL or ACT; this decision and the corresponding impacts are analyzed during the biennial specifications process. In some instances, the Council may treat the ACT like the ACL and subtract the off-the-top deductions from the ACT prior to determining sector allocations. In other cases, for example, if sector-specific ACTs are used, then the off-the-top deductions may be taken from the ACL prior to calculating the ACT.

Most of the ~~90~~100-plus 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 one species, but unavoidably harvest several other species. In such cases, the optimum harvest strategy often is to target a group (complex or assemblage) of groundfish species.

The Council will avoid allowing overfishing of individual stocks and control harvest mortality to allow

overfished stocks to rebuild 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 the National Standard Guidelines (50 CFR 600.310(d)). 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.

Reduction in catches or fishing rates for either precautionary or rebuilding purposes is an important component of converting values of OFL to values of ACL. This relationship is specified by the ABC harvest control rule, which accounts for scientific uncertainty in the determination of the OFL, and the ACL harvest control rule. All ACLs will remain in effect until revised, and, whether revised or not, will be announced at the beginning of the fishing period along with other specifications (see Chapter 5).

Groundfish stock assessments generally provide the following information to aid in determination of OFL and ACL:

1. Current biomass (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.

4.7.1 Determination of Numerical ACLs If Stock Assessment Information Is Available from a Relatively Data-Rich Assessment (Category 1)

The Council will follow these steps in determining numerical ACLs. The recommended numerical ACL values will include any necessary adjustments to harvest mortality needed 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. OFL: Multiply the current fishable biomass estimate times the F_{MSY} exploitation rate or its proxy to get OFL.

2. ABC: Determine an appropriate scientific uncertainty buffer to set the ABC below the OFL.

3. Precautionary adjustment: If the abundance is above the specified precautionary threshold, the ACL will be equal to or less than ABC. If the current biomass estimate is less than the precautionary threshold (Section 4.5.1), the harvest rate will be reduced according to the harvest control rule specified in Section 4.6.1 in order to accelerate a return of abundance to optimal levels. If the abundance falls below the overfished/rebuilding threshold (Section 4.5.3), 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 the ACL.

4. Other adjustments to the ACL: Adjustments to an ACL for other social, economic, or ecological considerations may be made. The ACL will be reduced for anticipated bycatch mortality (i.e. mortality of discarded fish). Amounts of fish harvested as compensation for private vessels

participating in NMFS resource survey activities will also be deducted from ABC prior to setting the ACL.

5. ACL recommendations will be consistent with established rebuilding plans and achievement of their goals and objectives.
    (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 the ACL in a manner that complies with rebuilding plans developed in accordance with Section 4.6.2.
    (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. This will allow the Council and Secretary of Commerce to consider domestic regulations that will help address international overfishing in cases where that is occurring.
    (d) For any stock that has been declared overfished, the open access/LE 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 LE permit may be prohibited from operating in the open access fishery when the LE fishery has been closed.

6. Adjustments to an ACL could include increasing the ACL above the default value up to the ~~overfishing~~ ABC level as long as the management still allows achievement of established rebuilding goals and objectives. In limited circumstances, these adjustments could include increasing the ACL above the overfishing level as long as the harvest meets the standards of the mixed stock exception in the National Standard Guidelines:
    1. The Council demonstrates by analysis that such action will result in long-term net benefits to the Nation.
    2. 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.
    3. 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. Exceptions to the requirement to prevent overfishing could apply under certain limited circumstances. Harvesting one stock at its optimum level may result in overfishing of another stock when the two stocks tend to be caught together (this can occur when the two stocks are part of the same fishery or if one is bycatch in the other's fishery). Before the Council and NMFS may decide to allow this type of overfishing, an analysis must be performed and the analysis must contain a justification in terms of overall benefits, including a comparison of benefits under alternative management measures, and an analysis of the risk of any stock or stock complex falling below its MSST. The Council may decide to allow this type of overfishing if the fishery is not overfished and the analysis demonstrates that all of the following conditions are satisfied:
    (a) Such action will result in long-term net benefits to the Nation.
    (b) Mitigating measures have been considered and it has been demonstrated 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; and

(c) The resulting rate of fishing mortality will not cause any stock or stock complex to fall below its MSST more than 50 percent of the time in the long term, although it is recognized that persistent overfishing is expected to cause the affected stock to fall below its B_{MSY} more than 50 percent of the time in the long term.

8. For species complexes (such as the ~~minor~~ rockfish complexes), the ACL will generally be set equal to the sum of the individual component ACLs, as appropriate.

4.7.2 Determination of a Numerical ACL If OFL Is Based on a Relatively Data-Poor Quantitative ~~or Non-quantitative~~ Assessment (Category 2)

1. OFL may be based on ~~an historical catch based approach (e.g., average catch, depletion corrected average catch, or depletion based stock reduction analysis),~~ a ~~previous~~ relatively data-poor assessment, ~~a non-quantitative assessment, or other qualitative information.~~

2. ABC: Determine an appropriate scientific uncertainty buffer to set the ABC below the OFL.

3. Precautionary adjustments, if any, would be based on relevant information. In general, the Council will follow a risk-averse approach and may recommend an ACL below ABC if there is a perception the stock is below its MSY biomass level or to accommodate management uncertainty, socioeconomic concerns, or other considerations. If a declining trend persists for more than three years, then a focused evaluation of the status of the stock, its OFL, 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.

4. Uncertainty adjustment: In cases where there is a high degree of uncertainty about the condition of the stock or stocks, ACL may be reduced accordingly.

5. Amounts of fish harvested as compensation for industry research activities will also be deducted.

6. These adjustments could include increasing ACL above the default value as indicated for ~~Category~~ category 1 stocks, items 5 and 6 above.

4.7.3 Determination of a Numerical ACL If OFL Is Based on a Data-Poor Assessment~~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 is often lacking for these stocks, because of their low abundance or they are not vulnerable to survey sampling gear. Until sufficient quantities of 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 will be sufficient data to upgrade the assessment capabilities or to evaluate the overfishing potential of these stocks.

These species typically have OFL values based on an historical catch-based approach (e.g., average catch, depletion-corrected average catch, or depletion-based stock reduction analysis), often from a species composition estimate of landings from port sampling, and a precautionary reduction of the ABC and ACL

generally greater than that specified for category 2 species. Another approach typically used for deciding the OFL value for a category 3 species is based on a fishing mortality rate (F) associated with the species estimated or assumed natural mortality rate (M); such as F = .75M.

Most category 3 species are managed in a stock complex, where harvest specifications are set for the complex in its entirety. "Stock complex" means a group of stocks that are sufficiently similar in geographic distribution, life history, and vulnerabilities to the fishery such that the impact of management actions on the stocks is similar. At the time a stock complex is established, the FMP should provide a full and explicit description of the proportional composition of each stock in the stock complex, to the extent possible. Stocks may be grouped into complexes for various reasons, including where stocks in a multispecies fishery cannot be targeted independent of one another and MSY cannot be defined on a stock-by-stock basis (see paragraph (e)(1)(iii) of this section); where there is insufficient data to measure their status relative to SDC; or when it is not feasible for fishermen to distinguish individual stocks among their catch. The vulnerability of stocks to the fishery should be evaluated when determining if a particular stock complex should be established or reorganized, or if a particular stock should be included in a complex. Stock complexes may be comprised of: one or more indicator stocks, each of which has SDC and ACLs, and several other stocks; several stocks without an indicator stock, with SDC and an ACL for the complex as a whole; or one of more indicator stocks, each of which has SDC and management objectives, with an ACL for the complex as a whole.

~~Current stock complexes will be used until the Council advisory bodies can complete their analysis and provide recommendations regarding reconfiguration of those complexes according to the factors discussed in the National Standard guidelines.~~

An indicator stock is a stock with measurable SDC that can be used to help manage and evaluate more poorly-known stocks that are in a stock complex. If an indicator stock is used to evaluate the status of a complex, it should be representative of the typical status of each stock within the complex, due to similarity in vulnerability. If the stocks within a stock complex have a wide range of vulnerability, they should be reorganized into different stock complexes that have similar vulnerabilities; otherwise the indicator stock should be chosen to represent the more vulnerable stocks within the complex. In instances where an indicator stock is less vulnerable than other members of the complex, management measures need to be more conservative so that the more vulnerable members of the complex are not at risk from the fishery. More than one indicator stock can be selected to provide more information about the status of the complex. When indicator stock(s) are used, periodic re-evaluation of available quantitative or qualitative information (e.g., catch trends, changes in vulnerability, fish health indices, etc.) is needed to determine whether a stock is subject to overfishing, or is approaching (or in) an overfished condition.

[Amended: 11, 16-1, 17, 23]

CHAPTER 5 PERIODIC 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 biennial fishing period, the Council will assess the biological, social, and economic condition of the Pacific Coast groundfish fishery and update 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 SAFE document or the NEPA document used to analyze new harvest specifications and management measures described in Section 5.2. 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 OFL for major stocks will be developed, as well as an ABC that accounts for the scientific uncertainty of the stock's estimated biomass. The Council will identify those species or species groups which it proposes to be managed by the establishment of numerical harvest levels (OYs, ACLs, ACTs, 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 OFL, an ABC specification set below the OFL to account for scientific uncertainty, the establishment of OYs and ACLs for various stocks (may be set equal to the ABC), and the calculation of specified allocations between harvest sectors. 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 biennially between November and June, but can occur under specified circumstances at other times of the fishing year. The Council will identify those ~~OYs~~ ACLs which should be designated for allocation between LE 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 would be imposed through one of the management measures processes at either 6.2 C or D in Chapter 6.

The 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 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.

[Amended: 5, 12, 16-1, 17, 18]

5.1 General Overview of the Harvest Specifications and Management Process

The specifications and management process, in general terms, occurs as follows:

1. The Council will determine the MSY or MSY proxy and OFL for each major stock. Typically, the MSY proxy will be in terms of a fishing mortality rate ($F_{x\%}$,) and OFL 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. The Council and SSC will determine an appropriate scientific uncertainty buffer to set the ABC below the OFL. The ABC accommodates the uncertainty in estimating the OFL and may be determined using either a straight percentage reduction of the OFL as recommended by the SSC or by the P* approach.

3. Every species will either have its own designated ACL or be included in a multispecies ACL. Species which are included in a multispecies ACL may also have individual ACLs, have individual HGs, or be included in a HG for a subgroup of the multispecies ACL.

4. To determine the ACL 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, the ACL will be equal to or less than the ABC. If abundance falls below the precautionary threshold, the ACL will be reduced according to the harvest control rule for that stock. If abundance falls below the overfished/rebuilding threshold, the ACL will be set according to the interim rebuilding rule until the Council develops a formal rebuilding plan for that species.

5. For any stock or stock complex where the Secretary identifies that overfishing is occurring, the Council will take remedial action to end overfishing and prevent the stock or stock complex from falling below the minimum stock size threshold. 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 periodic management measures as are necessary to rebuild the stock by controlling harvest mortality, habitat impacts, or other effects of fishing activities that are subject to regulation under this biennial process. These management measures will be consistent with any approved rebuilding plan.

6. The Council may reserve and deduct a portion of the ACL 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 ACL will be made in the year after the "compensation fishing"; the amounts deducted from the ACL will reflect the actual catch during compensation fishing activities.

7. The Council will identify stocks which are likely to be fully harvested (i.e., the ACL or ACT/HG achieved) in the absence of specific management measures and for which allocation between LE and open access sectors of the fishery is appropriate.

8. 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 supersedes other provisions of this FMP relating to foreign and joint venture fishing.

Notwithstanding the above, the harvest controls from the previous biennium (referred to as default harvest control rules, or default HCRs) are applied to the best available scientific information to determine the numerical values of the harvest specifications for the next biennial period. The default HCR would establish the harvest specifications based on the F_{MSY} (or proxy value) used in the previous biennium applied to the best current estimate of stock biomass to determine the OFL (as in bullet #1). The ABC is determined by applying the uncertainty buffer (as in bullet #2) used in the previous biennium except that if the P* approach was used, ~~a~~ the same P* value used in the previous biennium is applied. The ACL is determined as described in bullet #4 using the appropriate method for current stock status, if known. Thus, if based on the best available science, it is determined that stock status has changed from healthy to the precautionary zone, the methods outlined in Section 4.6.1 would be applied. If a stock has recovered such that stock size is now above the MSY biomass target, the default harvest control sets the ACL equal to the ABC using the same P* value used in the previous biennium, if applicable. If the status has not changed or is unknown, the same method used in the previous cycle is used to compute the default HCR. This includes cases where a constant catch HCR was used in the previous cycle to set the ACL below the ABC, in which case the same constant catch numerical value is used as the default ACL for the next biennial cycle. In the case of a stock managed under a rebuilding plan, the default HCR is the one described in the current rebuilding plan (see Appendix F). The SSC will advise the Council on whether adequate progress toward ending overfishing and rebuilding the affected fish stock is being made.

For any stock (or other management units) the Council may take action to depart from the default harvest control rules described in the previous paragraph, after considering the harvest specifications or other relevant factors as long as such changes are consistent with the framework described in Chapter 4 of this FMP, the MSA, and other applicable law.

Current harvest control rules (and related harvest policies as applicable) will be listed in the SAFE document, which will be presented to the Council and the public (and in Appendix F for stocks managed under rebuilding plans).

[Amended: 5, 12, 16-1, 17, 23, 24]

5.2 SAFE Document/Biennial Specifications and Management Measures NEPA Document

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 OFLs, 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 FMP; a SAFE document or a NEPA document (e.g., EIS or EA) is prepared every other year when biennial harvest specifications and management measures are decided. Not all species and species groups can be reevaluated every other year due to limited state and Federal resources. However, the SAFE or the biennial specifications and management measures NEPA 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.)

3. Estimates of MSY and OFL 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 ACLs.

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 MFMT and the 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 most category 1 groundfish is $0.25B_{unfished}$ or $0.125\ B_{unfished}$ for assessed flatfish species. 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 reports.)

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 6.2.1.

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. The stock assessment section of the SAFE or NEPA document is normally completed 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 biennial fishing period. The Council will announce the availability of the stock assessment section of the SAFE or NEPA document to the public by such means as mailing lists or newsletters, and will provide copies upon request. The fishery evaluation section of the SAFE or NEPA document may be prepared after the Council has made its final recommendations for the upcoming biennial fishing period and will include the final recommendations, including summaries of rebuilding plans and an estimate of the previous year's catch. Availability will be similarly announced and copies made available upon request.

[Amended: 5, 12, 13, 16-1, 17, 23]

5.3 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 ACL/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 or biennial fishing period after the fish are harvested. During the specification and management measures process, NMFS will announce the total amount of fish caught during the year or biennial fishing period as compensation for conducting a resource survey, which then will be deducted from the following year's ABCs in setting the ACLs.

[Amended: 11, 17, 23]

5.4 Biennial Implementation Procedures for Specifications and Management Measures

Biennially, the Council will develop recommendations for the specification of OFLs, ABCs, ACLs, and any ACTs or quotas over the span of three Council meetings. In addition, during this process the Council may recommend establishment of ACTs, HGs and/or quotas for species or species groups within an ACL. Depending on stock assessment availability and fishery management interactions with Canada, the Council may also develop recommendations for the specification of the Pacific whiting ABC/OY and quotas in a separate, annual process governed by the Pacific whiting treaty.

The Council will develop preliminary recommendations at the first of three meetings (usually in November) 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 third meeting (usually in June) 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 or preliminary NEPA documents and consider public testimony before adopting final recommendations to the Secretary. Following the 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 it is sufficient for public review, 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. All OFLs, ABCs, ACLs, OYs, and any ACTs, HGs, or quotas will remain in effect until revised, and, whether revised or not, will be announced at the beginning of the biennial fishing period along with other specifications.

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 biennial fishing period, the current specifications in effect at the end of the previous biennial fishing period will remain in effect until modified, superseded, or rescinded.

[Amended: 5, 11, 17, 23]

5.5 Inseason Procedures for Establishing or Adjusting Specifications

5.5.1 Inseason Adjustments to OFLs, ABCs, and ACLs

Under the biennial specifications and management measures process, stock assessments for most species will become available every other year, prior to the November Council meeting that begins the three-meeting process for setting specifications and management measures. The November Council meeting that begins that three-meeting process will be the November of the first fishing year in a biennial fishing period. If the Council determines that any of the OFLs, ABCs ACLs, or OYs set in the prior management process are not adequately conservative to meet rebuilding plan goals for an overfished species, harvest specifications for that overfished species and/or for co-occurring species may be revised for the second fishing year of the then-current biennial management period.

Beyond this process, OFLs, ABCs, ACLs, OYs, ACTs, HGs, and quotas may only be modified in cases where a harvest specification announced at the beginning of the 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 incorrect harvest specification at the earliest possible date.

5.5.2 Inseason Establishment and Adjustment of ACLs, OYs, HGs, and Quotas

ACLs, OYs ACTs, and HGs or quotas may be established and adjusted inseason (1) for resource conservation through the "points of concern" framework described in Section 6.2.2; (2) in response to a technical correction to OFL described above; or, (3) under the socioeconomic framework described in Section 6.2.3.

Quotas may be established and adjusted inseason only for resource conservation or in response to a technical correction to OFL. These constraints on establishing and adjusting ACLs, OYs, ACTs, HGs, and quotas do not apply to the process for establishing and adjusting off the top deductions, which is provided in Section 4.7, or sector-specific catch limits, which is provided in Section 6.5.3.2.

[Amended: 11, 17, 18, 23]

CHAPTER 6 **MANAGEMENT MEASURES**

6.1 Introduction

The FMP, as amended, establishes the fishery management program, the process, and procedures the Council will follow in making adjustments to that program. It also sets the limits of management authority of the Council and the Secretary when acting under the FMP. The preceding two chapters describe the procedures for determining appropriate harvest levels and establishing them on a periodic basis. This chapter describes the procedures and methods that may be used to directly control fishing activities so that total catch of a given species or species group does not exceed specified harvest limits. It is organized around five major themes:

- Section 6.2 describes the procedures for establishing and adjusting management measures, including three decision-making frameworks the Council (in conjunction with its advisory bodies) uses to decide whether management measures need adjustment. These framework procedures allow management decisions, as long as they are consistent with the provisions of this FMP (including the frameworks), to be implemented via Federal regulation without first amending the FMP. This section also describes the procedures for promulgating the regulations needed to implement the management measures authorized by this FMP.

- Section 6.3 describes the criteria the Council will consider when establishing management measures intended to directly allocate harvest opportunity.

- Sections 6.4 and 6.5 describe methods to account for all sources of fishing mortality and to reduce bycatch, especially bycatch mortality. Bycatch is defined in the Magnuson-Stevens Act as "fish which are harvested in a fishery, but which are not sold or kept for personal use, and includes economic discards and regulatory discards" (16 U.S.C. 1802(2)). Section 6.4 also describes those additional measures necessary to monitor and/or report on fishery catch and effort or to enforce regulations.

- Section 6.6 through 6.9 inventory the range of management measures available to the Council, as authorized by this FMP. Not all of these management measures will be implemented at any given time.

- Section 6.10 describes those requirements that support the enforcement of management measures.

These procedures, measures, and requirements must be consistent with the goals and objectives of the FMP, the Magnuson-Stevens Act, and other applicable law. All measures, unless otherwise specified, apply to all domestic vessels regardless of whether catch is landed and processed on shore or processed at sea. The

procedures by which the Council develops recommendations on revising management measures, and by which NMFS implements those recommendations, are found in Section 6.2.

6.1.1 Overview of Management Measures for West Coast Groundfish Fisheries

In the early stages of fishery development, there is generally little concern with management strategies. As fishing effort increases, management measures become necessary to prevent overfishing and the resulting adverse biological, social and economic impacts. Although recruitment, growth, natural mortality, and fishing mortality affect the size of fish populations, fishery managers only have control over one of these factors—fishing mortality. The principal measures available to the Council to control fishing mortality of the groundfish fisheries in the Washington, Oregon, and California region are:

- Measures to reduce bycatch and bycatch mortality – described in 6.5.
- Defining authorized fishing gear and regulating the configuration and deployment of fishing gear, including mesh size in nets and escape panels or ports in traps—described in Section 6.6.
- Restricting catches by defining prohibited species and establishing landing, trip frequency, bag, and size limits—described in Section 6.7.
- Establishing fishing seasons and closed areas—described in Section 6.8.
- Limiting fishing capacity or effort through permits, licenses and endorsements, and quotas, or by means of input controls on fishing gear, such as restrictions on trawl size/shape or longline length or number of hooks or pots—described in Section 6.9. Fishing capacity may be further limited through programs that reduce participation in the fishery by retiring permits and/or vessels.

Although this chapter only discusses in detail the types of management measures outlined above, the Council may recommend and NMFS may implement other useful management measures through the appropriate rulemaking process, as long as they are consistent with the criteria and general procedures contained in this FMP.

[Amendment 18]

6.2 General Procedures for Establishing and Adjusting Management Measures

This FMP establishes three framework procedures through which the Council is able to recommend the establishment and adjustment of specific management measures for the Pacific Coast groundfish fishery. The *points of concern framework* allows the Council to develop management measures that respond to resource conservation issues; the *socioeconomic framework* allows the Council to develop management measures in response to social, economic, and ecological issues that affect fishing communities. The *habitat conservation framework* allows the Council to modify the number, extent, and location of areas closed to bottom trawling in order to protect EFH. Criteria associated with each framework form the basis for Council recommendations, and Council recommendations will be consistent with them. The process for developing and implementing management measures normally will occur over the span of at least two Council meetings, with an exception that provides for more timely Council consideration under certain specific conditions.

The time required to take action under any framework will vary depending on the nature of the action, its impacts on the fishing industry, resource, and environment, and review of these impacts by interested

parties. This depends on the range of biological, social, and economic impacts that may need to be considered at the time a particular change in regulations is proposed. Furthermore, other applicable law (e.g., the National Environmental Policy Act, Administrative Procedures Act, Regulatory Flexibility Act, relevant Executive Orders, etc.) may require additional analysis and public comment before measures may be implemented by the Secretary.

The Secretary will develop management measures recommended by the Council for review and public comment as publications in the *Federal Register*, either as notices or regulations. Generally, management measures of broad applicability and permanent effectiveness should be published as regulations. More narrowly applicable measures, which may only apply for short duration (one biennium or less) and may also require frequent adjustment, should be published as notices.

Management measures are normally imposed, adjusted, or removed at the beginning of the biennial fishing period, but may, if the Council determines it necessary, be imposed, adjusted, or removed at any time during the period. Management measures may be imposed for habitat protection, resource conservation, or social or economic reasons consistent with the criteria, procedures, goals, and objectives set forth in the FMP.

The NMFS Regional Administrator will review the Council's recommendation, supporting rationale, public comments, and other relevant information and determine whether to approve, disapprove, or partially approve the Council's recommendation. If the recommendation is approved, NMFS will implement the recommendation through regulation or notice, as appropriate. NMFS will explain any disapproval or partial disapproval of the recommendation to the Council in writing.

The procedures specified in this chapter do not affect the authority of the Secretary to take emergency regulatory action as provided for in Section 305(c) of the Magnuson-Stevens Act if an emergency exists involving any groundfish resource, or to take such other regulatory action as may be necessary to discharge the Secretary's responsibilities under Section 305(d) of the Magnuson-Stevens Act.

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 described below.

A. Automatic Actions

The NMFS Regional Administrator may initiate automatic management actions without prior public notice, opportunity to comment, or a Council meeting. These actions are nondiscretionary, and the impacts must be reasonably accountable, based on previous application of the action or past analysis. 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. Notice actions may be nondiscretionary; they may be actions 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, 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, but are not limited to, 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 on at a single Council meeting. If the recommendations are approved, the Secretary may 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 need for swift implementation and the extensive notice and opportunity for comment on these types of measures, along with the Council already having analyzed the scope of their impacts, will serve as good cause to waive the need for additional prior notice and comment in the *Federal Register*.

C. Management Measures Rulemaking For Actions Developed Through the Three-Council-Meeting Biennial Specifications Process and Two *Federal Register* Rules

During the biennial specifications process the Council may propose: (1) management measures to be classified as routine the first time these measures are used; or (2) adjustments to measures previously classified as routine, such as 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 or (3) new management measures, which are those management measures where the impacts have not been previously analyzed and/or have not been previously implemented in regulations. Examples of new measures that may be proposed during the biennial process include: changes to or imposition of gear regulations; imposition of landings limits, frequency limits, or limits that differ by gear type; closed areas or seasons used for the first time on any species or species group or gear type.

As described in Section 5.4, the three-Council-meeting biennial specifications process refers to the following decision-making schedule:

1. The Council will develop proposed harvest specifications during the first meeting (usually November). They will finish drafting harvest specifications and develop the management measures during the second meeting (usually April).

2. The Council will develop and analyze the proposed management actions over the span of at least two Council meetings (usually April and June) 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.

3. Finally, at the third meeting, the Council will make final recommendations to the Secretary on the complete harvest specifications and management measures biennial management package (usually June). For the Council to have adequate information to identify proposed management measures for public comment at the first management measures meeting, the identification of issues and the development of proposals normally must begin at a prior Council meeting.

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. 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*.

D. Full Rulemaking For Actions Normally Requiring at Least Two Council Meetings and Two *Federal Register* Rules (Regulatory Amendment)

These include any proposed new management measures to be classified as routine, including those considered highly controversial, or any measure that directly allocates the resource. These full rulemakings will normally use a two-Council-meeting process, although additional meetings may be required to fully develop the Council's recommendations on a full rulemaking issue. Regulatory measures to implement an FMP amendment will be developed through the full rulemaking process. 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*.

Council-recommended management measures addressing a resource conservation issue must be based upon the identification of a point of concern through that decision-making framework, consistent with the specific procedures and criteria listed in Section 6.2.2.

Council-recommended management measures addressing social or economic issues must be consistent with the specific procedures and criteria described in Section 6.2.3.

Council-recommended changes to habitat protection measures must be consistent with the specific procedures and criteria described in Section 6.2.4.

6.2.1 Routine Management Measures Overview

Routine management measures are those that the Council determines are likely to be adjusted on an annual or more frequent basis. The Council will classify measures as routine through either the specifications and management measures or rulemaking processes (C or D, above). In order for a measure to be classified as routine, the Council will determine that the measure is appropriate to address the issue at hand and may require further adjustment to achieve its purpose with accuracy.

As in the case for all proposed management measures, prior to initial implementation as routine measures, the Council will analyze the need for the measures, their impacts, and the rationale for their use. Once a management measure has been classified as routine through one of the two rulemaking procedures outlined above, it may be modified thereafter through the single meeting notice procedure (B, above) only if (1) the modification is proposed for the same purpose as the original measure, and (2) the impacts of the modification are within the scope of the impacts analyzed when the measure was originally classified as routine. The analysis of impacts need not be repeated when the measure is subsequently modified, if the Council determines that they do not differ substantially from those contained in the original analysis. The Council may also recommend removing a routine classification.

Experience gained from management of the Pacific Coast groundfish fishery indicates that certain measures usually require modification on a frequent basis to ensure that they meet their stated purpose with accuracy.

For commercial fisheries, these measures are trip landing limits and trip frequency limits, including cumulative limits, and notification requirements. They have been applied to the commercial fishery either to lengthen the duration of the fishery, so as not to disturb traditional fishing and marketing patterns; to reduce discards and waste, or; to discourage targeted fishing while allowing small incidental catches when attainment of a HG or quota is imminent. 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. These latter two measures were not historically imposed through the annual management cycle (now biennial) because of their allocative implications. However, this additional flexibility has become necessary to allow the harvest of healthy stocks as much as possible while protecting and rebuilding overfished and depleted stocks, and equitably distributing the burdens of rebuilding among sectors. The first time a differential trip limit or closed season is to be imposed in a fishery, it must be imposed during the biennial management cycle (with the required analysis and opportunity for public comment) and subsequently may be modified

inseason through the routine adjustment process.

For recreational fisheries, bag limits, size limits, time/area closures, boat limits, hook limits, and dressing requirements may be applied to particular species, species groups, sizes of fish, and gear types. For the recreational fishery, bag and size limits have been imposed to spread the available catch over a large number of anglers, in order to avoid waste, and to provide consistency with state regulations.

Routine management measures are also often necessary to meet the varied and interwoven mandates of the Magnuson-Stevens Act and FMP. These mandates include: preventing overfishing and rebuilding overfished species in a manner consistent with rebuilding plans, reducing bycatch, allowing the harvest of healthy stocks as much as possible while protecting and rebuilding overfished and depleted stocks, and equitably distributing the burdens of rebuilding among the sectors.

Any measure designated as routine for a particular species, species group, or gear type may not be treated as routine for a different species, species group, or gear type without first having been classified as routine. Each year, the SAFE document or the appropriate NEPA document analyzing management measures will list all measures that have been designated as routine.

The Council will conduct a continuing review of landings of those species for which HGs, quotas, OYs, or specific routine management measures have been implemented and will make projections of the landings at various times throughout the year. If in the course of this review it becomes apparent that the rate of landings is substantially different than anticipated, and that the current routine management measures will not achieve harvest management objectives, the Council may recommend inseason adjustments to those measures. Such adjustments may be implemented through the single-meeting notice procedure (B, above).

6.2.1.1 Routine Management Measures:

This section outlines those actions determined to be routine. Additional actions may be designated as routine through the biennial specifications process as outlined above and/or specified in regulations therefore they may not appear in this section. The current list of routine management measures is published in Federal regulations at 50 CFR 660.60(c).

All fisheries, all gear types:

Depth-based management measures, particularly the setting of closed areas known as GCAs may be imposed on any sector of the groundfish fleet using specific boundary lines that approximate depth contours with latitude/longitude coordinates. Depth-based management measures and the setting of closed areas may be used to: protect and rebuild overfished stocks; extend the fishing season; for the commercial fisheries, to minimize disruption of traditional fishing and marketing patterns; to reduce discards; for the recreational fisheries, to spread the available catch over a large number of anglers; to discourage target fishing while allowing small incidental catches to be landed; and to allow small fisheries to operate outside the normal season.

Routine management measures have been developed to deal with management uncertainty in the groundfish fishery. The process allows timely adjustment of measures inseason to respond to the most current scientific and management information. These routine management measures are AMs under the Magnuson-Stevens Act as amended.

Deductions of yield from ACLs made prior to fishery allocations to accommodate research fisheries, exempted fishing permits and groundfish bycatch in non-groundfish fishery sectors can be adjusted routinely in accordance with sector needs as determined by the Council. Any changes must be made in

accordance with Section 6.2 paragraph B above.

Commercial limited entry and open access fisheries:

Trip landing and frequency limits, size limits, for all gear types may be imposed: 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 protect overfished species; to allow small fisheries to operate outside the normal season; and, for the open access fishery only, to maintain landings at the historical proportions during the 1984-88 window period.

Trip landing and frequency limits have been designated as routine for the following species or species groups: black rockfish, blue rockfish, bocaccio, canary rockfish, chilipepper rockfish, cowcod, darkblotched rockfish, Pacific ocean perch, shortbelly rockfish, splitnose rockfish, widow rockfish, yelloweye rockfish, yellowtail rockfish, minor nearshore rockfish or shallow and deeper minor nearshore rockfish, shelf or minor shelf rockfish, and minor slope rockfish; DTS complex, which is composed of Dover sole, sablefish, shortspine thornyheads, and longspine thornyheads, both as a complex and for the species within the complex; arrowtooth flounder, English sole, petrale sole, Pacific sanddabs, rex sole, and the Other Flatfish complex, which is composed of those species plus any other FMP flatfish species; Pacific whiting; lingcod; cabezon; Pacific cod; spiny dogfish; and Other Fish as a complex consisting of all groundfish species listed in the FMP and not otherwise listed as a distinct species or species group.

Size limits have been designated as routine for sablefish and lingcod.

Trip landing and frequency limits that differ by gear type and closed seasons may be imposed or adjusted on a biennial or more frequent basis for the purpose of rebuilding and protecting overfished or depleted stocks. To achieve the rebuilding of an overfished or depleted stock, a sector or sectors of the primary Pacific whiting may be closed if a total catch limit of an overfished species has been designated for the whiting fishery and that total catch limit is reached before the sector's whiting allocation is reached. Total catch limits in the primary Pacific whiting fishery may be established or adjusted as routine management measures. In the shorebased IFQ fishery, changes to the surplus carry-over percentages may be routinely adjusted (see Appendix E, Section E.2.1.3 and Table 1, A-2.2.2.b).

Recreational fisheries all gear types:

Routine management measures for all groundfish species, separately or in any combination, include: bag limits, size limits, time/area closures, boat limits, hook limits, and dressing requirements. All routine management measures on recreational fisheries are intended to keep landings within the harvest levels announced by NMFS, to rebuild and protect overfished or depleted species, and to maintain consistency with State regulations, and for the other purposes set forth in this section.

Bag limits may be imposed to spread the available catch over a large number of anglers; to protect and rebuild overfished species; to avoid waste.

Size limits may be imposed to protect juvenile fish; to protect and rebuild overfished species; to enhance the quality of the recreational fishing experience.

Season duration restrictions may be imposed to spread the available catch over a large number of anglers; to protect and rebuild overfished species; to avoid waste; to enhance the quality of the recreational fishing experience.

6.2.2 Resource Conservation Issues—The Points of Concern Framework

The points of concern process is the Council's second major tool (along with setting harvest levels) in exercising its resource stewardship responsibilities. The Council developed the points of concern criteria to assist it in determining when a focused review on a particular species or species group is warranted, which might result in the need to recommend the implementation of specific management measures to address the resource conservation issue. This process is intended to foster a continuous and vigilant review of the Pacific Coast groundfish stocks and fishery to prevent unintended overfishing or other resource damage. To facilitate this process, a Council-appointed management team (the GMT or other entity) will monitor the fishery throughout the year, taking into account any new information on the status of each species or species group. By this means, they will identify resource conservation issues requiring a management response. The Council is authorized by this FMP to act based solely on evidence that one or more of these points of concern criteria has been met. This allows the Council to respond quickly and directly to a resource conservation issue. In conducting this review, the GMT or other entity will use the most current catch, effort, and other relevant data from the fishery.

In the course of the continuing review, a point of concern occurs when any one or more of the following situations occurs or is expected to occur:

1. Catch for the calendar year is projected to exceed the best current estimate of ABC for those species for which an ACL, OY, HG or quota is not specified.
2. Catch for the calendar year is projected to exceed the current ACL, OY, HG or quota.
3. Any change in the biological characteristics of the species or species complex is discovered, such as changes in age composition, size composition, and age at maturity.
4. Exploitable biomass or spawning biomass is below a level expected to produce MSY for the species/species complex under consideration.
5. Recruitment is substantially below replacement level.
6. Estimated bycatch of a species or species group increases substantially above previous estimates, or there is information that abundance of a bycatch species has declined substantially.
7. Impacts of fishing gear on EFH are discovered and modification to gear or fishing regulations could reduce those impacts.

Once a point of concern is identified, the GMT will evaluate current data to determine if a resource conservation issue exists and will provide its findings in writing at the next scheduled Council meeting. If the GMT determines a resource conservation issue exists, it will provide its recommendation, rationale, and analysis for the appropriate management measures that will address the issue.

In developing its recommendation for management action, the Council will choose an action from one or more of the categories listed below, although they may also identify other necessary measures. These categories cover the types of management measures most commonly used to address resource conservation issues:

- HGs
- Quotas
- Cessation of directed fishing on the identified species or species group with appropriate allowances for incidental harvest of that species or species group
- Size limits
- Landing limits
- Trip frequency limits
- Area or subarea closures

- Time closures
- Seasons
- Gear limitations, which include, but are not limited to, definitions of legal gear, mesh size specifications, codend specifications, marking requirements, and other gear specifications as necessary
- Observer or other monitoring coverage
- Reporting requirements
- Permits

Council recommendations to directly allocate the resource will be developed according to the criteria and process described in Section 6.2.3, the socioeconomic framework.

After receiving the GMT's report and comments from its advisory bodies, the Council will take public testimony and, if appropriate, will recommend management measures to the NMFS Regional Administrator, accompanied by supporting rationale and analysis of impacts. The Council's analysis will include a description of (a) how the action will address the resource conservation issue, consistent with the objectives of the FMP; (b) likely impacts on other management measures, other fisheries, and bycatch; (c) economic impacts, particularly the cost to the commercial and recreational segments of the fishing industry; and (d) impacts on fishing communities.

The NMFS Regional Administrator will review the Council's recommendation and supporting information and will follow the appropriate implementation process described in Section 6.2 D depending on the amount of public notice and comment provided by the Council and the intended permanence of the management action. If the Council anticipates that the recommended measures will be adjusted frequently, it may classify them as routine through the appropriate process described in Section 6.2.1.

If the NMFS Regional Administrator does not concur with the Council's recommendation, the Council will be notified in writing of the reasons for the rejection.

Nothing in this section is meant to detract from the authority of the Secretary to take emergency action under Section 305(c) of the Magnuson-Stevens Act.

6.2.3 Non-biological Issues—The Socioeconomic Framework

From time to time, non-biological issues may arise that require the Council to recommend management actions to address certain social or economic issues in the fishery. Resource allocation, seasons, or landing limits based on market quality and timing, safety measures, and prevention of gear conflicts make up only a few examples of possible management issues with a social or economic basis. In general, there may be any number of situations where the Council determines that management measures are necessary to achieve the stated social and/or economic objectives of the FMP.

Either on its own initiative or by request, the Council may evaluate current information and issues to determine if social or economic factors warrant imposition of management measures to achieve the Council's established management objectives. Actions that are permitted under this framework include all of the categories of actions authorized under the points of concern framework with the addition of direct resource allocation.

If the Council concludes that a management action is necessary to address a social or economic issue, it will prepare a report containing the rationale in support of its conclusion. The report will include the proposed management measure, a description of other viable alternatives considered, and an analysis that

addresses the following criteria: (a) how the action is expected to promote achievement of the goals and objectives of the FMP; (b) likely impacts on other management measures, other fisheries, and bycatch; (c) biological impacts; (d) economic impacts, particularly the cost to the fishing industry; (e) impacts on fishing communities; and (f) how the action is expected to accomplish at least one of the following, or any other measurable benefit to the fishery:

1. Enable a quota, HG, or allocation to be achieved.
2. Avoid exceeding a quota, HG, or allocation.
3. Extend domestic fishing and marketing opportunities as long as practicable during the fishing year, for those sectors for which the Council has established this policy.
4. Maintain stability in the fishery by continuing management measures for species that previously were managed under the points of concern mechanism.
5. Maintain or improve product volume and flow to the consumer.
6. Increase economic yield.
7. Improve product quality.
8. Reduce anticipated bycatch and bycatch mortality.
9. Reduce gear conflicts, or conflicts between competing user groups.
10. Develop fisheries for underutilized species with minimal impacts on existing domestic fisheries.
11. Increase sustainable landings.
12. Reduce fishing capacity.
13. Maintain data collection and means for verification.
14. Maintain or improve the recreational fishery.

The Council, following review of the report, supporting data, public comment, and other relevant information, may recommend management measures to the NMFS Regional Administrator accompanied by relevant background data, information, and public comment. The recommendation will explain the urgency in implementing the measure(s), if any, and reasons therefore.

The NMFS Regional Administrator will review the Council's recommendation, supporting rationale, public comments, and other relevant information, and, if it is approved, will undertake the appropriate method of implementation. Rejection of the recommendation will be explained in writing.

The procedures specified in this chapter do not affect the authority of the Secretary to take emergency regulatory action as provided for in Section 305(c) of the Magnuson-Stevens Act if an emergency exists involving any groundfish resource, or to take such other regulatory action as may be necessary to discharge the Secretary's responsibilities under Section 305(d) of the Magnuson-Stevens Act.

If conditions warrant, the Council may designate a management measure developed and recommended to address social and economic issues as a routine management measure, provided that the criteria and procedures in Section 6.2.1 are followed.

Quotas, including allocations, implemented through this framework will be set for one-year periods and may be modified inseason only to reflect technical corrections to an ABC. (In contrast, quotas may be imposed at any time of year for resource conservation reasons under the points of concern mechanism.)

6.2.4 The Habitat Conservation Framework

In order to protect EFH from the adverse effects of fishing, the Council has identified areas that are closed to bottom trawling (see Sections 6.8 and 7.4). These areas are described in Federal regulations and may be modified through the full rulemaking process as described under Section 6.2 D. The Council shall establish an EFH Oversight Committee (OC). At the request of the Council, the EFH OC would review the areas

currently closed to bottom trawling and recommend to the Council the elimination of existing areas or the addition of new areas, or modification of the extent and location of existing areas. In making its recommendation to the Council, the committee should consider, but is not limited to considering, the best available scientific information about:

1. The importance of habitat types to any groundfish FMU species for their spawning, breeding, feeding, or growth to maturity.
2. The presence and location of important habitat (as defined immediately above).
3. The presence and location of habitat that is vulnerable to the effects of bottom trawl fishing.
4. The presence and location of unique, rare, or threatened habitat.
5. The socioeconomic and management-related effects of closures, including changes in the location and intensity of bottom trawl fishing effort, the displacement or loss of revenue from fishing, and social and economic effects to fishing communities attributable to the location and extent of closed areas.

When making its recommendation to the Council, the committee may also include in its recommendations proposed changes in the designation of HAPCs consistent with the proposed modification of the location and extent of areas closed to bottom trawling. For example, if a current closed area, which is also identified as a HAPC, is recommended for elimination, the committee may recommend whether or not to retain the HAPC designation. Any such recommendation with respect to a HAPC would trigger the process for the modification of HAPCs (by FMP amendment) described in Section 7.3.2. Upon receipt of a recommendation from the committee, the Council will decide whether to begin the rulemaking process described in Section 6.2 D for establishing, adjusting, or removing discretionary management measures intended to have a permanent effect.

6.2.5 Indian Treaty Rights

Treaties with a number of Pacific Northwest Indian tribes reserve to those tribes the right of taking fish at their usual and accustomed fishing grounds and stations (U & A) in common with other citizens of the United States. NMFS has determined that the tribes that have groundfish U & A in the area managed by this FMP are the Makah, Hoh, and Quileute Tribes, and the Quinault Indian Nation. Several tribal fisheries exist for species covered by the FMP. The Federal government has accommodated these fisheries through a regulatory process, found at 50 CFR 660.324. Until such time as tribal treaty rights are finally adjudicated or the regulatory process is modified or repealed, the Council will continue to operate under that regulatory process to provide recommendations to the Secretary on levels of tribal groundfish harvest.

[Amendment 18, 24]

6.3 Allocation

6.3.1 Allocation Framework

Allocation is the apportionment of an item for a specific purpose or to a particular person or group of persons. Allocation of fishery resources may result from any type of management measure, but is most commonly a numerical quota or HG for a specific gear or fishery sector. Most fishery management measures allocate fishery resources to some degree, because they invariably affect access to the resource by different fishery sectors by different amounts. These allocative impacts, if not the intentional purpose of the management measure, are considered to be indirect or unintentional allocations. Direct allocation occurs when numerical quotas, HGs, or other management measures are established with the specific intent of affecting a particular group's access to the fishery resource.

Fishery resources may be allocated to accomplish a single biological, social or economic objective, or a combination of such objectives. The entire resource, or a portion, may be allocated to a particular group, although the Magnuson-Stevens Act requires that allocation among user groups be fair and equitable, reasonably calculated to promote conservation, and determined in such a way that no group, person, or entity receives an undue excessive share of the resource. The socioeconomic framework described in Section 6.2.3 provides criteria for direct allocation. Allocative impacts of all proposed management measures should be analyzed and discussed in the Council's decision-making process.

In addition to the requirements described in Section 6.2.3, the Council will consider the following factors when intending to recommend direct allocation of the resource.

1. Present participation in and dependence on the fishery, including alternative fisheries.
2. Historical fishing practices in and historical dependence on the fishery.
3. The economics of the fishery.
4. Any consensus harvest sharing agreement or negotiated settlement between the affected participants in the fishery.
5. Potential biological yield of any species or species complex affected by the allocation.
6. Consistency with the Magnuson-Stevens Act national standards.
7. Consistency with the goals and objectives of the FMP.

The modification of a direct allocation cannot be designated as routine unless the specific criteria for the modification have been established in the regulations.

6.3.2 Formal Allocations

6.3.2.1 Sector Allocations of Sablefish North of 36º N latitude

Fixed allocations of sablefish are based on the ACL specified for the area north of 36° N latitude (to the U.S.-Canada border). Sablefish allocations north of 36° N latitude are determined by first deducting the tribal share from the ACL (or OY) specified for north of 36° N latitude, then deducting the estimated total mortality of sablefish in research and non-groundfish fisheries (these deductions are decided in the biennial process for specifying harvest specifications and management measures based on the best available information at the time of the decision), then dividing the remaining yield (non-tribal share) between open access and LE fisheries, with the LE share divided between the trawl and fixed gear (longline and fishpot) sectors. The proportions of each of these divisions are indicated in Figure 6-1. The LE fixed gear share is then generally divided 85 percent to the primary fishery for LE fixed gear vessels with sablefish endorsements and 15 percent for the daily-trip-limit fishery, for such vessels with and without sablefish endorsements.

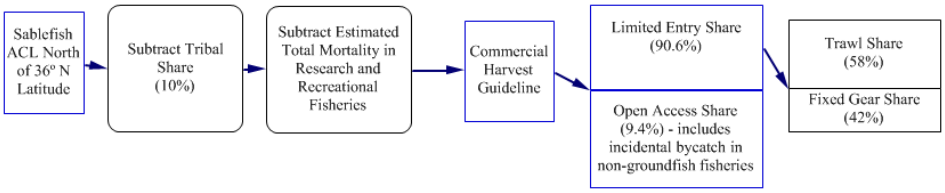

Figure 6-1. Fixed intersector allocations of sablefish north of 36° N latitude.

6.3.2.2 Sector allocations of Pacific Whiting

Projected total mortalities of Pacific whiting in recreational, research, and non-whiting fisheries are first set aside (these deductions are decided in the annual process for specifying Pacific whiting harvest specifications and management measures based on the best available information at the time of the decision), then a yield amount is set-aside to accommodate tribal whiting fisheries. In some years the whiting set-aside may be increased to accommodate other programs, such as EFPs. The nontribal commercial share of whiting is allocated to LE whiting trawl sectors as follows: 42 percent for the shoreside whiting sector, 24 percent for the at-sea mothership whiting sector, and 34 percent for the at-sea catcher-processor whiting sector. No more than five percent of the shoreside whiting sector's allocation may be taken and retained south of 42° N latitude prior to the start of the shore-based whiting season north of 42° N latitude (in waters off Oregon and Washington).

6.3.2.3 Limited Entry Trawl Allocations for Amendment 21 Stocks and Stock Complexes

Formal allocations of stocks and stock complexes covered under Amendment 21 support Amendment 20 trawl rationalization measures. Annual OYs/ACLs are established for these stocks and stock complexes the same as for other groundfish stocks and stock complexes. The OYs/ACLs are then reduced by deducting the estimated total mortality of these stocks and stock complexes in research, tribal, and non-groundfish fisheries, and the estimated exempted fishing permits set-asides. The remainder of the OYs/ACLs are then allocated according to the percentages in Table 6-1. The trawl percentage is for the non-treaty trawl fishery managed under Amendment 21. The non-treaty, non-trawl percentage is for the LE fixed gear fishery, the open access fishery, and the recreational fishery. Amendment 6 limited entry and open access allocations are superseded by these allocation percentages. Allocations to the directed non-trawl sectors (i.e., LE fixed gear, directed open access, and recreational) for the species allocated in Table 6-1 are decided, if needed, in the biennial harvest specifications and management measures process.

Trawl/Non-trawl Allocations

Table 6-1. Allocation percentages for limited entry trawl and non-trawl sectors specified for FMP groundfish

stocks and stock complexes under Amendment 21 (most percentages based on 2003-2005).

Stock or Complex	All Non-Treaty LE Trawl Sectors	All Non-Treaty Non-Trawl Sectors
Lingcod	45.0%	55.0%
Pacific Cod	95.0%	5.0%
Sablefish S. of 36° N latitude	42.0%	58.0%
PACIFIC OCEAN PERCH	**95.0%**	**5.0%**
WIDOW	**91.0%**	**9.0%**
Chilipepper S. of 40°10' N latitude	75.0%	25.0%
Splitnose S. of 40°10' N latitude	95.0%	5.0%
Yellowtail N. of 40°10' N latitude	88.0%	12.0%
Shortspine N. of 34°27' N latitude	95.0%	5.0%
Shortspine S. of 34°27' N latitude	50 mt	Remaining Yield
Longspine N. of 34°27' N latitude	95.0%	5.0%
DARKBLOTCHED	**95.0%**	**5.0%**
Minor Slope RF North of $40^0$10' N latitude	81.0%	19.0%
Minor Slope RF South of $40^0$10' N latitude	63.0%	37.0%
Dover Sole	95.0%	5.0%
English Sole	95.0%	5.0%
Petrale Sole	95.0%	5.0%
Arrowtooth Flounder	95.0%	5.0%
Starry Flounder	50.0%	50.0%
Other Flatfish	90.0%	10.0%

Shoreside Trawl Allocations for Initial Issuance

Under Amendment 20 trawl rationalization, the two existing LE trawl sectors delivering groundfish to shoreside processing plants (i.e., shoreside whiting and shoreside non-whiting) are managed as one sector under a system of IFQs. However, before quota shares can be allocated to eligible LE trawl permit holders, an initial one-time allocation was made to the two shoreside sectors. All species subject to formal allocation, including sablefish north of 36º N latitude and excluding the three trawl-dominant overfished species (i.e., darkblotched rockfish, Pacific ocean perch, and widow rockfish) and yellowtail rockfish are allocated to the shoreside whiting and shoreside non-whiting sectors based on 1995-2005 sector catch percentages (Table 6-2). An initial allocation of 300 mt of yellowtail rockfish was made to the shoreside whiting sector prior to allocation of Amendment 20 quota shares. The estimated fishing mortality of Amendment 21 species in the at-sea whiting fishery (i.e., total catch by catcher-processors and vessels delivering whiting to motherships) other than the three trawl-dominant overfished species is set-aside from the LE trawl allocations specified in Table 6-1 prior to making the initial shoreside trawl sector allocations. While set-aside amounts for the at-sea whiting fishery (Mothership and Catcher/Processor sectors) were preliminarily decided under Amendment 21, the actual set-aside amounts will be based on the best available information on bycatch by these sectors in the biennial harvest specifications and management measures decision process.

Table 6-2. Shoreside trawl sector catch percentages during 1995-2005 used to apportion the initial allocation of Amendment 21 species to LE trawl sectors delivering groundfish to shoreside processing plants (i.e., shoreside whiting and shoreside non-whiting).

Stock or Complex	1995-2005 Sector Catch Percentage

	Non-whiting	Whiting
Lingcod	99.7%	0.3%
Pacific Cod	99.9%	0.1%
Pacific Whiting	0.1%	99.9%
Sablefish N. of 36° N latitude	98.2%	1.8%
Sablefish S. of 36° N latitude	100.0%	0.0%
Chilipepper S. of 40°10' N latitude	100.0%	0.0%
Splitnose S. of 40°10' N latitude	100.0%	0.0%
Shortspine N. of 34°27' N latitude	99.9%	0.1%
Shortspine S. of 34°27' N latitude	100.0%	0.0%
Longspine N. of 34°27' N latitude	100.0%	0.0%
Minor Slope RF North of $40^0$10' N latitude	98.6%	1.4%
Dover Sole	100.0%	0.0%
English Sole	99.9%	0.1%
Petrale Sole	100.0%	0.0%
Arrowtooth Flounder	100.0%	0.0%
Starry Flounder	100.0%	0.0%
Other Flatfish	99.9%	0.1%

Allocation of Trawl Dominant Overfished Species

Under Amendment 20, the at-sea whiting sectors (i.e., catcher-processors and motherships) are managed in a system of sector-specific harvest cooperatives. Each at-sea whiting sector will manage their bycatch of canary rockfish, darkblotched rockfish, Pacific ocean perch, and widow rockfish using sector-specific total catch limits. An initial allocation of these four species needs to be made to the four existing LE trawl sectors before initial allocation of quota shares under Amendment 20. Initial sector allocation of canary rockfish would be decided in the biennial harvest specification and management measures process immediately preceding implementation of Amendments 20 and 21. The initial sector allocation of the trawl-dominant overfished species under Amendment 21 is as follows:

Darkblotched Rockfish

Allocate 9 percent or 25 mt, whichever is greater, of the total LE trawl allocation of darkblotched rockfish to the whiting fisheries (at-sea and shoreside combined). The distribution of the whiting trawl allocation of darkblotched to individual whiting sectors will be done pro rata relative to the sectors' whiting allocation.

Pacific Ocean Perch

Allocate 17 percent or 30 mt, whichever is greater, of the total LE trawl allocation of Pacific ocean perch to the whiting fisheries (at-sea and shoreside combined). The distribution of the whiting trawl allocation of POP to individual whiting sectors will be done pro rata relative to the sectors' whiting allocation.

Widow Rockfish

Initially allocate 52 percent of the total LE trawl allocation of widow rockfish to the whiting sectors if the

stock is under rebuilding or 10 percent of the total LE trawl allocation or 500 mt of the trawl allocation to the whiting sectors, whichever is greater, if the stock is rebuilt. If the stock is overfished when the initial allocation is implemented, the latter allocation scheme automatically kicks in when it is declared rebuilt. The distribution of the whiting trawl allocation of widow to individual whiting sectors will be done pro rata relative to the sectors' whiting allocation.

Allocation of Pacific Halibut

Pacific halibut is a prohibited species in the west coast LE trawl fishery. Under Amendment 20, Pacific halibut bycatch in the shoreside trawl fishery north of $40^0$10' N latitude is managed using a system of individual bycatch quotas (IBQs). Under Amendment 21, an allocation of Pacific halibut was decided as follows:

For 2012 through 2014, 15% of the Area 2A total constant exploitation yield (TCEY) for legal sized halibut[2] (net weight), not to exceed 130,000 lbs will be subtracted from the TCEY to account for expected trawl bycatch mortality of legal sized halibut (net weight). Beginning in 2015, the amount to be subtracted will be capped at 100,000 lbs. The TCEY used for these calculations will be the best estimate of the TCEY available from the IPHC at the time of the calculation (most likely the preliminary TCEY).[3] The bycatch allocation percent can be adjusted downward or upward (above or below 15%) through the biennial specifications and management measures process but the upper bound on the maximum allocations can only be changed though an FMP amendment.

The shoreside trawl rationalization program keeps the trawl sector within expectations by requiring that trawlers account for their total mortality of all halibut in round weight (legal and sublegal sized). Therefore, to determine a trawl bycatch mortality limit the amount of halibut pounds available to the trawl fleet will be determined by expanding the expected legal sized halibut mortality (net weight) into a round weight legal+sublegal sized amount. To achieve this, the following conversions will be applied.

i. Net weight to round weight conversion: multiply by the IPHC net weight to round weight conversion factor in use at the time of the calculation (for 2011 the ratio was 1/0.75=1.33).
ii. Legal to legal+sublegal sized conversion factor: multiply by the IPHC legal+sublegal to legal ratio in use at the time of the calculation (for 2011 the ratio was 1/0.62=1.61).

After these conversions, 10 mt will be subtracted to cover bycatch mortality in the at-sea whiting fishery and trawl fishery south of 40º10' N latitude, and the remainder will be issued as IBQ, to be used to cover Pacific halibut mortality by vessels operating in the shoreside trawl IFQ program. The amount of Pacific halibut set aside to accommodate incidental catch in the trawl fishery south of 40º10' N latitude and in the at-sea whiting fishery can be adjusted in the biennial specifications and management measures process in future years as better information becomes available.

Under Amendment 21, it was decided that any formal allocations be specified in the FMP. Future consideration for a re-allocation of FMP species subject to a formal allocation will require an FMP amendment. The provision to temporarily suspend the formal allocation if a species is declared overfished (see Section 4.6.1(5) of the FMP) is maintained under Amendment 21.

All intersector allocations will be formally reviewed along with the formal review of the trawl

[2] "Legal sized" halibut refers to halibut with a total length of 32 inches and above, or O32, and "sublegal sized" halibut refers to halibut under 32 inches in total length, or U32.

[3] The TCEY provided by the IPHC is based upon legal sized (O32) halibut. If the IPHC changes the basis for its estimate of TCEY, NMFS will update the calculation of the trawl bycatch mortality limit accordingly through a regulatory amendment.

rationalization program five years after implementation of Amendments 20 and 21.

[Amendment 18, 21]

6.4 Standardized Total Catch Reporting and Compliance Monitoring Program

Fishery managers participating in the Council process need accurate estimates of total fishing mortality. Total fishing mortality data are needed to set accurate harvest specifications and management measures and to adjust management measures inseason so that ACLs/OYs may be achieved, but not exceeded. Various state, Federal, and tribal catch monitoring systems are used in west coast groundfish management. These are coordinated through the PSMFC. PacFIN (Pacific Fisheries Information Network) is the commercial catch monitoring database, and RecFIN (Recreational Fishery Information Network) is the database for recreational fishery catch monitoring.

Total catch has two major components: fish that are retained, landed, and sold or kept for personal use, and fish that are discarded, either at sea or on shore.[4] This discarded component is what the Magnuson-Stevens Act defines as bycatch.[5] Total catch and total fishing mortality may differ because some bycatch may survive capture and subsequent discard, or release. Bycatch mortality varies depending on the physiology of a particular species, the type of fishing gear used, and how fish are handled from the time of capture until they are released back into the water.

Commercial and recreational groundfish fisheries have been managed through a variety of measures intended to limit catch to the level established by an ACL/OY. These measures include cumulative landing limits for commercial fisheries and bag limits for recreational fisheries (see Section 6.7). When these measures are less restrictive, few constraints are imposed on fisheries and fish are primarily discarded for economic reasons. (In recreational fisheries, an economic discard would be a personal assessment of the desirability of a particular fish or fish species.) When one stock has a comparatively low landing or bag limit in a multispecies fishery, because it is depleted for example, a fisher may discard fish of that stock once the limit is reached in order to continue fishing for other species. Under these conditions, bycatch can be a large portion of total catch and total fishing mortality. With a standardized reporting methodology, managers are better able to track bycatch both inseason and cumulatively, information that is essential to developing management programs to reduce bycatch and bycatch mortality. Therefore, maintaining a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery, in addition to being required by the Magnuson-Stevens Act (16 U.S.C. 1853(a) (11)), is an important management task. This FMP meets that requirement through a standardized reporting methodology not just for the amount and type of bycatch occurring in the fishery, but for total catch (landed catch plus bycatch mortality) in the fishery.

In order to better monitor and manage bycatch, the Council supports accounting for total catch by specified fishery sectors. Beginning with the 2003 fishing year, as part of its evaluation of proposed management measures, the Council has been projecting total catches by fishery sector. Actual landings and estimated bycatch have also been categorized by fishery sector. Methods to accurately estimate sector- and species-specific total catch are needed to support the Council's bycatch mitigation program (Section 6.5). The

[4] The Magnuson-Stevens Act further defines the term fish to mean "finfish, mollusks, crustaceans, and all other forms of marine animal and plant life other than marine mammals and birds" 16 U.S.C. 1802(12).

[5] Using the term bycatch has led to considerable confusion, because many people use the term synonymously with the concept of incidental catch, or that part of the catch which is not the target of the fishery. In single-species fisheries, incidental catch and discards may be largely coincident. But in multi-species fisheries there may be multiple targets, and species that might be considered incidental are commonly retained, depending on the market and regulatory environment. In this FMP, the Magnuson-Stevens Act definition of bycatch is used, as distinct from incidentally-caught species.

Council relies on a combination of state, tribal, and Federal reporting and monitoring programs to determine total catch. NMFS is responsible for evaluating the adequacy of Federal standardized reporting methodologies for assessing the amount and type of bycatch occurring in a fishery. In 2004, NMFS published *Evaluating Bycatch: A National Approach to Standardized Bycatch Monitoring Programs*, which describes Federal standardized bycatch reporting methodologies and evaluates the adequacies of these methodologies, including those used for the west coast groundfish fisheries. Federal reporting requirements in this fishery are described below.

6.4.1 Total Catch Reporting Methodology

6.4.1.1 Monitoring Total Catch At Sea – Observer and Electronic Monitoring Programs

The Magnuson-Stevens Act defines the term "observer" as "any person required or authorized to be carried on a vessel for conservation and management purposes by regulations or permits under this Act." The Magnuson-Stevens Act also sets out guidelines for vessels carrying observers, observer training requirements, and observer status as Federal employees.

All fishing vessels operating in this management unit, which includes catcher-processors, at-sea processors, and those vessels that directly or incidentally harvest groundfish in waters off Washington, Oregon, and California, may be required to accommodate an observer and/or video electronic-monitoring system for the purpose of collecting scientific data or verifying catch landings and discard used for scientific data collection. These vessels may also be required to accommodate an observer and/or electronic monitoring system for the purpose of estimating total catch inseason to implement a sector- or vessel-specific total catch limit program. Implementation of any observer program or electronic monitoring system will be in accordance with appropriate Federal procedures, including economic analysis and public comment. Any Federal program that requires the collection of information from fishery participants is also subject to the requirements of the Paperwork Reduction Act (PRA).

The Regional Administrator will implement an observer program through a Council-approved Federal regulatory framework. Details of how observer coverage will be distributed across the west coast groundfish fleet will be described in an observer coverage plan that is appropriate to the purpose of the particular observer program goals. An observer coverage plan designed for a scientific data collection program will likely be different from an observer coverage plan designed for a sector- or vessel-specific total catch monitoring program. NMFS will publish an announcement of the authorization of the observer program and description of the observer coverage plan in the *Federal Register*. Development and implementation of an observer program is done through the full rulemaking process at Section 6.2, D.

Electronic monitoring is an automated alternative to some human data collection systems. Electronic monitoring equipment may provide accurate, timely, and verifiable information on some elements of fishing operations at a lower cost than that provided by an at-sea observer. Electronic monitoring is an integrated assortment of electronic components combined with a software operating system. An electronic monitoring system typically includes one or more video cameras, a central processing unit with removable hard drive, and software that can integrate data from other components of a vessel's electronic equipment. The system autonomously logs video and vessel sensor data during the fishing trip without human intervention. When the vessel has completed its fishing operations and returned to port, the video and other data are transferred to a separate computer system for analysis. Video records are typically reviewed by human samplers on shore, but electronic techniques are being developed to automate some of this activity. Electronic monitoring has been tested in various Canadian fisheries and has successfully addressed specific fishery monitoring objectives. NOAA Fisheries began testing electronic monitoring equipment in the 2004 shore-based whiting fishery, in order to determine whether a full-retention program could be adequately monitored by an electronic monitoring system. This FMP authorizes the use of electronic monitoring

programs for appropriate sectors of the fishery. Development and implementation of an electronic monitoring program would be done through the full rulemaking process at 6.2 D.

There may be a priority need for observers on at-sea processing vessels to collect data normally collected at shore-based processing plants. Certain information for management of the fishery may be obtained from logbooks and other reporting requirements, but the collection of some types of data would be too onerous for some fishermen to collect. Processing vessels must be willing to accommodate onboard observers and may be required to provide observers prior to issuance of any necessary Federal permits.

6.4.1.2 Commercial Fisheries

The total catch accounting methodology for commercial groundfish fisheries has two main components: monitoring landed catch through reports by fish processors (fish receiving tickets) and at-sea observer programs to estimate bycatch. Observer coverage rates vary by fishery, with at-sea processors (whiting catcher-processors and motherships) being required to carry one or two observers depending on vessel length. Fishery observers for the remainder of the commercial groundfish fleet are required to carry observers in accordance with the NMFS observer coverage plan. Because non-whiting fishery observers are usually placed aboard only a fraction of the vessels in a given sector, their observations must be expanded using statistical methods in order to estimate total catch across a sector. For some fishery sectors, there may not be any direct observation or reporting of bycatch; in such cases, standard bycatch rates developed using the best scientific information may be used to estimate bycatch. Combining bycatch information with information on landed catch gives an estimate of total catch. The Council uses total catch information in inseason management to determine the relationship between catch at a given point in time and an ACL/ annual OY. Management measures within a given year may be adjusted based on total catch information in order to prevent total catch from exceeding ACL/OY levels. Fishery managers also use historic total catch data in stock assessments and to develop future harvest specifications and management measures.

The owner or operator of any vessel that retains fish harvested in the area managed by this FMP whose port of landing is outside the management area may be required to report those catches in a timely manner through a Federal reporting program. They also may be required to submit a completed fish landing ticket from Washington, Oregon, or California, or an equivalent document containing all of the information required by the state on that fish ticket.

Monitoring Total and Landed Catch

Federal regulations require fishers to sort all species with trip limits, HGs, or ACLs/OYs, including all overfished species. The states also require LE groundfish trawl fishermen to maintain logbooks to record the start and haul locations, time, and duration of trawl tows, as well as the total catch by species market category (i.e., those species and complexes with sorting requirements). Landings are recorded on state fish receiving tickets. Fish tickets are designed by the individual states, but there is an effort to coordinate record-keeping requirements with state and Federal managers through PSMFC. Catch weight by sorted species category, area of catch, vessel identification number, and other data elements are required on fish tickets. Landings are also sampled in port by state personnel, who collect species composition data, otoliths for ageing, lengths, and other biological data. A suspension of at-sea sorting requirements coupled with full retention of catch is allowed in the shoreside whiting fishery under an EFP. Amendment 10 to the FMP authorized this suspension of at-sea reporting requirements through a rulemaking, rather than just through an EFP.

Landings, logbook data, and state port sampling data are reported inseason to the PacFIN database, which is managed by PSMFC. The GMT and PSMFC manage the Quota Species Monitoring (QSM) data set

reported in PacFIN. All landings of groundfish stocks of concern (overfished stocks and stocks below B_{MSY}) and target stocks and stock complexes in west coast fisheries are tracked in QSM reports of landed catch. QSM reports also include bycatch (discard) estimates, allowing them to be used to track total catch. The GMT recommends prescribed landing limits and other inseason management measures to allow Council-managed fisheries to attain, but not exceed, total catch ACLs/OYs of QSM species. Stock and complex landing limits are modified inseason to control total fishing-related mortality; QSM reports and landed catch forecasts are used to control the landed catch component.

Groundfish Observer Programs

Vessels participating in the at-sea Pacific whiting fishery have been carrying observers voluntarily since 1991. NMFS made observer coverage mandatory for at-sea processors in July 2004 (65 FR 31751). These provisions have not only given fishery managers the tools necessary to allow the at-sea Pacific whiting program to operate efficiently while meeting management goals, but have also provided scientists, through the observer coverage, an extensive amount of information on bycatch species in this fishery.

NMFS first implemented the West Coast Groundfish Observer Program in August 2001, placing observers aboard commercial groundfish vessels to monitor discards. By regulation (50 CFR 660.314), all vessels that participate in commercial groundfish fisheries must carry an observer when notified to do so by NMFS or its designated agent. These observers monitor and record catch data, including species composition of retained and discarded catch. Observers also collect biological data, such as fish length, sex, and weight. The program currently deploys observers coastwide on the permitted trawl and fixed gear groundfish fleet, as well as on some vessels that are part of the open-access groundfish fleet. Observers monitor between 10 percent and 20 percent of the catch, as a proportion of total landings. Given the skewed distribution of bycatch in west coast groundfish fisheries, many observations in each sampling strata (gear type and area) are needed to estimate representative bycatch rates.

The FMP does not currently authorize foreign fisheries for groundfish. According to the Magnuson-Stevens Act, observers would be required on any foreign vessels operating in the Exclusive Economic Zone (EEZ).

6.4.1.3 Recreational Fisheries

Recreational catch is monitored by the states as it is landed in port. These data are compiled by the PSMFC in the RecFIN database. The types of data compiled in RecFIN include sampled biological data, estimates of landed catch plus discards, and economic data.

The MRFSS was an integral part of the RecFIN program until recently, and was the principle program used to estimate effort and catches in the recreational fisheries. The MRFSS used field-intercept surveys to estimate catch, and a random phone survey of coastal populations to estimate effort. The results of these two surveys were combined in the RecFIN database to estimate total fishing effort, fishing mortality, and other estimates useful for management. MRFSS was not designed to estimate catch and effort at the level of precision needed for inseason management or assessment. Thus, while MRFSS continues to be used as a nationwide statistical tool for assessing national recreational fisheries data, it is no longer relied upon to support inseason west coast groundfish management. In recent years, the three states, NMFS, and PSMFC have been revamping the way that west coast recreational fisheries data are collected, and estimates are generated so that the data system better supports inseason management. Each state has either improved upon existing sampling projects, such as Washington's Ocean Sampling Program, and Oregon's Ocean Recreational Boat Survey and Shore and Estuary Boat Survey, or developed new sampling programs, such California's Recreational Fisheries Survey. Data collected by these state-sponsored programs are submitted to RecFIN, and form the basis for estimating catch and effort. All three states have accelerated their

reporting rates to RecFIN. Beginning in 2005, the states plan to provide recreational fisheries data within one month of the fishing activity; for example, fisheries data through the end of January would be available at the end of February.

The Washington Department of Fish and Wildlife's Ocean Sampling Program (OSP) generates catch and effort estimates for the recreational boat-based groundfish fishery, which are provided to PSMFC and incorporated directly into RecFIN. The OSP provides catch in total numbers of fish, and also collects biological information on average fish size, which is provided to RecFIN to enable conversion of numbers of fish to total weight of catch. Boat egress from the Washington coast is essentially limited to four major ports (Neah Bay, La Push, Westport, and Ilwaco), which enables a sampling approach to strategically address fishing effort from these ports. Effort estimates are generated from exit-entrance counts of boats leaving coastal ports while catch per unit of effort is generated from angler intercepts at the conclusion of their fishing trip. The goal of the program is to provide information to RecFIN on a monthly basis with a one-month delay to allow for inseason estimates.

The ODFW's Ocean Recreational Boat Survey (ORBS) is responsible for collecting both effort and catch data for the ocean boat portion of the recreational fishery in Oregon. Samplers are stationed in 12 major ports: Astoria, Garibaldi, Pacific City, Depoe Bay, Newport, Florence, Winchester Bay, Charleston, Bandon, Port Orford, Gold Beach, and Brookings. Samplers collect effort information by either conducting exit/entrance counts in the larger ports, or conducting trailer/slip counts in the smaller ports. Upon a vessel's return to port, samplers examine landed catch, collect released information, and collect biological data used to calculate the average size of landed fish by species. The ORBS submits effort and catch estimates to PSMFC's RecFIN program. ODFW in cooperation with PSMFC has developed the Shore and Estuary Boat Survey (SEBS) in order to develop effort and catch estimates for the shore and estuary boat portions of Oregon's recreational fishery. Effort is determined using a license frame-based phone survey. In addition, SEBS is responsible for collecting discard information from the Oregon ocean charter fleet. Samplers act as observers on charter vessels, enumerating releases by species, and taking lengths before fish are released. This information is used to calculate an average size of fish discarded in the recreational fishery.

The CDFG, in cooperation with PSMFC, implemented the California Recreational Fisheries Survey (CRFS) in 2004. CRFS combines the prior MRFSS party and charter vessels (PC) sampling program (California's sampling methodology for private recreational vessels) with several new methodologies specifically designed for CRFS into a single, coordinated, statewide program. This program is designed to produce more timely and accurate catch and effort estimates than were available through the MRFSS program while continuing to provide the comprehensive coverage used in the MRFSS program for all recreational fisheries in both boat (private boats, rental boats, and party/charter boats) and shore (pier, jetty, beach and bank) modes of fishing. CRFS employs the following methodologies for sampling these different modes of recreational fishing:

- Private and rental boats (PR) are divided into primary and secondary sampling sites. Primary sites are sampled using a public launch ramp access point survey for effort and catch at high use sites during daylight hours. These sites are defined as those where 90 percent or more of the catch of important species are landed. Secondary sites are sampled using a roving access point survey for effort and catch. These sites are defined as those sites in a particular month where less than 10 percent of the total catch of important species is landed.
- Man-made (MM) sites, composed of piers, jetties and breakwaters, are sampled using a roving access point survey for catch and effort.
- Beach and Bank sites are sampled using two surveys: a roving access point survey at publicly accessible beaches and banks during daylight hours for catch rates and an angler license database telephone survey for all effort.

- PC vessels are sampled using two surveys: a weekly telephone survey of all PC vessels for effort and onboard sampling for catch.
- Estimates of private access and night fishing effort and catch for PR, MM, and Beach and Bank sites by trip type are derived using the angler license database telephone survey for effort and catch rates from access point surveys for catch.

For all modes of fishing, samplers examine landed catch, collect release information and fishing location, and collect biological data used to calculate the average size of landed fish by species. In addition, samplers act as observers on charter vessels, enumerating releases by species, and taking lengths before fish are released. The data, along with effort information for all modes, are entered by PSMFC into the RecFIN database. Estimates of catch and effort are then generated by PSMFC staff and posted on the RecFIN website. These estimates are greatly improved over those from MRFSS, not only because of the improvements in sampling methodologies, but because of changes in sampling rates, reporting intervals, geographical resolution, and expansion processes. CRFS, which employs a sampling rate in excess of three times that from MRFSS, provides monthly estimates for six geographical regions in California that are expanded from species catch rates based upon trip types and stated target species.

6.4.2 Vessel Compliance Monitoring and Reporting Requirements

In addition to authorizing Federal and state programs to collect total catch data, this FMP authorizes the collection of fisheries data needed for compliance monitoring. The following types of data may be collected through a regulatory program intended to ensure vessel compliance with fishery management measures:

1. Vessel name.
2. Radio call sign.
3. Documentation number or Federal permit number.
4. Company representative and telephone, fax, and/or telex number.
5. Vessel location including daily positions.
6. Check-in and check-out reports giving the time, date, and location of the beginning or ending of any fishing activity.
7. Gear type.
8. Reporting area and period.
9. Duration of operation.
10. Estimated catch by species and area, species disposition (including discards, product type, and weights).
11. Product recovery ratios and products sold (in weight and value by species and product type, and if applicable, size or grade).
12. Any other information deemed necessary for management of the fishery.

Vessels also may be required to maintain and submit logbooks, accurately recording the following information in addition to the information listed above, and for a specified time period: daily and cumulative catch by species, effort, processing, and transfer information; crew size; time, position, duration, sea depth, and catch by species of each haul or set; gear information; identification of catcher vessel, if applicable; information on other parties receiving fish or fish products; and any other information deemed necessary.

Vessels may be required to inform a NMFS enforcement or U.S. Coast Guard office prior to landing or offloading any seafood product. Such vessels may also be required to report prior to departing the Washington, Oregon, and California management area with fish or fish products on board.

This FMP authorizes the use of vessel monitoring system (VMS) programs in order to improve compliance

with area and/or season closures. 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 transceivers 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 transceivers document the vessel's position 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 transceivers 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. VMS programs used to improve compliance in several fisheries with differing area and/or season closures may require the use of a declaration system. A declaration system in association with VMS requires fishery participants declare their intended fishing activity, allowing enforcement personnel to differentiate between vessels subject to differing area and/or season closures.

New regulatory requirements for the collection of fishery-related data would need to be implemented through the full rulemaking process detailed at Section 6.2 D. Any Federal program that requires the collection of information from fishery participants is also subject to the requirements of the PRA.

[Amendment 18]

6.5 Bycatch Mitigation Program

Unquantified bycatch increases management risk because harvest limits may be inadvertently exceeded. Regulatory-induced discards are inefficient because society does not benefit from fish with economic value that are discarded to meet regulatory requirements. Bycatch can also include protected species and organisms comprising ecologically important biogenic habitat. Thus, more generally, bycatch may have broader environmental effects. The Magnuson-Stevens Act requires FMPs to include conservation and management measures that, to the extent practicable, minimize bycatch and the mortality of unavoidable bycatch (16 U.S.C. 1853(a)(11)). FMPs may also be subject to bycatch reduction requirements under the ESA, the Marine Mammal Protection Act (MMPA), the Migratory Bird Treaty Act (MBTA), and other Federal laws. Federal guidance on assessing the practicability of a potential management program is found at 50 CFR 600.350.

Working with NMFS, the states, and the tribes, the Council uses a three-part strategy to meet the Magnuson-Stevens Act's bycatch-related mandates: (1) gather data through a standardized total catch reporting methodology; (2) use Federal/state/tribal agency partners to assess these data through bycatch models that estimate when, where, and with which gear types bycatch of varying species occurs; and (3) develop management measures that minimize bycatch and bycatch mortality to the extent practicable. The FMP's total catch reporting methodology is described in Section 6.4.1. Bycatch models that assess observer and other data to estimate bycatch amounts occurring in the different sectors of the fishery are routinely reviewed through the Council's SSC and GMT as part of the Council's harvest specifications and management measures rulemaking process. These models are intended to continuously improve the Council's use of the best available scientific information on species-to-species catch ratios. This section describes the Council's bycatch mitigation program and the management measures intended to minimize bycatch and bycatch mortality.

6.5.1 Bycatch of Groundfish Species in Groundfish Fisheries

Groundfish bycatch in the groundfish fisheries includes both groundfish that are discarded for regulatory reasons, such as a vessel having achieved a trip limit for one species within an assemblage, and groundfish

that are discarded for economic reasons, such as a vessel having taken more fish than can be stored in its hold, or having taken more of a particular species than is desired by a processor. The Council may initiate new and practicable management measures to reduce groundfish bycatch in the groundfish fisheries under either the harvest specifications and management measures rulemaking process (6.2 C) or the full rulemaking process (Section 6.2 D) It is usually through the harvest specifications development process that the Council is made aware of new data and analyses on groundfish bycatch and bycatch mortality rates. The Council manages its groundfish fisheries to allow targeting on more abundant stocks while constraining the total mortality of overfished and precautionary zone stocks. For overfished stocks, measures to constrain total mortality are primarily intended to reduce bycatch of those stocks. The FMP defines stock status of overfished, precautionary zone, and more abundant stocks at Section 4.5. Management measures the Council has used to reduce total catch of overfished species are detailed for each species in Appendix F. At Section 4.7, the FMP requires that landed catch ACLs/OYs be reduced from total catch ACLs/OYs to account for bycatch mortality.

The Council has all of the management measures detailed in Sections 6.5– 6.10 at its disposal to manage directed catch and reduce bycatch of groundfish species in the groundfish fisheries. Because of the interaction among the various species and the regular incorporation of new information into the management system, the details of the specific measures will change over the years, or within years, based on the best available science. Management measures will be designed taking into account the co-occurrence ratios of target stocks with overfished stocks. To protect overfished species and minimize bycatch through reducing incidental catch of those species, the Council will particularly use, but is not limited to: catch restrictions detailed in Section 6.7 to constrain the catch of more abundant stocks that commingle with overfished species, in times and areas where higher abundance of overfished species are expected to occur; the appropriate time/area closures detailed in Section 6.8 and designed to prevent vessels from operating during times when or in areas where overfished species are most vulnerable to a particular gear type or fishery; and gear restrictions described in Section 6.6, where that gear restriction has been shown to be practicable in reducing overfished species incidental catch rates.

6.5.2 Bycatch and Incidental Take of Non-Groundfish Species in Groundfish Fisheries

Certain non-groundfish species may be taken incidentally in fisheries targeting groundfish. This FMP authorizes management measures to minimize, to the extent practicable, the bycatch of non-groundfish species or the incidental take of species not defined as fish under the Magnuson-Stevens Act. Non-groundfish species subject to bycatch or incidental take minimization measures may be marine fish species managed under another Council FMP, or marine animals or plants not managed with an FMP, yet subject to the protections of the ESA, the MMPA, the MBTA, or other Federal laws. Marine mammals and birds are specifically excluded from the Magnuson-Stevens Act definition of fish and are therefore not defined as bycatch under the Magnuson-Stevens Act. Notwithstanding, the Council may manage fisheries to minimize the incidental take of these species.

Generally, the Council will initiate the process of establishing or adjusting management measures when a resource problem with a non-groundfish species is identified and it has been determined that groundfish fishing regulations would reduce the total impact on that species or stock. This would usually occur when a state or Federal resource management agency (such as the U.S. Department of the Interior, NMFS, or state fishery agency) or the Council's Salmon Technical Team (STT) presents the Council with information substantiating its concern for a particular species. The Council will review the information and refer it to the SSC, GMT, STT, or other appropriate technical advisory group for evaluation. If the Council determines, based on this review, that management measures may be necessary to prevent harm to a non-groundfish species facing conservation problems or to address requirements of the ESA, MMPA, other relevant Federal natural resource law or policy, or international agreement, it may implement appropriate management measures in accordance with the procedures identified in Section 6.2. The intention of the

measures may be to share conservation burdens while minimizing disruption of the groundfish fishery, but under no circumstances may the intention be simply to provide more fish to a different user group or to achieve other allocation objectives.

6.5.2.1 Endangered Species Act Species

Marine species protected under the ESA that are not otherwise protected under either the MMPA or the MBTA (see below) include various salmon and sea turtle species. Threatened and endangered Pacific salmon runs are protected by a series of complex regulations affecting marine and terrestrial activities. In the west coast groundfish fisheries, management measures to reduce incidental salmon take have focused on the Pacific whiting fisheries, which have historically encountered more salmon than the non-whiting groundfish fisheries. Salmon bycatch reduction measures include marine protected areas (MPA) where Pacific whiting fishing is prohibited (See Section 6.8.7), and an at-sea observer program intended to track whiting and incidental species take inseason (See Section 6.4.1.1). Sea turtles are rare in areas where groundfish fisheries are prosecuted and no incidental take of sea turtles has been documented in any directed groundfish fishery. Eulachon sometimes occurs as incidental catch in the groundfish bottom trawl and at-sea whiting fisheries, and mortalities result from encounters with fishing gear. However, eulachon bycatch and bycatch mortality is low (or non-existent) in most years, and is monitored through the at-sea observer program.

6.5.2.2 Marine Mammal Protection Act Species

Incidental take of marine mammals is addressed under the MMPA and its implementing regulations. Section 118 of the MMPA requires that NMFS place all commercial fisheries into one of three categories based on the level of incidental serious injury and mortality of marine mammals that occur in each fishery. To implement this requirement, NMFS publishes a list of U.S. commercial fisheries and categorizes their effects on marine mammals. Directed west coast groundfish fisheries have consistently been categorized as Category III fisheries, meaning that they are "commercial fisheries determined by the [NMFS] Assistant Administrator to have a remote likelihood of, or no known incidental mortality and serious injury of marine mammals."

6.5.2.3 Migratory Bird Treaty Act Species

Incidental take of seabirds is addressed under the MBTA and its implementing regulations. The MBTA implements various treaties and conventions between the U.S., Canada, Mexico, Japan, and the former Soviet Union for the protection of migratory birds. Under the Act, taking, killing, or possessing migratory birds is unlawful. The U.S. Fish and Wildlife Service (USFWS) is the Federal agency responsible for management and protection of migratory birds, including seabirds. NMFS is required to consult with the USFWS if FMP actions may affect seabird species listed as endangered or threatened. In February 2001, NMFS adopted the *National Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries*. This National Plan of Action contains guidelines that are applicable to the groundfish fisheries and would require seabird incidental catch mitigation if a significant problem is found to exist.

6.5.2.4 Shared Ecosystem Component Species

Shared EC Species, identified in Table 3-3, could continue to be taken incidentally without violating Federal regulations, unless regulated or restricted for other purposes, such as with bycatch minimization regulations. The targeting of Shared EC Species is prohibited.

6.5.3 Measures to Reduce Bycatch and Bycatch Mortality

Over the life of the FMP, the Council has used a suite of measures to reduce bycatch and bycatch mortality in the groundfish fisheries. Early bycatch reduction measures concentrated on trawl net modifications intended to reduce the bycatch of juvenile groundfish (Section 6.6.1.2). In 1993, the Council addressed concerns over potential bycatch of endangered or threatened salmon in the whiting fishery by imposing the Columbia River and Klamath River Conservation Zones (Section 6.8.4). Since 2000, the Council has concentrated its bycatch reduction efforts on constraining total catch of overfished species through gear restrictions (Section 6.6), catch restrictions (Section 6.7), time/area closures (Section 6.8), and effort restrictions (Section 6.9). The Council and NMFS have also used permit restrictions and effort reduction programs (Section 6.9) to reduce total and incidental catch in the groundfish fisheries. Effort reduction measures implemented in recent years include the sablefish endorsement and tier program for the LE fixed gear fleet and the vessel/permit buyback program for the LE trawl fleet.

An important element of the Council's bycatch mitigation program occurs every two years when the Council develops its biennial specifications and management measures. During the development of the biennial specifications and management measures, and throughout the year when measures are adjusted, the Council will take into account the co-occurrence rates of target stocks and overfished stocks, and will select measures that will minimize, to the extent practicable, bycatch. The Council may select appropriate measures listed in the FMP and any others that may be developed in the future.

Any of the measures specified in Sections 6.5 through 6.10 may, where practicable, be used to reduce groundfish or non-groundfish bycatch in the groundfish fisheries. The Council will develop measures to reduce bycatch and bycatch mortality in accordance with the points of concern or the socioeconomic framework provisions of the FMP (Section 6.2.3). The process for implementing and adjusting such measures may be initiated at any time. New bycatch reduction management measures would need to be developed through either the harvest specifications and management measures rulemaking process (Section 6.2, C) or the full rulemaking process (Section 6.2 D). In addition, some measures may be designated as routine, which would allow adjustment at a single meeting based on the factors provided for in Section 6.2.1. Beyond the directed catch and bycatch management measures provided in Sections 6.6 through 6.10, this Section 6.5.3 provides additional bycatch and bycatch mortality reduction programs available for Council use.

6.5.3.1 Full Retention Programs

A full retention program is a regulatory regime that requires participants in a particular sector of the fishery to retain either all of the fish that they catch or all of some species or species group that they catch. Requiring full retention of all or a portion of a vessel's catch allows more careful enumeration of total catch under appropriate monitoring conditions. Full retention requirements also encourage affected fishery participants to tailor their fishing activities so that they are less likely to encounter non-target species. The Council may develop full retention programs for the groundfish fisheries, when such programs are accompanied by an appropriate monitoring mechanism (Section 6.4) and where such programs are sufficiently enforceable (Section 6.10) such that they are not expected to increase total mortality of overfished species. The development of any full retention will be accompanied by an analysis of the practicability of requiring retention of all of the designated species.

6.5.3.2 Sector-specific and Vessel-specific Total Catch Limit Programs

Total catch limits are defined in Section 2.2.

The Council may specify total catch limits that are transferable or nontransferable among sectors and tradable or non-tradable between vessels.

The Council may develop sector- and/or vessel-specific total catch limit programs for the groundfish fisheries when such programs are accompanied by an appropriate monitoring mechanism (Section 6.4) and where such programs are sufficiently enforceable (Section 6.10) such that they are not expected to increase vessel detection-avoidance activities.

Sector-specific Total Catch Limit Program

A sector-specific total catch limit program is one in which a fishery sector would have access to a pre-determined (probably through the harvest specifications and management measure process, Section 6.2, C) amount of a groundfish FMU species, stock, or stock complex that would be allowed to be caught by vessels in that sector. Once a total catch limit is attained, all vessels in the sector would have to cease fishing until the end of the limit period, unless the total catch limit is increased by the transfer of an additional limit amount. A sector-specific total catch limit program could be based on either: 1) monitoring of landed catch and inseason modeling of total catch based on past landed catch and bycatch rates, or 2) monitoring of total catch and real-time delivery of total catch data. If a sector-specific total catch limit program is based on inseason monitoring of landed catch, a sector would close when inseason total catch modeling estimated that the sector had achieved an FMU species, stock, or stock complex total catch limit. If a sector-specific total catch limit program is based on inseason monitoring of total catch, a sector would close when inseason total catch monitoring estimated that the sector had achieved an FMU species, stock, or stock complex total catch limit. If inseason monitoring of total catch is possible, sector participants in a sector-specific total catch limit program could either fish in an open competition with each other for total catch limits or could cooperate with each other to keep their total catch below total catch limits.

In developing a sector-specific total catch program, the Council will initially consider the following ten groundfish fishery sectors for assignment of total catch limits:

1. Non-whiting LE trawl vessels.
2. At-sea Pacific whiting catcher-processors.
3. LE trawl vessels delivering to at-sea Pacific whiting motherships.
4. LE trawl vessels delivering Pacific whiting to shore-based processing plants.
5. LE longline vessels.
6. LE pot vessels.
7. Directed open access vessels. These are vessels without a groundfish LE permit that on a per-trip or per-landing basis demonstrate a fishing strategy targeting groundfish.
8. Incidental open access vessels. These are vessels that on a per-trip or per-landing basis are not fishing under a groundfish LE permit and not targeting groundfish, but may catch some amount of groundfish incidentally.
9. Tribal vessels targeting groundfish (see Section 6.2.5)
10. Recreational fishers (fishing from a vessel, from shore, or by another means), including charter (for hire) vessels.

As necessary, the Council will establish criteria for deducting total catch by a particular vessel from a particular sector's total catch limit. For example, the same LE trawl vessel may make landings attributable to the shore-based whiting sector or the non-whiting LE trawl sector, and assignment of a particular landing (and associated bycatch) to one or the other sector would be necessary. Similarly, an open access vessel may target groundfish on a particular trip or time of year, falling into the directed open access sector, while at other times targeting non-groundfish species but catching groundfish incidentally and falling into the incidental open access sector. In general, the composition of a particular vessel's landing and bycatch

associated with that landing will be used as the basis for assigning total catch to a sector (recognizing that associated bycatch may be directly monitored or estimated). However, other criteria may be used if appropriate.

Sector-specific total catch limits may be applied to one or more of the ten sectors enumerated above, and separate limits may apply to one or more FMU species, stocks, or stock complexes. Two or more of these sectors may be grouped and assigned an overall total catch limit for a given FMU species, stock, or stock complex; similarly, any of the ten sectors may be further subdivided to create additional sectors for the purpose of assigning a total catch limit for a given FMU species, stock, or stock complex. In considering which sectors should be assigned a total catch limit for a given FMU species, stock, or stock complex, the Council will consider current and/or projected total catch of the FMU species, stock, or stock complex by vessels in that sector and the capacity of current monitoring programs to provide sufficiently accurate and timely data to manage to a total catch limit, or the feasibility of establishing such a monitoring program for the sector in question.

Vessel-specific Total Catch Limit Program

Vessel-specific total catch limits are similar to individual vessel quotas (see Section 6.9.3) as applied to groundfish FMU species, stocks, or stock complexes, and require more intense monitoring than a sector-specific total catch limit program. Vessel-specific total catch limits may be established for vessels participating in a sector for which sector-specific total catch limits have already been established. Under a vessel-specific total catch limit program, the participating vessels would be monitored inseason and each vessel would be prohibited from fishing once it had achieved its total catch limit for a given FMU species, stock, or stock complex. The Council will establish the criteria necessary to determine what portion of a sector-specific total catch limit will be assigned to any vessel qualifying for a vessel-specific total catch limit. The Council also may attach incentives, such as increased cumulative landing limits, or requirements, such as carrying observers, when assigning total catch limit amounts to a vessel.

Inseason Adjustment of Sector Total Catch Limits

The Council may increase or decrease a sector limit during the limit period (for example, the fishing year or biennial management period), but should only do so in exigent circumstances and based on the criteria described below. If increasing sector limits inseason were to become a common management response, this could erode their effectiveness as incentives to fishery participants to adopt bycatch-reducing techniques and practices. Furthermore, adjusting a sector total catch limit could make the application of vessel-specific total catch limits in that sector difficult. A change in the sector limit would require a corresponding adjustment to each vessel limit, which would have to be accounted for in any monitoring program.

Inseason (during the limit period) the Council should only increase a sector total catch limit for a constraining species (a species whose ACL/OY or total catch limit prevents attainment of target species' ACLs/OYs) if all of the following conditions are met:

1. Total catch monitoring indicates a constraining species' sector total catch limit will be exceeded well before the end of the limit period and the estimated target species' total catch for that sector (for the limit period) is well below the total catch previously predicted for the limit period.
2. Monitored and projected total catch in other sectors (with or without sector total catch limits) indicates that the ACLs/OYs for the constraining species in question (established on an annual or other basis) will not be exceeded if the sector total catch limit is increased.

An increase in a sector total catch limit could be done through a transfer from another sector's total catch

limit for the same species.

The Council may need to reduce a sector's total catch limit because of an overage in one or more sectors. An overage means total catch that exceeds or is projected to exceed a sector's total catch limit for a particular species or species group. The term overage also applies to sectors not operating under total catch limits if total catch of the species in question (actual or projected) is above previous projections made for those sectors prior to the start of any given period (bimonthly period, fishing year, etc.). The Council could also reduce a sector's total catch limit in the form of a sector-to-sector transfer, as described above. The following principals should apply when considering an inseason downward adjustment in a total catch limit:

1. In order to avoid an overage, fishing may be prohibited after the date when a sector's total catch limit is projected to be reached, rather than waiting to close the fishery based on retrospective total catch estimates (available, for example, in the QSM report). This strategy is relevant to sectors without real-time reporting.
2. A downward adjustment should only be considered as a last resort when it is being considered for use as a compensation for projected overages in other sectors. Measures to rapidly reduce projected total catch in sectors where the overages are projected to occur, or in sectors without total catch limits, (or for non-catch-limited species) should be considered first. These measures could be, for example, changes to landing limits or changes in the size, configuration, and duration of time/area closures.
3. If a sector has an overage that needs to be compensated for by a change in total catch limits for other sectors, any downward adjustment in those sector's total catch limits should reflect an equitable reduction across all sectors, either through a proportional reduction in equivalent total catch limits or through the application of other management measures intended to reduce total catch of the species in question.
4. In the case of a reduction that is part of an intra-sector transfer, the criteria described above for an increase shall apply. In no case shall a reduction consequent of a transfer disadvantage the vessels in a sector in comparison to other sectors and with respect to fishing opportunity.

6.5.3.3 Catch Allocation to, or Gear Flexibility For, Gear Types with Lower Bycatch Rates

Catch allocations (Section 6.3), catch limits (Section 6.7), and fishing areas (Section 6.8) may be set so that users of gear types with lower bycatch rates have greater fishing opportunities than users of gear with higher bycatch rates. Increased fishing opportunities for users of gear types with lower bycatch rates could come in the form of increased overall amounts of fish available for directed or incidental harvest, increased landings limits, or increased allowable fishing areas. Increased fishing opportunities made available under this provision may not be provided in such a way that the number of fishing vessels participating in the groundfish fisheries is expected to increase.

6.5.3.4 Recreational Catch and Release Management

The Council may develop recreational catch-and-release programs for any groundfish stock through either the harvest specifications and management measures rulemaking (Section 6.2 C.) or the full rulemaking (Section 6.2 D) processes. The Council will assess the type and amount of groundfish caught and released alive during fishing under such a program and the mortality of such fish. Management measures for such a program will, to the extent practicable, minimize mortality and ensure extended survival of such groundfish.

[Amendment 18, 25]

6.6 Gear Definitions and Restrictions

The Council uses gear definitions and restrictions to protect juvenile fish (trawl mesh size), to disable lost gear so that it no longer catches fish (biodegradable escape panels for pots), to slow the rates of catch in particular sectors (recreational fisheries hook limits), to reduce bycatch of non-target species (trawl configuration requirements), and to protect marine habitat (trawl roller gear size restrictions). Gear types permitted for use in the west coast groundfish fisheries in Federal waters are listed in Federal regulations at 50 CFR 660.302 and in a nationwide list of fisheries at 50 CFR 600.725. No vessel may fish for groundfish in Federal waters using any gear other than those authorized in Federal regulations. Gear definitions and restrictions for both the commercial and recreational fisheries may be revised using either the specifications-and-management-measures rulemaking process (Section 6.2 C.) or the full rulemaking process (Section 6.2 D.). When developing revisions to gear definitions and restrictions, the Council shall consider the expense of such revisions to fishery participants and the time required for participants to work with gear manufacturers to meet new requirements.

6.6.1 Commercial Fisheries

This FMP authorizes the use of trawls, pots (traps), longlines, hook-and-line (mobile or fixed) and setnets (gillnets and trammel nets) as legal gear for the commercial harvest of groundfish.

6.6.1.1 Prohibitions

The use of setnets is prohibited in all waters north of 38° N latitude.

Bottom trawl gear with footropes larger than eight inches in diameter is prohibited shoreward of a line approximating the 100 fm depth contour. This boundary line is defined in Federal regulations by precise latitude-longitude coordinates (see 50 CFR 660, Subpart G). Trawl footrope diameter restrictions originated as a rockfish bycatch reducing measure, as discussed in Section 6.6.1.2. Footropes of diameters larger than 8 inches have been prohibited for use in the nearshore area in order to minimize bycatch, but the FMP had not set a formal boundary line for their use prior to 2006. Amendment 19 to the FMP requires permanent closure of the area shoreward of the 100 fm depth contour, a mandatory EFH protection measure.

The use of bottom trawl footrope gear with a footrope diameter larger than 19 inches is prohibited in the fishery management area.

The use of dredge gear is prohibited in the fishery management area.

The use of beam trawl gear is prohibited in the fishery management area.

States may implement parallel measures within their state waters (0-3 nm).

6.6.1.2 Trawl Gear

Trawl gear is a cone or funnel-shaped net, which is towed or drawn through the water by one or two vessels. Trawls are used both on the ocean bottom and off bottom. They may be fished with or without trawl doors. They may employ warps or cables to herd fish. Trawl gear includes roller, bottom, and pelagic (mid-water) trawls, and as appropriate, trawls used to catch non-groundfish species but which incidentally intercept groundfish. Trawl gear is complex, usually constructed from several panels of mesh and engineered with varying ropes, chains, and trawl doors to target particular sizes, shapes, or species of fish. The Council has historically worked with the trawl industry and the states, usually through the issuance of EFPs, to develop

new trawl gear restrictions or modifications intended to accomplish one or more FMP goals, usually the reduction of bycatch. The following discussion of the Council's efforts to modify trawl gear provides examples of the types of trawl gear modifications that may be made to meet FMP goals, but does not limit the range of future trawl gear restrictions.

In the early-mid 1990s, the Council engaged the trawl industry in a series of discussions on modifying trawl nets to minimize juvenile fish bycatch. Since 1995, bottom trawl nets have been required to be constructed with a minimum mesh size of 4.5 inches, and pelagic trawl nets with a minimum mesh size of three inches. Minimum net mesh sizes are intended to allow immature fish to pass through trawl nets. To ensure the success of minimum mesh size restrictions in allowing juvenile fish to escape trawl nets, the Council also developed restrictions preventing trawlers from using a double-walled codend. Further restrictions related to this objective include prohibitions on encircling the whole of a bottom trawl net with chafing gear and restrictions on the minimum mesh size of pelagic trawl chafing gear (16 inches).

In 2000, the Council began to distinguish between large and small footrope trawl gear. Large footrope gear is bottom trawl gear with a footrope diameter larger than eight inches, including any material (rollers, bobbins, etc.) encircling the footrope. Small footrope gear is bottom trawl gear with a footrope diameter of eight inches or smaller. Pelagic trawl gear is required to have unprotected footrope gear and is not permitted to be encircled with chains, rollers, bobbins, or other material. Initially, the Council used the distinction between large and small footrope gear to prohibit large footrope use for less abundant, nearshore, and continental shelf species. Large footrope gear allows trawlers to access rockier areas by bouncing the bottom of the trawl net over larger obstructions without tearing. Allowing only small footrope gear in nearshore and shelf areas was intended to reduce trawl access to newly-designated overfished species and their rockier habitats.

Since the Council introduced Rockfish Conservation Areas (RCAs, Section 6.8.2) in 2002 (initially through emergency rulemaking and later through permanent regulations), large footrope trawl gear has been prohibited inshore of the western boundary of the trawl RCA. RCA boundary lines are set to approximate ocean bottom depth contours and the western boundary of the trawl RCA has not been shallower than a line approximating the 150 fm depth contour. (See Section 6.8.2 for the use of RCAs as a management tool.) Six of the eight overfished species are continental shelf species and this restriction on the use of large footrope gear continues to reduce trawler access to rocky nearshore habitat. Over time, these footrope size restrictions, coupled with restricted landing limits, have re-configured trawl activities in the nearshore area so that they primarily target the more abundant flatfish species.

In 2005, the Council introduced new trawl gear requirements for small footrope trawl gear north of 40°10' N latitude. Trawlers operating inshore of the Trawl RCA are required to use selective flatfish trawl gear, which is configured to reduce bycatch of rockfish while allowing the nets to retain flatfish. Selective flatfish trawl nets have an ovoid trawl mouth opening that is wider than it is tall and the headropes on these nets are recessed from the trawl mouth. This combination of a flattened oval shape and a recessed headrope herds flatfish into the trawl net while allowing rockfish to slip up and over the headrope, without entering the net. Groundfish trawlers worked with the State of Oregon to develop these nets in order to have greater access to healthy flatfish stocks. The Council is working with the State of California to determine whether the selective flatfish trawl net is also effective at reducing the bycatch of southern overfished species in fisheries targeting more abundant southern stocks.

As part of a suite of measures intended to mitigate the adverse effects of fishing in groundfish EFH, the eight inch footrope restriction described here is made permanent, as listed in Section 6.6.1.1. A 100 fm management line, the shoreward boundary of the trawl RCA when the permanent measure was implemented, is identified as the seaward extent of the prohibition.

6.6.1.3 Non-trawl Gear

Non-trawl gear includes all legal commercial gear other than trawl gear. Fixed gear (anchored non-trawl gear) includes longline, pot, set net, and stationary hook-and-line gear. Fixed gear must be marked, individually or at each terminal end as appropriate, with a pole, flag, light, and radar reflector attached to each end of the set, and a buoy clearly identifying the owner. In addition, fixed gear shall not be left unattended for more than seven days. Reporting of fixed gear locations is not required, but fixed gear fishermen are encouraged to do so with the U.S. Coast Guard. Reporting of fixed gear will facilitate compensation claims by fishermen who have lost fixed gear.

Since 1982, groundfish traps have been required to be constructed with biodegradable escape panels in such a manner that an opening of at least eight inches in diameter results when the escape panel deteriorates. These biodegradable panels ensure that if a trap is lost or not attended for extended periods of time, it will not continue to fish. Gear that has been lost and continues to capture fish while it is unattended is often referred to as ghost fishing gear.

Mesh size in fish pots (traps) also affects the size of fish retained in the trap. By increasing the minimum mesh size in all or part of the trap, small fish may be allowed to escape. There are no minimum mesh size requirements for groundfish pot vessels. However, sablefish is the primary trap gear target species and fishermen are usually paid more per pound for larger-sized sablefish. Thus, there are few incentives for trap fishermen to use smaller mesh sizes.

6.6.2 Recreational Fisheries

Recreational fishing is fishing with authorized gear for personal use only, and not for sale or barter. The only types of fishing gear authorized for recreational fishing are hook-and-line and spear. The definition of hook-and-line gear for recreational fishing is the same as for commercial fishing. Hook limits, restrictions on the number of hooks that may be used per fishing line, or on the size or configuration of hooks used in a recreational fishery, have been established as routine management measures under Section 6.2.1. Hook limits are used in the recreational fishery to either constrain recreational fishery effort by limiting the number of hooks per fishing line, or to select for certain species by limiting the size of hooks used.

6.6.3 Bottom-contact Gear

In order to mitigate the adverse impacts of fishing on groundfish EFH, the Council may impose restrictions on a range of gear types collectively termed bottom-contact gear. These are gear types that are designed or modified to make contact with the sea floor during normal use. This includes, but is not limited to, beam trawl, bottom trawl, dredge, fixed gear, set net, demersal seine, dinglebar gear, and other gear (including experimental gear) designed or modified to make contact with the bottom. Gear used to harvest bottom-dwelling organisms (e.g., by hand, rakes, or knives) are also considered bottom-contact gear for the purpose of regulation. Other gear, midwater trawl gear for example, although it may occasionally make contact with the sea floor during deployment, is not considered a bottom contact gear because the gear is not designed for bottom contact, is not normally deployed so that it makes such contact, nor is such contact normally more than intermittent. Similarly, vertical hook-and-line gear that during normal deployment is not permanently in contact with the bottom would not be considered bottom-contact gear. For the purpose of regulation, specified legal gear types may be designated bottom contact or non-bottom-contact.

6.7 Catch Restrictions

The FMP authorizes the commercial and recreational harvest of species listed in Chapter 3 of this plan, and provides for limiting the harvest of these species in Chapters 5 and 6. The Council uses a variety of management measures to constrain rates of total catch, including direct limits on amounts that may be taken and landed in commercial and recreational fisheries. Trip limits constrain landed catch in the commercial fisheries; bag limits constrain landed catch in the recreational fisheries. Total catch limits constrain incidental catch amounts permitted in a particular fishery or sector and may refer to either amounts of incidentally caught non-target species that are not discarded (not considered bycatch under the Magnuson-Stevens Act), to amounts of non-target species that are discarded, or to both. Designating certain species as prohibited ensures that the FMP complies with international, Federal, and state regulations and management requirements for non-groundfish species.

Groundfish species harvested directly or incidentally in the territorial sea (0-3 nautical miles) will be counted toward any catch limitations established under the authority of this FMP. These catch restrictions apply to domestic fisheries off Washington, Oregon, and California. Procedures for designating and adopting catch restrictions are found in Section 6.2.

6.7.1 All Fisheries

Quotas, size limits, and total catch limits may be applied to either commercial (groundfish or non-groundfish) or recreational fisheries.

Quotas. Quotas may be used for certain species. Quotas are specified harvest limits, the attainment of which causes closure of the fishery for that species, gear type, or individual participant. Quotas may be established for intentional allocation purposes or to terminate harvest at a specified point. They may be specified for a particular area, gear type, time period, species or species group, and/or vessel or permit holder. Quotas may apply to either target species or bycatch species.

Size limits. Size limits are used to prevent the harvest of immature fish or fish that have not reached their full reproductive capacity. In some cases, size limits are used in reverse to harvest younger recruit or pre-recruits and to protect older, larger spawning stock. Slot limits, which prohibit the retention of fish that are either smaller than a lower size limit or larger than a higher size limit, are used to protect both immature fish and more fecund older fish. Size limits may be applied to all fisheries, but are generally used where fish are handled individually or in small groups such as trap-caught sablefish and recreational-caught fish. Size limits lose their utility in cases where the survival of the fish returned to the sea is low (e.g., rockfish).

Total catch limits. The Council has historically managed total catch of groundfish species by monitoring direct and incidental catch inseason, and then making inseason adjustments to catch and other restrictions to ensure that annual total catch does not exceed allowable harvest amounts. Expected bycatch amounts of overfished species are set aside as anticipated incidental take in various fisheries. Total catch limits, by contrast, are sector-specific or vessel-specific limits on total catch (landed and discarded catch) of groundfish FMU species. A cumulative trip limit is the maximum amount of groundfish species or species group that may be taken and retained, possessed, or landed per vessel in a specified period of time without a limit on the number of landings or trips, unless otherwise specified. In setting the biennial specifications and management measures, the Council will review the total harvestable surplus of individual FMU species or species groups and determine whether there are fishery sectors that may be managed with total catch limits. If a sector or vessel achieves a total catch limit inseason, all vessels in the sector, in the case of sector limits, or the individual vessel, in the case of vessel limits, would have to cease fishing at that time, unless the total catch limit is increased by means of a transfer or trade to the sector or vessel in question. Fisheries managed with total catch limits also must be subject to monitoring and requirements that provide

real-time or projected total catch reporting (see Section 6.4).

6.7.2 Commercial Fisheries

Prohibited Species. It is unlawful for any person to retain any species of salmonid or Pacific halibut caught by means of fishing gear authorized under this FMP, unless authorized by 50 CFR Part 300, Subparts E or F; or Part 600, Subpart H. State regulations prohibit the landing of crab incidentally caught in trawl gear off Washington and Oregon. However, trawl fishermen may land Dungeness crab in the State of California north of Point Reyes in compliance with the state landing law. Specifically, salmonids are prohibited species for trawl, longline, and pot gear. Halibut may be retained and landed by troll and longline gear only during times and under conditions set by International Pacific Halibut Commission and/or other Federal regulations. Salmon taken by troll gear may be retained and landed only as specified in troll salmon regulations. Groundfish species or species groups under this FMP for which the quota has been reached shall be treated in the same manner as prohibited species. Species identified as prohibited must be returned to the sea as soon as practicable with a minimum of injury when caught and brought aboard, after allowing for sampling by an observer, if any, unless other disposition procedures are specified by regulation. Exceptions may be made for the recovery of tagged fish.

The FMP authorizes the designation of other prohibited species in the future or the removal of a species from this classification, consistent with other applicable law for that species. The designation of other prohibited species or the removal of species from this classification must be made through either the biennial or annual specifications-and-management-measures rulemaking process (Section 6.2 C) or through the full rulemaking process (Section 6.2 D).

Trip limits. A trip limit is the amount of groundfish that may be taken and retained, possessed, or landed from a single fishing trip. Trip limits, trip frequency limits, and trip limits that vary by gear type or fishery may be applied to either groundfish or non-groundfish fisheries. Trip landing limits and trip frequency limits are used to control landings to delay achievement of a quota or HG and thus avoid premature closure of a fishery if it is desirable to extend the fishery over a longer time. Trip landing limits also may be used to minimize targeting on a species or species group while allowing landings of some level of incidental catch. Trip landing limits are most effective in fisheries where the fisherman can control what is caught. In a multispecies fishery, trip limits can discourage targeting while, at the same time, providing for the landing of an incidental catch species that requires a greater degree of protection than the other species in the multispecies catch. Conversely, a trip limit may be necessary to restrict the overall multispecies complex catch in order to provide adequate protection to a single component of that catch.

Trip limits for non-groundfish fisheries. For each non-groundfish fishery considered, a reasonable limit on the incidental groundfish catch may be established that is based on the best available information (from EFPs, logbooks, observer data, or other scientifically acceptable sources). These limits will remain unchanged unless substantial changes are observed in the condition of the groundfish resource or in the effort or catch rate in the groundfish or non-groundfish fishery. Incidental limits or species categories may be imposed or adjusted in accordance with the appropriate procedures described in Section 6.2. The Secretary may accept or reject but not substantially modify the Council's recommendations. The objectives of this framework are to:

Minimize discards in the non-groundfish fishery by allowing retention and sale, thereby increasing fishing income;

Discourage targeting on groundfish by the non-groundfish fleet; and

Reduce the administrative burden of reviewing and issuing EFPs for the sole purpose of enabling non-groundfish fisheries to retain groundfish.

6.7.3 Recreational Fisheries

Bag limits. A bag limit is a restriction on the number of fish that may be taken and retained by an individual angler operating in a recreational fishery, usually within a period of a single day. Bag limits have long been used in the recreational fishery and are perhaps the oldest method used to control recreational fishing. The intended effect of bag limits is to spread the available catch over a large number of anglers and to avoid waste.

Boat limits. A boat limit is a cumulative restriction on the total number of fish that may be taken and retained by all of the persons operating from a recreational fishery vessel. Boat limits restrict the overall per-vessel catch in a recreational fishery. A boat limit may prevent an angler from taking what would otherwise be allowed within an individual bag limit, depending on the number of fish already taken on that boat.

Dressing requirements. Anglers may be subject to requirements that they retain the skin on their filleted catch in order to allow port biologists and enforcement officers to better identify recreational catch by species.
[Amendment 18, 19]

6.8 Time/Area Closures

The Council uses a variety of time/area closures to control the directed rate of catch of targeted species, to reduce the incidental catch of non-target, protected (including overfished) species; and to prevent fishing in specified areas in order to mitigate the adverse effects of such activities on groundfish EFH. Time/area closures vary by type both in their permanency and in the size of area closed. When the Council sets fishing seasons (Section 6.8.1) it generally uses latitude lines extending from shore to the EEZ boundary to close large sections of the EEZ for part of a fishing year to one or more fishing sectors. RCAs (Section 6.8.2), by contrast, are coastwide fishing area closures bounded on the east and west by lines connecting a series of coordinates approximating a particular depth contour. RCAs are gear-specific and their eastern and western boundaries may vary during the year. RCAs also may be polygons that are closed to fishing for a brief period (less than one year) in order to provide short-term protection for the more migratory overfished or other protected species. Groundfish fishing areas (GFAs) (Section 6.8.3) are enclosed areas of high abundance of a particular species or species group and may be used to allow targeting of a more abundant stock within that enclosed area. Long-term bycatch mitigation closed areas (Section 6.8.4) have boundaries that do not vary by season and are not usually modified annually or biennially. Ecologically important habitat closed areas (Section 6.8.5) and the bottom trawl footprint closure (Section 6.8.6) are established in order to mitigate the adverse effects of fishing on EFH. MPAs (Section 6.8.7) are longer-term, discrete closed areas with unchanging boundary lines that may apply to one or more fishing sectors. Because the RCAs, the Yelloweye Rockfish Conservation Area, and the Cowcod Conservation Areas have all been implemented to protect overfished groundfish species, they are collectively referred to in Federal regulations as GCAs.

The coordinates defining the boundaries of time/area closures are published in Federal regulations. In order to ensure consistency between the areas named in this FMP (see below) and corresponding areas defined in Federal regulations, the Council may publish in the groundfish SAFE or other publication detailed specifications for these time/area closures, by means of maps, lists of coordinates, or other descriptors.

6.8.1 Seasons

Fishing seasons are closures of all or a portion of the West Coast EEZ for a particular period and time of year. Seasons may be used to constrain the rate of fishing on a targeted species, to encourage targeting of a more abundant stock during periods of higher aggregation, or to limit catch of a protected species during its spawning season. Seasons may be for the entire fleet, for particular sectors within the fleet, for regions of the coast, or for individual vessels. Designation and adoption of seasons must be made through either a specifications-and-management-measures rulemaking (Section 6.2 C) or a full rulemaking (Section 6.2 D).

Seasons have been used to manage the commercial Pacific whiting trawl and LE fixed gear fisheries. The non-tribal whiting fishery is divided into three sectors: catcher boats that deliver to shorebased processing plants, catcher vessels that deliver to motherships at sea, and at-sea catcher-processors. Each of these sectors is managed with its own season. The shorebased sector also includes an early season for waters off California, to allow vessels in that area to access whiting when it is migrating through waters off California. The LE fixed gear sablefish fishery is managed with a seven-month season, April through October. Outside the primary seasons for both whiting and fixed gear sablefish, incidental catch allowances of these species are provided to allow retention of incidental catch.

In addition to the whiting and sablefish seasons, intended to constrain the directed catch of the target stocks within a particular period, commercial fisheries may be constrained by season to protect overfished species.

Recreational fisheries also may be managed with fishing seasons, either to constrain the directed catch of target species or to reduce the incidental catch of protected species. Fishing seasons with one or more closed periods during the fishing year are intended to reduce catch rates of both more abundant and protected stocks. Seasonal closures are used off all three states—in combination with bag limits, RCAs, and other measures—to prevent recreational fisheries from exceeding allowable harvest levels.

6.8.2 Rockfish Conservation Areas

In September 2002, NMFS implemented an emergency rule at the Council's request to implement a Darkblotched Rockfish Conservation Area to close continental shelf/slope waters north of 40°10' N latitude. Since January 2003, the Council has used coastwide RCAs to reduce the incidental catch of overfished species in waters where they are more abundant. Of the eight currently overfished species, six are continental shelf species, and RCAs have primarily been designed to close continental shelf waters. Appendix F describes the role RCAs play in this FMP's overfished species rebuilding plans.

Different gear types have greater or lesser effects on different overfished species. Thus, RCAs are designed to be gear-specific to better target protection for the species most affected by each gear group. For example, darkblotched rockfish and Pacific ocean perch are continental slope species that are most frequently taken with trawl gear, which means that the Trawl RCA must extend out to greater depths in order to protect these species. Yelloweye rockfish, in contrast, is more frequently taken with hook-and-line gear, which means that both the commercial and recreational hook-and-line fisheries require yelloweye rockfish protection measures as part of that species' rebuilding plan. The Non-Trawl RCA is concentrated over the continental shelf, while the recreational fisheries use season closures and MPAs to reduce yelloweye rockfish bycatch.

RCAs are typically bounded on the east and west by lines drawn between a series of latitude/longitude coordinates approximating certain depth contours. An RCA may also be a polygon, designated by lines drawn between a series of latitude/longitude coordinates, which is closed to fishing for some period less than a year in duration. Some RCAs may extend to the shoreline. Although both the eastern and western RCA boundaries have changed over time for all of the gear groups, the area between the trawl RCA boundary lines approximating the 100 fm and 150 fm depth contours has remained closed since January

2003. Adopted potential RCA boundary lines are described in Federal regulations at 50 CFR 660.390-394. The size and shape of the RCAs may be adjusted inseason via the routine management measures process (Section 6.2.1) by using previously adopted potential RCA boundary lines. Designation and adoption of new potential RCA boundary lines must be made through either a specifications-and-management-measures rulemaking (Section 6.2 C) or a full rulemaking (Section 6.2 D)

6.8.3 Groundfish Fishing Areas

GFAs are areas of known higher abundance of a particular species or species group, enclosed by straight lines connecting a series of coordinates. A GFA designated for a more abundant species may be used to constrain fishing for that species within that particular GFA. For example, fishing for schooling species, such as petrale sole or chilipepper rockfish, could be allowed within GFAs for those species, but not permitted outside of the GFAs, where fisheries for those species might have higher incidental catches of overfished species.

Designation and adoption of GFAs must be made through either a specifications-and-management-measures rulemaking (Section 6.2 C) or a full rulemaking (Section 6.2 D)

6.8.4 Long-term Bycatch Mitigation Closed Areas

The Council uses a variety of time/area closures to reduce incidental catch of protected species in fisheries targeting groundfish. The extent and configuration of these areas do not vary seasonally and they are not usually modified through inseason or biennial management actions. The location and extent of these areas are described by coordinates published in permanent regulations. Modification of such permanent regulations would require full notice-and-comment rulemaking as described at Section 6.2 D. As of January 1, 2005, there are five such closures:

1. Klamath River Conservation Zone (KRCZ): Established in Federal regulations in 1993 to reduce the bycatch of threatened and endangered salmon stocks taken incidentally in the Pacific whiting fisheries. The KRCZ is closed to trawling for whiting. Its boundaries are defined as the ocean area surrounding the Klamath River mouth, bounded on the north by 41°38.80 N latitude, on the west by 124°23.00' W. longitude, and on the south by 41°26.63' N latitude.
2. Columbia River Conservation Zone (CRCZ): Established in Federal regulations in 1993 to reduce the bycatch of threatened and endangered salmon stocks taken incidentally in the Pacific whiting fisheries. The CRCA is closed to trawling for whiting. Its boundaries are defined as the ocean area surrounding the Columbia River mouth, bounded by a line extending for six nautical miles due west from North Head along 46°18.00' N latitude to 124°13.30' W. longitude, then southerly along a line of 167 true to 46°11.10' N latitude by 124°11.00' W. longitude, then northeast along Red Buoy Line to the tip of the south jetty.
3. Western Cowcod Conservation Area (CCA): First established via *Federal Register* notice in 2001 as an overfished species rebuilding measure. Incorporated into the FMP (Section 4.5.4.6) via Amendment 16-3 and established in Federal regulation in 2005 to reduce the bycatch of cowcod taken incidentally in all commercial and recreational fisheries for groundfish. The Western CCA is an area south of Point Conception defined by a series of coordinates describing straight lines enclosing a polygon.
4. Eastern Cowcod Conservation Area: First established via *Federal Register* notice in 2001 as an overfished species rebuilding measure. Incorporated into the FMP (Section 4.5.4.6) via Amendment 16-3 and established in Federal regulation in 2005 to reduce the bycatch of cowcod taken incidentally in all commercial and recreational fisheries for groundfish. The Eastern CCA is an area west of San Diego defined by a series of coordinates describing straight lines enclosing a

polygon.

5. Yelloweye Rockfish Conservation Area (YRCA): First established via *Federal Register* notice 2003 as an overfished species rebuilding measure. Incorporated in the FMP (Appendix F) via Amendment 16-3 and established in Federal regulation in 2005 to reduce the bycatch of yelloweye rockfish in the recreational fisheries for groundfish and halibut. The YRCA is a C-shaped area off the northern Washington coast defined by a series of coordinates describing straight lines enclosing a polygon.

6.8.5 Ecologically Important Habitat Closed Areas

The Council has identified discrete areas that are closed to fishing with specified gear types, or are only open to fishing with specified gear types. These ecologically important habitat closed areas are intended to mitigate the adverse effects of fishing on groundfish EFH. They may be categorized as bottom trawl closed areas (BTCAs) and bottom contact closed areas (BCCAs). For the purpose of regulation each type of closed area should be treated differently. For the purposes of BTCAs, the definition of bottom trawl gear in Federal regulations applies (see also Section 6.6.1.2). For the purposes of BCCAs, the definition of bottom contact gear in this FMP (Section 6.6.3) and in Federal regulations applies.

The extent and configuration of these areas do not vary seasonally and they are not usually modified through inseason or biennial management actions. For this reason, they may be considered MPAs (Section 6.8.7). The location and extent of these areas are described by a series of latitude-longitude coordinates enclosing a polygon published in permanent Federal regulations. For areas closed to bottom trawl gear, the habitat conservation framework may be used to eliminate such closed areas or modify their location or extent. Modification of permanent regulations describing these closed areas would require full notice-and-comment rulemaking as described at Section 6.2 D. As of June 30, 2006 (see 50 CFR 660.306(h)), there are 50 such closures:

Bottom Trawl Closed Areas

Off of Washington:

1. Olympic 2
2. Biogenic 1
3. Biogenic 2
4. Grays Canyon
5. Biogenic 3

Off of Oregon:

1. Astoria Canyon
2. Nehalem Bank/Shale Pile
3. Siletz Deepwater
4. Daisy Bank/Nelson Island
5. Newport Rockpile/Stonewall Bank
6. Heceta Bank
7. Deepwater off Coos Bay
8. Bandon High Spot
9. Rogue Canyon

Off of California:

1. Eel River Canyon
2. Blunts Reef
3. Mendocino Ridge

4. Delgada Canyon
5. Tolo Bank
6. Point Arena North
7. Point Arena South Biogenic Area
8. Cordell Bank/Biogenic Area
9. Farallon Islands/Fanny Shoal
10. Half Moon Bay
11. Monterey Bay/Canyon
12. Point Sur Deep
13. Big Sur Coast/Port San Luis
14. East San Lucia Bank
15. Point Conception
16. Hidden Reef/Kidney Bank
17. Catalina Island
18. Potato Bank
19. Cherry Bank
20. Cowcod Conservation Area East

For the purpose of regulating the use of fishing gear in BTCAs in waters off of California, Scottish seine (or fly dragging) gear is not considered bottom trawl gear. The Scottish seine method deploys a weighted rope on the sea bottom in a large polygonal shape, attached to a codend net. The rope is pulled across the bottom, herding the fish towards the codend, which is then hauled back to the vessel.

Bottom Contact Closed Areas

Off of Oregon:
1. Thompson Seamount
2. President Jackson Seamount

Off of California:
1. Cordell Bank (within 50 fm isobath)
2. Harris Point
3. Richardson Rock
4. Scorpion
5. Painted Cove
6. Davidson Seamount (fishing below 500 fm prohibited, see below)
7. Anacapa Island
8. Carrington Point
9. Judith Rock
10. Skunk Point
11. Footprint
12. Gull Island
13. South Point
14. Santa Barbara

All of the BCCAs off of California occur within the Cordell Bank, Monterey, or Channel Islands National Marine Sanctuaries. Mitigation measures implemented under Magnuson-Stevens Act authority are also intended to support the goals and objectives of these sanctuaries. In the case of Davidson Seamount, it is unlawful for any person to fish with bottom contact gear, or any other gear that is deployed deeper than 500 fm, within the area defined in Federal regulations. Closing the water column below 500 fm to fishing in addition to prohibiting fishing that contacts the bottom addresses Sanctuary goals and objectives while

practicably mitigating the adverse effects of fishing on groundfish EFH.

Maps showing the locations of these closures and coordinates defining their boundaries, as published in Federal regulations, appear in Appendix C.

6.8.6 Bottom Trawl Footprint Closure

As a precautionary measure, to mitigate the adverse effects of fishing on groundfish EFH, the West Coast EEZ seaward of a line approximating the 700 fm isobath is closed to bottom trawling to the outer extent of groundfish EFH (3,500 m, see Section 7.2, or the seaward boundary of the EEZ). This is called the footprint closure because the 700 fm isobath is an approximation of the historic extent of bottom trawling in the management area. This closure is therefore intended to prevent the expansion of bottom trawling into areas where groundfish EFH has not historically been adversely affected by bottom trawling. Because this closure applies to an area where bottom trawling effort has been limited or nonexistent, the socioeconomic impacts of this closure are modest.

6.8.7 Marine Protected Areas

Executive Order (EO) 13158 on MPAs was signed on May 26, 2000. This EO defines MPAs as "any area of the marine environment that has been reserved by Federal, state, territorial, tribal, or local laws or regulations to provide lasting protection to part or all of the natural or cultural resources therein." Under this FMP, MPAs include all marine areas closed to fishing for any or all gear group(s), by the FMP or implementing Federal regulations for conservation purposes, and which have stable boundaries over time (thereby providing lasting protection). In 2005, the Marine Protected Areas Federal Advisory Committee on Establishing and Managing a National System of Marine Protected Areas made several recommendations on specifying this definition of MPA. They define lasting protection as enduring long enough to enhance the conservation, protection, or sustainability of natural or cultural marine resources. The minimum duration of "lasting" protection ranges from ten years to indefinite, depending on the type and purpose of MPA. The use of the term "indefinite" indicates permanent protection while recognizing that an MPA designation and level of protection may change for various reasons, including changes in the resources so protected and in how society values those resources. Although all of the time/area closures described in Sections 6.8.2-6.8.6 may be modified through full notice-and-comment rulemaking, most either are practically permanent (portions of the GCAs) or are intended to be permanent (habitat closed areas and the trawl footprint closure). These time/area closures offer lasting protection and may be considered MPAs. New MPAs may be established or these MPAs may be revised through either a specifications-and-management-measures rulemaking (Section 6.2 C) or a full rulemaking (Section 6.2 D). [Amendment 18, 19]

6.9 Measures to Control Fishing Capacity, Including Permits and Licenses

Permits and licenses are used to enumerate participants in an industry and, if eligibility requirements are established or the number of permits is limited, to restrict participation. Participation in the Washington, Oregon, and California groundfish fishery was partially limited beginning in 1994 when the Federal vessel license limitation program was implemented (Amendment 6). Subsequently, Amendment 9 further limited participation in the fixed-gear sablefish fishery by establishing a sablefish endorsement. (Chapter 11 describes the groundfish LE program in detail.) In December 2003, NMFS reduced participation in the LE trawl fleet by buying the fishing rights to 91 LE trawl vessels and the Federal and state permits associated with those vessels. There is currently no Federal permit requirement for other commercial participants (fishers or processors) or recreational participants (private recreational or charter). The Council may determine that effective management of the fishery requires accurate enumeration of the number of

participants in these sectors and may establish a permit requirement to accomplish this. In addition, some form of limitation on participation may be necessary in order to protect the resource or to achieve the objectives of the FMP.

Other forms of effort control commonly used include vessel length endorsements, restrictions on the number of units of gear, or restrictions on the size of trawls, or length of longlines, or the number of hooks or pots. Effort restrictions related to gear may also be useful in reducing bycatch.

Permit applications for the domestic groundfish fishery, including but not limited to exempted fishing permits, are authorized by this FMP. Such applications may include vessel name, length, type, documentation number or state registration number, radio call sign, home port, and capacity; owner and/or operator's name, mailing address, telephone number, and relationship of the applicant to the owner; type of fishing gear to be used, if any; signature of the applicant, and any other information found necessary for identification and registration of the vessel.

6.9.1 General Provisions For Permits

Federal permits may be required for individuals or vessels that harvest groundfish and for individuals or facilities (including vessels) that process groundfish or take delivery of live groundfish. In determining whether to require a harvesting or processing permit, and in establishing the terms and conditions for issuing a permit, the Council may consider any relevant factors, including whether a permit:

1. Will enhance the collection of biological, economic, or social data.
2. Will provide better enforcement of laws and regulations, including those designed to ensure conservation and management and those designed to protect consumer health and safety.
3. Will help achieve the goals and objectives of the FMP.
4. Will help prevent or reduce overcapacity in the fishery.
5. May be transferred, and under what conditions.

Separate permits or endorsements may be required for harvesting and processing or for vessels or facilities based on size, type of fishing gear used, species harvested or processed, or such other factors that may be appropriate. The permits and endorsements are also subject to sanctions, including revocation, as provided by Section 308 of the Magnuson-Stevens Act.

In establishing a permit requirement, the Council will follow the full-rulemaking procedures in Section 6.2 D.

6.9.1.1 Commercial Fisheries Permits

All U.S. commercial fishing vessels are required by state laws to be in possession of a current fishing or landing permit from the appropriate state agency in order to land groundfish in the Washington, Oregon, and California area. Federal LE permits authorize fishing within limits and restrictions specified for those permits. Vessels without such permits are also subject to the specified limits and restrictions for the open access fishery. In the event that a Federal fishing or access permit is required, failure to obtain and possess such a Federal permit will be in violation of this FMP.

6.9.1.2 Recreational Fisheries Permits

All U.S. recreational fishermen are required by state laws to obtain a recreational permit or license in order to fish for groundfish. In the event that a Federal license or permit is required, failure to obtain and possess

such Federal permit will be in violation of this FMP.

6.9.1.3 Processor Permits

Federal permits also may be required for groundfish processors. Under the trawl rationalization program (see Section 6.9.3.1) mothership processors in the Pacific whiting fishery must possess a mothership (MS) permit. Like groundfish LE permits (see Chapter 11), Pacific whiting mothership (MS) permits are transferrable once initially distributed to qualifying vessels at the beginning of the trawl rationalization program. To qualify for initial issuance of an MS permit at the beginning of the program, a processing vessel must have processed at least 1,000 mt of Pacific whiting in each of any two years from 1997 through 2003.

6.9.2 Sector Endorsements

The Council may establish sector endorsements, such as with the LE fixed gear sablefish fishery. Sector endorsements would limit participation in a fishery for a particular species or species group to persons, vessels, or permits meeting Council-established qualifying criteria. Participants in a sector-endorsed fishery may be subject to sector total catch limit management. A sector endorsement, whether it is applied to vessels that already hold LE permits or to those in the open access or recreational fisheries, is a license limitation program.

6.9.3 Fishery Rationalization

6.9.3.1 The Trawl Rationalization Programs

The trawl rationalization program applies to vessels holding trawl-endorsed groundfish LE permits (and mothership processors registered to mothership permits). The program is intended to reduce fishery capacity, minimize bycatch, and meet other goals of the FMP. The program replaces most cumulative landing limits (in both whiting and non-whiting shoreside LE trawl sectors) with individual fishing quotas. Under the Magnuson-Stevens Act, "an 'individual fishing quota' means a Federal permit under a limited access system to harvest a quantity of fish, expressed by a unit or units representing a percentage of the total allowable catch of a fishery that may be received or held for exclusive use by a person." The Council may establish IFQ programs for any commercial fishery sector.

The Pacific whiting mothership sector is managed through a system of cooperatives (co-ops) under which catcher vessels choosing to fish in a co-op would be obligated to deliver their catch to an associated mothership processor. Each year motherships and catcher vessels must identify which co-op they plan to participate in. If they do not plan to join a co-op for that year they participate in a non-co-op fishery. The Pacific whiting catcher-processor sector operates as a single, voluntary co-op. If the voluntary catcher-processor co-op dissolves, any allocation to the sector will be divided equally among the catcher-processor endorsed permits.

Appendix E describes the details of the trawl rationalization program that was implemented in Federal regulations.

The trawl rationalization program described in Appendix E may be modified through regulatory amendments proposed by the Council per §303(c) of the MSA and reviewed by the Secretary per §304(b). Appendix E may be revised from time to time to reflect changes to the program, but changes can be made without submitting such changes for review by the Secretary as described in §304(a) of the MSA. The Council will establish a process for considering recommended changes to the regulations.

6.9.3.2 Rationalization of Other Fishery Sectors

IFQ programs could be established in other fishery sectors for the purposes of reducing fishery capacity, minimizing bycatch, and to meet other goals of the FMP. Participants in an IFQ fishery may be subject to individual total catch limit management (Section 6.7).

6.9.4 Facilitating Public-Private Partnerships that Mitigate EFH Impacts and May Reduce Capacity

If consistent with the goals and objectives of this FMP, the Council may facilitate and encourage private purchases of groundfish LE permits and corresponding vessels in order to mitigate EFH impacts by reducing fleet capacity. Private purchases intended solely to reduce fishing capacity would permanently foreclose the future use of subject permits and vessels in west coast groundfish fisheries, if like the federally-sponsored west coast groundfish trawl buyout program. Aside from any socioeconomic benefits, reducing fleet fishing capacity can mitigate adverse impacts of fishing on groundfish EFH to the degree that fishing activity with adverse consequences is reduced. In such cases where multiple objectives are being addressed, arrangements other than the immediate or permanent retirement of the permit and/or vessel may be a feature of the agreement. Contracts for the purchase of groundfish LE permits and/or vessels may contain conditions specifying that the execution of the contract is contingent on the implementation of other measures to mitigate the adverse impacts of fishing on groundfish EFH. At the same time, the Council will take into account impacts on the segment of the fishing industry and fishing communities that are not a party to such contracts, and also take into account related FMP objectives 12, 14, 15, and 16 (Section 2.1). Mitigation measures may be contingent on Council action or recommendations, and the Council will strive to conduct its decision-making in such a way as to facilitate the private negotiation of such contract conditions. If contingent mitigation measures include establishing new areas closed to bottom trawl, or the modification of the location and extent of existing areas, the habitat conservation framework described in Section 6.2.4 may be used to implement such areas by regulatory amendment, using the procedures described under Section 6.2 D.

6.9.5 Capacity Reduction Data Collection

The current condition of the groundfish fisheries of the Washington, Oregon, and California region is such that further reduction of the LE fleet may be required in the near future. Research and monitoring programs may need to be developed and implemented for the fishery so that information required in a capacity reduction program is available. Such data should indicate the character and level of participation in the fishery, including (1) investment in vessel and gear; (2) the number and type of units of gear; (3) the distribution of catch; (4) the value of catch; (5) the economic returns to the participants; (6) mobility between fisheries; and (7) various social and community considerations.
[Amendment 18, 19, 20]

6.10 Fishery Enforcement and Vessel Safety

The enforceability of fishery management measures affects the health of marine resources and the safety of human life at sea. When considering new management measures or reviewing the current management regime, the Council will consider the fishery and its characteristics, assess whether the measures are sufficiently enforceable to accomplish the objective of those management measures, and describe measures to be taken to reduce risks to the measures' enforceability. For example, the Council introduced depth-based management (See RCAs at Section 6.8.2) in 2003 to protect overfished groundfish species with areas closed to fishing. The Council's subsequent recommendation to implement VMS requirements improved

the enforceability of the closed areas so that the closed areas could accomplish the Council's management objective of reducing overfished species catch by preventing vessels from fishing in areas where overfished species are more abundant.

If new management measures are under development, the Council will determine whether requirements are needed to facilitate the enforcement of new management measures.

During the development of new management measures, the Council will consider what measures are also needed to facilitate enforcement. When assessing if the measures are sufficiently enforceable, information should be obtained from:

- Fish tickets inspections and audits;
- Enforcement reports;
- Discussions with State and Federal fisheries agents and officers;
- USCG input;
- Observer program reports;
- Stakeholder input; and
- Other relevant information suggested by the Enforcement Consultants and the public.

When assessing if the measures are sufficiently enforceable, consideration should be given to enforcement risks from:

- Regulations that are complex and difficult to understand: Regulations that are clear in meaning and devoid of exemptions allow little interpretation of their meaning, making it clear to fishers what they can or cannot do.
- Catch limit evasion: This describes the potential for operators to either not declare, under-declare or report catch as other species or species groups on fish tickets; the potential for fishing vessels to offload to unauthorized processing or tending vessels at sea.
- Obscure chain of possession: Required documentation and labeling requirements make the fish distribution system more transparent. The ability to track a product back from the distributor to the harvester gives enforcement officers a powerful tool. It also promotes voluntary compliance by distributors and harvesters alike.
- Unaccounted-for bycatch: This describes the potential for vessels to high grade their catch (discard undesirable sizes or species of fish in order to retain desirable sizes or species) in a manner that increases bycatch mortality.
- Unauthorized fishing: This describes the potential for operators to fish undetected in closed areas, in restricted areas with unauthorized gear, or during closed seasons.

6.10.1 Managing Enforcement Risks

The objective of enforcement is to ensure in a cost-effective way that all fishing is conducted in accordance with fishery regulations. During the development of new management measures, the Council will consider what measures are also needed to facilitate enforcement. When managing the enforcement risks, consideration should be given to:

- Complexity: Complexity in a management regime can reduce enforceability by making the regime confusing to both fishery participants and enforcement agents. When the Council is developing new management measures, it shall evaluate those measures for their complexity to determine whether management complexity is necessary and whether there are ways to reduce the complexity of new management recommendations.

- Availability and adequacy of surveillance, monitoring, and inspections: What fishery surveillance, monitoring, and inspection methods are available from Federal and State agencies? Are these methods adequate to enforce the measure or measures under Council consideration?
- Compliance behavior: Are the proposed measures adequately enforceable such that they will change fisher behavior in a way that achieves intended results? Are the proposed measures adequately enforceable such that fishers who attempt to evade detection of illegal behavior are not reducing fishing opportunities for those fishers who comply with management measures?
- Unintended consequences: The Council should evaluate the range of behaviors and possible effects that could result if regulations were not adequately enforceable, including: collusion between processors and harvesters, high-value catch recorded as low-value catch, direct sales to retailers without fish tickets being recorded, offloading at-sea to unauthorized vessels, etc.
- Educational programs for public: How does the Council plan to educate the public on new management measures and requirements? Do Council public education efforts, in combination with Federal, State, and Tribal efforts allow adequate time for fishery participants to be made aware of changes to regulations?
- Officer training: Have Federal and State enforcement agents and officers been adequately trained in new fishery management regulations? Do the Enforcement Consultants or the Council have training recommendations to ensure that new regulations are clearly understood by those enforcing the regulations?
- Consistent regulations: To the extent possible, similar management measures across the Pacific Council's FMPs, and between State and Federal jurisdictions, should be implemented through a consistent and common regulatory structure.

6.10.2 Vessel Safety

The Council will take safety issues into account in developing management recommendations, although some safety issues may not be under Council control. For example, the Council may set a fishing season such that participants are able to choose when they participate, but the Council cannot assure that weather conditions will be favorable to all participants throughout that season. The Council will review any new regulatory or management measures recommendations it makes to determine whether such recommendations:

- Improve the safety of fishing conditions for fishery participants.
- Offer new safety risks for fishery participants that could be remedied with revisions to the proposed requirements that would not otherwise weaken the effects of those requirements.

On safety issues, the Council shall consult with its EC and the public, and particularly with the U.S. Coast Guard on any search-and-rescue issues that might arise through proposed regulatory requirements.

6.10.3 Vessel and Gear Identification

The FMP authorizes vessel and gear identification requirements, which may be modified as necessary to facilitate enforcement and vessel recognition. Vessel marking requirements are described in Federal regulations at 50 CFR 660.305 and generally require that each vessel be clearly marked with its vessel number, such that it may be identified from the air or from approaching rescue/enforcement vessels at sea. Vessels may also be identified via transmissions of their position locations under a VMS program. Federal requirements implementing the Council's VMS program are found in regulation at 50 CFR 660.312. Gear identification requirements are described in Federal regulations at 50 CFR 660.382 and 660.383 and generally require that fixed gear be marked with the associated vessel's number so that the gear's owner may be identified.

6.10.4 Prohibitions and Penalties

Fishery participants are subject both to Federal prohibitions that apply nationwide and to those that apply just to participants in the west coast groundfish fisheries. Federal regulations on nationwide fishery prohibitions are found at 50 CFR 600.725. Federal regulations on fishery prohibitions specific to the west coast groundfish fisheries are found at 50 CFR 660.306. Participants in the west coast groundfish fisheries are also subject to vessel operation and safety requirements of the U.S. Coast Guard (see Federal regulations at Titles 33 and 46).

Federal regulations at 50 CFR 600.735 state "Any person committing, or fishing vessel used in the commission of a violation of the Magnuson-Stevens Act or any other statute administered by NOAA and/or any regulation issued under the Magnuson-Stevens Act, is subject to the civil and criminal penalty provisions and civil forfeiture provisions of the Magnuson-Stevens Act, to this section, to 15 CFR part 904 (Civil Procedures), and to other applicable law."

[Amendment 18]

CHAPTER 7 **ESSENTIAL FISH HABITAT**

7.1 How This FMP Addresses Provisions in the Magnuson-Stevens Act Relating to Essential Fish Habitat

The Magnuson-Stevens Act (as amended by the Sustainable Fisheries Act) requires FMPs to "describe and identify essential fish habitat…, minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat" (§303(a)(7)). The Magnuson-Stevens Act defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." NMFS interpreted this definition in its regulations as follows: "waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish, and may include areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means "the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem"; and "spawning, breeding, feeding, or growth to maturity" covers the full life cycle of a species. For the purposes of identifying groundfish EFH, artificial structures are excluded from the definition of substrate unless designated as HAPC in this FMP (Section 7.3); notwithstanding other criteria, HAPCs are part of groundfish EFH under the descriptive criteria listed in Section 7.2 of this FMP.

The description and identification of EFH must include habitat for an individual species, but may be designated for an assemblage of species, if appropriate to the FMP. Regulations at 50 CFR 600, Subpart J provide further guidance on these required FMP contents. These guidelines recommend that FMPs identify HAPCs, which are specified areas of EFH meeting the criteria described in Section 7.3 of this FMP.

In addition to requiring FMPs to include practicable measures to minimize to the extent practicable the adverse effects of fishing on EFH, the Magnuson-Stevens Act also provides a mechanism for NMFS and the Council to address non-fishing impacts to EFH.

These requirements are addressed as follows:

- Section 7.2 provides a succinct description of groundfish EFH. Appendix B to this FMP provides detailed descriptions of EFH for groundfish FMU species, including maps showing EFH for individual groundfish species/life stages.
- Section 7.3 describes the groundfish HAPCs that have been identified by the Council, including the criteria used to identify those areas.

- Section 7.4 provides an overview of the management measures available to the Council for minimizing the adverse impacts of fishing to EFH. Measures adopted by the Council are described in the appropriate sections of Chapter 6. Appendix C describes an assessment methodology for the effects of fishing on Pacific Coast groundfish EFH. This provides the basis for determining the need for management measures.
- Section 7.5 describes how Federal agencies must consult with NMFS and/or the Council about any ongoing or proposed action they may authorize, fund, or undertake that may adversely affect any EFH. If the action would adversely affect EFH, NMFS will provide recommendations to conserve EFH. In support of these consultations, Appendix D describes non-fishing effects on EFH and recommended conservation measures.
- Section 7.6 describes how the Council will support habitat-related monitoring and research activities through the ongoing management program. Such programs will help close the knowledge gap about many Pacific Coast groundfish species' habitat needs. In support of appropriate monitoring and research, Appendix B identifies many of those data gaps and makes suggestions regarding future research efforts, including needed research on fishing and non-fishing impacts to groundfish EFH.

Protecting, conserving, and enhancing EFH are long-term goals of the Council, and these EFH provisions of the FMP are an important element in the Council's commitment to a better understanding, and conservation and management, of Pacific Coast groundfish populations and their habitat needs.

7.2 Description and Identification of Essential Fish Habitat for Groundfish

The Pacific Coast Groundfish FMP manages 90-plus species over a large and ecologically diverse area. Information on the life histories and habitats of these species varies in completeness, so while some species are well-studied, there is relatively little information on certain other species. Information about the habitats and life histories of the species managed by the FMP will certainly change over time, with varying degrees of information improvement for each species. For these reasons, it is impractical for the Council to include descriptions identifying EFH for each life stage of the managed species in the body of the FMP. Therefore, the FMP includes a description of the overall area identified as groundfish EFH and describes the assessment methodology supporting this designation. Life histories and EFH identifications for each of the individual species are provided in Appendix B, which will be revised and updated to include new information as it becomes available. Such changes will not require FMP amendment. This framework approach is similar to the Council's stock assessment process, which annually uses the SAFE document or the NEPA document analyzing proposed harvest specifications and management measures to update information about groundfish stock status without amending the FMP. Like the SAFE or specifications NEPA document, any EFH updates will be reviewed in a Council public forum.

The overall extent of groundfish EFH for all FMU species is identified as all waters and substrate within the following areas:

- Depths less than or equal to 3,500 m (1,914 fm) to mean higher high water level (MHHW) or the upriver extent of saltwater intrusion, defined as upstream and landward to where ocean-derived salts measure less than 0.5 ppt during the period of average annual low flow.
- Seamounts in depths greater than 3,500 m as mapped in the EFH assessment geographic information system (GIS).
- Areas designated as HAPCs not already identified by the above criteria.

This EFH identification is precautionary because it is based on the currently known maximum depth distribution of all life stages of FMU species. This precautionary approach is taken because uncertainty

still exists about the relative value of different habitats to individual groundfish species/life stages, and thus the actual extent of groundfish EFH. For example, there were insufficient data to derive habitat suitability probability (HSP) values for all species/life stages. Furthermore, the data used to determine HSP values is subject to continued refinement. While recognizing these limitations, the 100 percent HSP area, all of which occurs in depths less than 3,500 m, is identified as a part of groundfish EFH, recognizing that the best scientific information demonstrates this area is particularly suitable groundfish habitat. While precautionary, groundfish EFH still constitutes an area considerably smaller than the entire West Coast EEZ. Figure 7-1 shows the extent of this EFH identification.

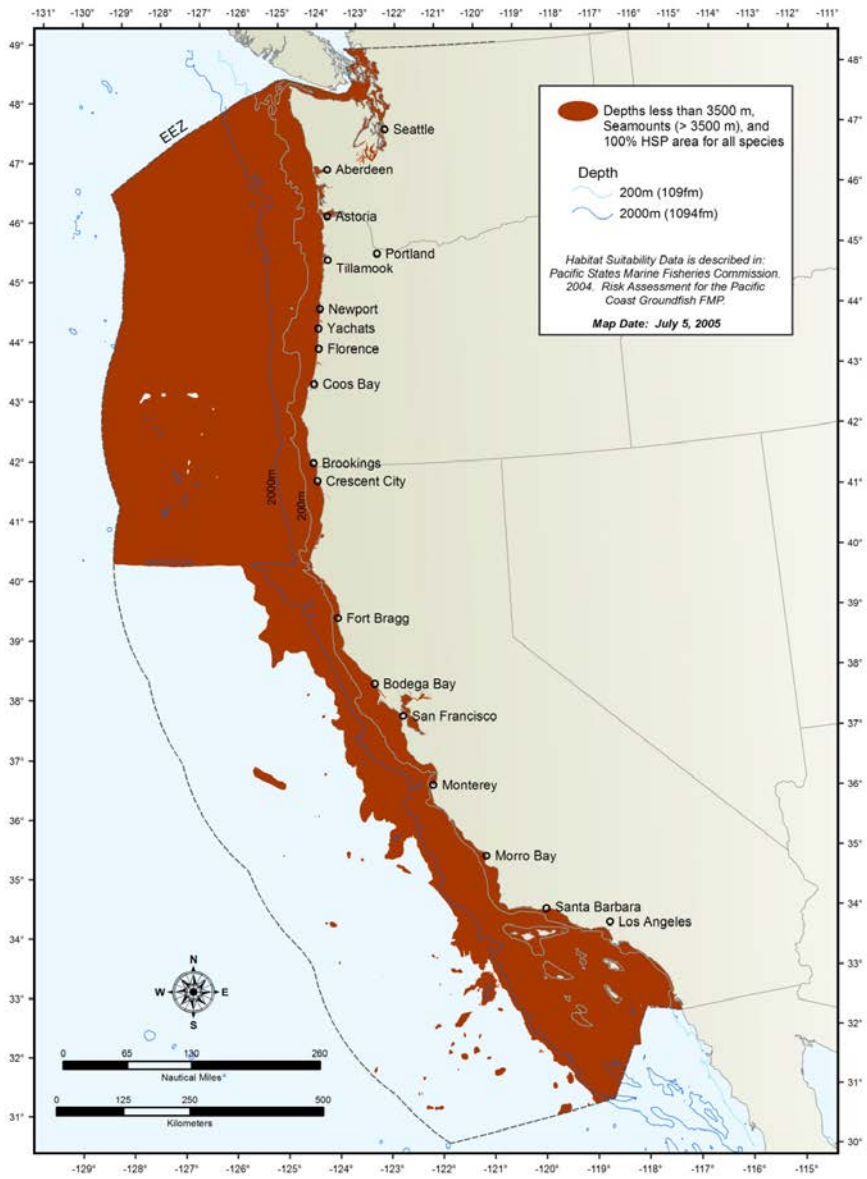

Figure 7-1. Groundfish EFH.

7.2.1 Use of Habitat Suitability Probability to Identify EFH

The HSP, mentioned above, provides more evaluative detail about EFH for groundfish species. It was developed by NMFS and their outside contractors through a modeling and assessment process (MRAG Americas Inc., *et al.* 2004). This assessment differs slightly from the approach in the guidelines to organize the information necessary to describe and identify EFH. The guidelines recommend organizing the information by kind of data, and then suggest describing EFH based on the highest level of data. The HSP approach is a more sophisticated method to analyze the information and provides a better way to scientifically analyze the information used to describe and identify EFH. The model considers basic pieces of information used to describe and identify EFH: location, depth, and substrate. It then determines areas used by the different life stages of groundfish, provides profiles for individual species by life stage, combines them in a GIS analysis into an ecosystem level set of fish assemblages, and predicts groundfish habitat. By using this approach to analyzing the information, HSP provides a better method to analyze the EFH information and develop the description and identification of EFH than the method outlined in the guidelines at 50 CFR 600.815. This is because it takes advantage of computer analyses of a large amount of information that is organized in such a way that it provides a clear understanding of the relationship between groundfish and habitat. The EFH Model used to develop HSP values for individual groundfish species/life stage is further described in Appendix B.

The assessment consolidates the best available ecological, environmental, and fisheries information into various databases, including a GIS and the habitat use database (HUD). The following types of data were used in this process to identify groundfish EFH:

- Geological substrate (GIS);
- Estuaries (GIS);
- Canopy kelp (GIS);
- Seagrass (GIS);
- Structure-forming invertebrate information;
- Bathymetric data (GIS);
- Latitude (GIS);
- Information on pelagic habitat;
- Data quality (GIS and other databases); and
- Information on the functional relationships between fish and habitat (including a literature review consolidated in the HUD).

Ideally, EFH would be defined by delineating habitat in terms of its contribution to spawning, breeding, feeding, growth to maturity, and production; however, comprehensive data on these functions are not available. Because of these data limitations, a model was developed to predict an overall measure of the suitability of habitat in particular locations for as many groundfish species as possible. This model uses available information on the distribution and habitat-related density of species. Where possible, the suitability of habitat was measured using the occurrence of fish species in NMFS trawl survey catches. For species not well represented in the trawl catches, information from the scientific literature was used.

The model characterizes habitat in terms of three variables: depth, latitude, and substrate (both physical and biogenic substrate, where possible). For the purposes of the model, these three characteristics provide a reasonable representation of the essential features of habitat that influence the occurrence of fish. Depending on these characteristics and the observed distributions of fish in relation to them, each location (a parcel or polygon of habitat in the GIS) is assigned a suitability value between zero and 100 percent. This is the HSP, which was calculated for as many species and life stages in the FMU as possible, based on available data. These scores and the differences between scores for different locations are then used to

develop a proxy for the areas that can be regarded as "essential." The higher the HSP, the more likely the habitat is suitable for the habitat needs of a given groundfish species.

The EFH assessment model provides spatially explicit estimates of HSP for 160 groundfish species/life stage combinations, including the adults of all FMU species. Distribution ranges for depth and latitude were derived where possible from in-situ observations of occurrence in NMFS trawl survey catches. Where survey data were insufficient, depth and latitude ranges were extracted from reports and papers in the scientific literature. Preferences for substrate types were also taken from the scientific literature. The HSP values for each habitat polygon are mapped using GIS software. EFH regulations at 50 CFR 600, Subpart J suggest that inferences may be made about the extent of EFH, through appropriate means, where data are lacking to determine EFH for each species and life stage. Such is the case for the current EFH identification, which infers that no groundfish species/life stage will occupy EFH beyond the currently-known maximum depth for groundfish species, the basis for identifying EFH out to a maximum depth of 3,500 m. This inference is based on the supposition that the life history characteristics of species for which information is unavailable are sufficiently similar to the characteristics of those species for which information is available such that the identified groundfish EFH encompasses all species.

HSP values, assigned to discrete areas represented by the polygons in the GIS, can be used to better understand where favorable groundfish habitat occurs. The EFH identification described above, all waters and bottom areas in depths less than 3,500 m, is a precautionary approach encompassing the maximum range of groundfish species within the management area, based on the best scientific information. As noted above, this precautionary identification has been adopted because there is not enough information to determine the relative value of different habitats for all groundfish species/life stages. Therefore, EFH for all groundfish is identified in a manner that provides the greatest opportunity to apply conservation measures. Within this precautionary EFH identification it is recognized that HSP values provide additional information about groundfish EFH. For this reason all areas assigned an HSP value greater than 0 percent for any given species are included as a subset of this broader, precautionary identification of groundfish EFH. The model and resulting HSP values also can be used to support future habitat-related management decisions, which may involve considering tradeoffs between management effects on different habitats. For example, these tradeoffs could be compared with respect to the suitability (HSP value) of different areas potentially affected by the management action.

In addition to supporting the description and identification of EFH for the individual species and life stages, these assessment-related techniques can be used as a basis for an ecosystem approach to management. For example, the HSP profiles for individual species/life stages can be combined by GIS analyses into ecosystem-level fish assemblages to investigate and predict environmental consequences of proposed projects.

As new data become available, they can be incorporated into the assessment to refine and improve HSP modeling. The Council supports and coordinates this effort through its standing committees and any ad hoc committees that may be formed for this purpose.

7.3 Habitat Areas of Particular Concern

EFH guidelines published in Federal regulations (50 CFR 600.815(a)(8)) identify HAPCs as types or areas of habitat within EFH that are identified based on one or more of the following considerations:

- The importance of the ecological function provided by the habitat;
- The extent to which the habitat is sensitive to human-induced environmental degradation;
- Whether, and to what extent, development activities are or will be stressing the habitat type; and

- The rarity of the habitat type.

Based on these considerations, the Council has designated both areas and habitat types as HAPCs. In some cases, HAPCs identified by means of specific habitat type may overlap with the designation of a specific area. The HAPC designation covers the net area identified by habitat type or area. Designating HAPCs facilitates the consultation process described in Section 7.5 by identifying ecologically important, sensitive, stressed, or rare habitats that should be given particular attention when considering potential non-fishing impacts. Their identification is the principal way in which the Council can address these impacts.

HAPCs based on habitat type may vary in location and extent over time. For this reason, the mapped extent of these areas offers only a first approximation of their location. Defining criteria of habitat-type HAPCs are described below, which may be applied in specific circumstances to determine whether a given area is designated as a groundfish HAPC. HAPCs include all waters, substrates, and associated biological communities falling within the area defined by the criteria below.

Figure 7-2 is a map showing the location of these HAPCs. For HAPCs defined by habitat type, as opposed to discrete areas, this map offers a first approximation of their location and extent. The precision of the underlying data used to create these maps, and the fact that the extent of HAPCs defined by key benthic organisms (canopy kelp, seagrass) can change along with changes in the distribution of these organisms, means that at fine scales the map may not accurately represent their location and extent. Defining criteria are provided in the following descriptions of HAPCs, which can be used in conjunction with the map to determine if a specific location is within one of these HAPCs. The areas of interest HAPCs are defined by discrete boundaries. The coordinates defining these boundaries are listed in Appendix B.

7.3.1 Designated HAPC

Figure 7-2 shows the location and extent of the HAPC described below.

7.3.1.1 Estuaries

Estuaries are protected nearshore areas such as bays, sounds, inlets, and river mouths, influenced by ocean and freshwater. Because of tidal cycles and freshwater runoff, salinity varies within estuaries and results in great diversity, offering freshwater, brackish and marine habitats within close proximity (Haertel and Osterberg 1967). Estuaries tend to be shallow, protected, nutrient-rich, and are biologically productive, providing important habitat for marine organisms, including groundfish.

Defining characteristics: The inland extent of the estuary HAPC is defined as MHHW, or the upriver extent of saltwater intrusion, defined as upstream and landward to where ocean-derived salts measure less than 0.5 ppt during the period of average annual low flow. The seaward extent is an imaginary line closing the mouth of a river, bay, or sound; and to the seaward limit of wetland emergents, shrubs, or trees occurring beyond the lines closing rivers, bays, or sounds. This HAPC also includes those estuary-influenced offshore areas of continuously diluted seawater. This definition is based on Cowardin, *et al.* (~~Cowardin, *et al.*~~ 1979).

7.3.1.2 Canopy Kelp

Of the habitats associated with the rocky substrate on the continental shelf, kelp forests are of primary importance to the ecosystem and serve as important groundfish habitat. Kelp forest communities are found relatively close to shore along the open coast. These subtidal communities provide vertically-structured habitat throughout the water column: a canopy of tangled blades from the surface to a depth of 10 feet, a mid-water stipe region, and the holdfast region at the seafloor. Kelp stands provide nurseries, feeding

grounds, and shelter to a variety of groundfish species and their prey (Ebeling, *et al.* 1980; Feder, *et al.* 1974). Giant kelp communities are highly productive relative to other habitats, including wetlands, shallow and deep sand bottoms, and rock-bottom artificial reefs (Bond, *et al.* 1998). Their net primary production is an important component to the energy flow within food webs. Foster and Schiel (~~Foster and Schiel~~ 1985) reported that the net primary productivity of kelp beds may be the highest of any marine community. The net primary production of seaweeds in a kelp forest is available to consumers as living tissue on attached plants, as drift in the form of whole plants or detached pieces, and as dissolved organic matter exuded by attached and drifting plants (Foster and Schiel 1985).

GIS data for the floating kelp species, *Macrocystis* spp. and *Nereocystis* sp., are available from state agencies in Washington, Oregon, and California. These data have been compiled into a comprehensive data layer delineating kelp beds along the west coast. The kelp source data were provided for each state by Washington Department of Natural Resources, Oregon Department of Fish and Wildlife, and California Department of Fish and Game. Source data were collected using a variety of remote sensing techniques, including aerial photos and multispectral imagery. Because kelp abundance and distribution is highly variable, these data do not necessarily represent current conditions. However, data from multiple years were compiled together with the assumption that these data would indicate areas where kelp has been known to occur. Washington State has the most comprehensive database, covering ten years (1989-1992, 1994-2000) of annual surveys of the Straits of Juan de Fuca and the Pacific Coast. Oregon conducted a coastwide survey in 1990 and then surveyed select reefs off southern Oregon in 1996-1999. A comprehensive kelp survey in California was performed in 1989 and additional surveys of most of the coastline occurred in 1999 and 2002.

Defining characteristics: The canopy kelp HAPC includes those waters, substrate, and other biogenic habitat associated with canopy-forming kelp species (e.g., *Macrocystis* spp. and *Nereocystis* sp.).

7.3.1.3 Seagrass

Seagrass species found on the west coast of the U.S. include eelgrass species (*Zostera* spp.), widgeongrass (*Ruppia maritima*), and surfgrass (*Phyllospadix* spp.). These grasses are vascular plants, not seaweeds, forming dense beds of leafy shoots year-round in the lower intertidal and subtidal areas. Eelgrass is found on soft-bottom substrates in intertidal and shallow subtidal areas of estuaries and occasionally in other nearshore areas, such as the Channel Islands and Santa Barbara littoral. Surfgrass is found on hard-bottom substrates along higher energy coasts. Studies have shown seagrass beds to be among the areas of highest primary productivity in the world (Herke and Rogers 1993; Hoss and Thayer 1993).

Despite their known ecological importance for many commercial species, seagrass beds have not been as comprehensively mapped as kelp beds. Wyllie-Echeverria and Ackerman (Wyllie-Echeverria and Ackerman 2003) published a coastwide assessment of seagrass that identifies sites known to support seagrass and estimates of seagrass bed areas; however, their report does not compile existing GIS data. GIS data for seagrass beds were located and compiled as part of the groundfish EFH assessment process.

Eelgrass mapping projects have been undertaken for many estuaries along the west coast. These mapping projects are generally done for a particular estuary, and many different mapping methods and mapping scales have been used. Therefore, the data that have been compiled for eelgrass beds are an incomplete view of eelgrass distribution along the west coast. Data depicting surfgrass distribution are very limited—the only GIS data showing surfgrass are for the San Diego area.

Defining characteristics: The seagrass HAPC includes those waters, substrate, and other biogenic features associated with eelgrass species (*Zostera* spp.), widgeongrass (*Ruppia maritima*), or surfgrass

(*Phyllospadix* spp.).[1]

7.3.1.4 Rocky Reefs

Rocky habitats are generally categorized as either nearshore or offshore in reference to the proximity of the habitat to the coastline. Rocky habitat may be composed of bedrock, boulders, or smaller rocks, such as cobble and gravel. Hard substrates are one of the least abundant benthic habitats, yet they are among the most important habitats for groundfish.

Defining characteristics: The rocky reefs HAPC includes those waters, substrates and other biogenic features associated with hard substrate (bedrock, boulders, cobble, gravel, etc.) to MHHW. A first approximation of its extent is provided by the substrate data in the groundfish EFH assessment GIS. However, at finer scales, through direct observation, it may be possible to further distinguish between hard and soft substrate in order to define the extent of this HAPC.

7.3.1.5 Areas of Interest

Areas of interest are discrete areas that are of special interest due to their unique geological and ecological characteristics. The following areas of interest are designated HAPCs:

- Off of Washington: All waters and sea bottom in state waters from the three nautical mile boundary of the territorial sea shoreward to MHHW;
- Off of Oregon: Daisy Bank/Nelson Island, Thompson Seamount, President Jackson Seamount; and
- Off of California: all seamounts, including Gumdrop Seamount, Pioneer Seamount, Guide Seamount, Taney Seamount, Davidson Seamount, and San Juan Seamount; Mendocino Ridge; Cordell Bank; Monterey Canyon; specific areas in the Federal waters of the Channel Islands National Marine Sanctuary; specific areas of the Cowcod Conservation Area.

The Washington State waters HAPC encompasses a variety of habitats important to groundfish, including other HAPCs such as rocky reef habitat supporting juvenile rockfish (primarily north of Grays Harbor) and estuary areas supporting numerous economically and ecologically important species, including juvenile lingcod and English sole. Sandy substrates within state waters (primarily south of Grays Harbor) are important habitat for juvenile flatfish. A large proportion of this area is also contained within the Olympic Coast National Marine Sanctuary and three offshore national wildlife refuges, which provide additional levels of protection to these sensitive nearshore coastal areas.

Seamounts and canyons are prominent features in the coastal underwater landscape, and may be important in rockfish management because "rockfish distributions closely match the bathymetry of coastal waters" (Williams and Ralston 2002).

Seamounts rise steeply to heights of over 1,000 m from their base and are typically formed of hard volcanic substrate. They are unique in that they tend to create complex current patterns (Lavelle, *et al.* 2003; Mullineaux and Mills 1997) and have highly localized species distributions (de Forges, *et al.* 2000). Seamounts have relatively high biodiversity and up to a third of species occurring on these features may be endemic (de Forges, *et al.* 2000). Because the faunal assemblages on these features are still poorly studied, and species new to science are likely to be found, human activities affecting these features need careful management. Currents generated by seamounts retain rockfish larvae (Mullineaux and Mills 1997;Dower

[1] The extent and effect of non-native species in seagrass HAPC, such as *Zostera japonica*, may be considered in conservation recommendations NMFS makes to other Federal and state agencies (see Section 7.5).

and Perry 2001) and zooplankton, a principal food source for rockfish (Genin, *et al.* 1988; Haury, *et al.* 2000). Several species observed on seamounts, such as deep sea corals, are particularly vulnerable to anthropogenic impacts (Monterey Bay National Marine Sanctuary 2005).

Canyons are complex habitats that may provide a variety of ecological functions. Shelf-edge canyons have enhanced biomass due to onshore transport and high concentrations of zooplankton, a principal food source of juvenile and adult rockfish (Brodeur 2001). Canyons may have hard and soft substrate and are high relief areas that can provide refuge for fish, and localized populations of groundfish may take advantage of the protection afforded by canyons and the structure-forming invertebrate megafauna that grow there (Monterey Bay National Marine Sanctuary 2005). A canyon in the North Pacific was observed to have dense aggregations of rockfish associated with sea whips (*Halipteris willemoesi*), while damaged sea whip "forests" had far fewer rockfish (Brodeur 2001).

Daisy Bank is a highly unique geological feature that occurs in Federal waters due west of Newport, Oregon and appears to play a unique and potentially rare ecological role for groundfish and large invertebrate sponge species. The bank was observed in 1990 to support more than 6,000 juvenile rockfish per hectare; a number thirty times higher than those observed on adjacent banks during the same study period. The same study also indicated that Daisy Bank seems to support more and larger lingcod and large sponges than other nearby banks (Mark Hixon, pers. comm., August 2004).

Discrete areas at Cordell Bank and the Channel Island National Marine Sanctuary, and the Cowcod Conservation Areas, are designated HAPCs because they are afforded high levels of protection through their inclusion in a National Marine Sanctuary and/or designation as an ecologically important closed area (see Section 7.4). These designations both reflect and enhance their value as groundfish habitat.

Defining characteristics: As noted above, the shoreward boundary of the Washington State waters HAPC is defined by MHHW while the seaward boundary is the extent of the three-mile territorial sea. The remaining area-based HAPCs are defined by their mapped boundaries in the EFH assessment GIS. The coordinates defining these boundaries may be found in Appendix B to this FMP.

7.3.2 Process for Modifying Existing or Designating New HAPCs

Recognizing that new scientific information could reveal other important habitat areas that should be designated HAPCs or call into question the criteria for existing HAPCs, the Council may designate a new HAPC or modify or eliminate an existing HAPC through the process described below. This process allows organizations and individuals to petition the Council at any time to consider a new designation, or modify or eliminate an existing designation, and ensures, provided they submit the required information described below, their proposal will be considered by the Council. The process includes the following elements, which may be described in more detail in Council Operating Procedures:

1. A petitioner submits a proposal to eliminate or modify an existing HAPC, or designate a new HAPC, by letter to the Chairman and Executive Director of the Council. Proposals must include a description of: (a) for a new HAPC, the location of the HAPC, defined by specified geographic characteristics such as coordinates, depth contours, or distinct biogeographic characteristics; (b) for a new HAPC, how the HAPC meets the criteria specified in regulations at 50 CFR 600.815 (a)(8), or for changes to an existing HAPC, how such a change would better meet these criteria; and (c) a preliminary assessment of potential biological and socioeconomic effects of the proposed change or new designation.
2. Council/NMFS staffs determine whether the proposal contains the mandatory components outlined in step one. If this technical review determines that the proposal is inadequate, staff return it to the petitioner for revision and resubmission. If it is determined adequate, staff forward it to the Council

for full consideration over three Council meetings as described below.

3. At the first meeting, the Council establishes a timeline for consideration, including merit review by the EFH OC and the SSC.
4. At the second meeting, the EFH OC and SSC provide their merit review to the Council. Depending on the results of this review, the Council directs staff to begin developing any documentation necessary for implementation. The proposal is also to be forwarded to other advisory bodies for additional review.
5. At the third meeting the Council receives advisory body reports, reviews implementing documentation, and decides whether to approve an FMP amendment for Secretarial review.

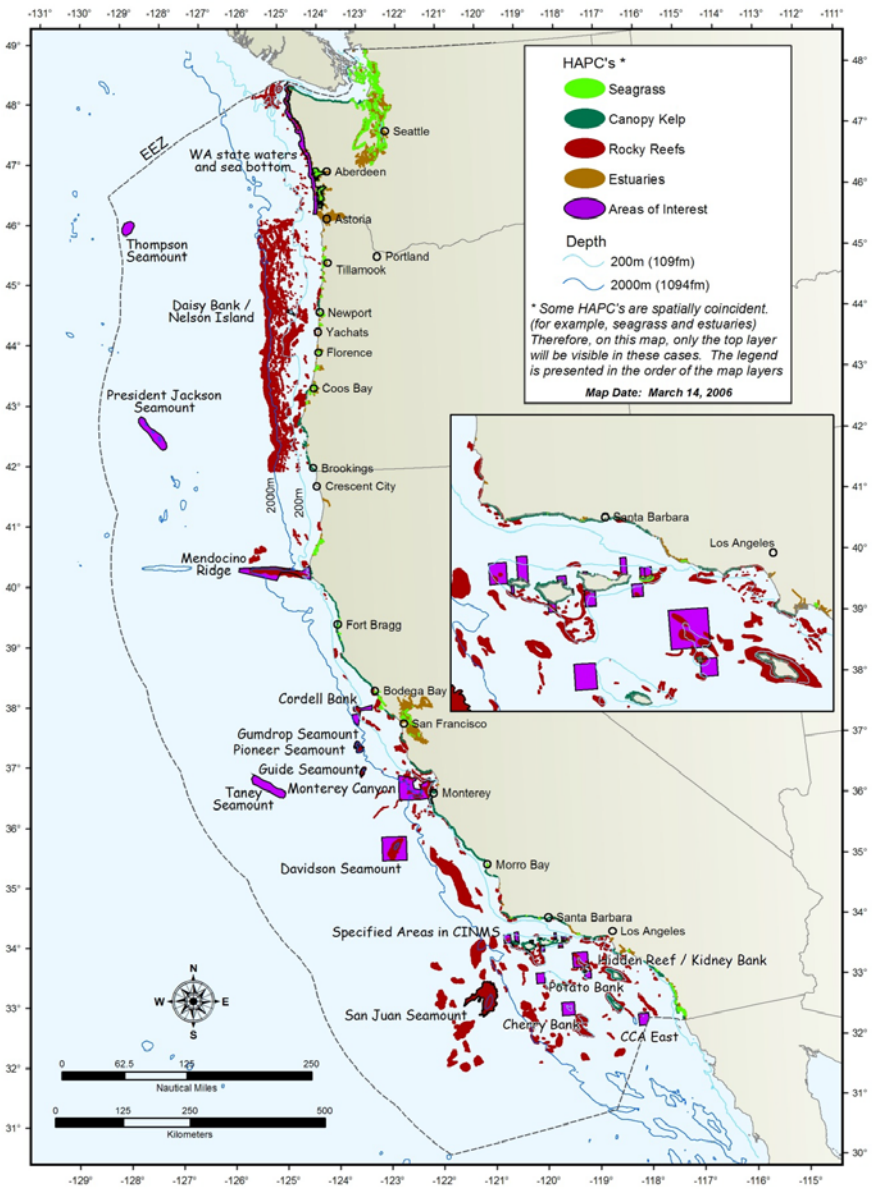

Figure 7-2. Groundfish HAPCs.

7.4 Management Measures to Minimize Adverse Impacts on Essential Fish Habitat from Fishing

Chapter 6 describes the range of measures available to the Council for managing groundfish fisheries. These include measures with permanent effect and those that may be periodically adjusted in concert with the specification of harvest levels described in Chapter 5. Management measures are typically established through Federal rulemaking, using one of the procedures described in Section 6.2. Some of the management measures described in Chapter 6 have been implemented specifically to mitigate adverse impacts to EFH while others may have another primary purpose (such as bycatch reduction) but may have a corollary mitigating effect on adverse impacts to EFH. Those measures specifically intended to conserve EFH are summarized below by reference to the relevant section in Chapter 6.

Three broad categories of management measures are recognized as being effective for mitigating adverse impacts to EFH: gear modifications, closed areas, and overall reductions of fishing effort (National Research Council 2002). Section 6.6 defines legal groundfish gear and describes restrictions on their use. The Council has established several prohibitions and restrictions on gear to mitigate adverse impacts to EFH. These include restrictions on trawl footrope size and prohibition of the use of dredges and beam trawls in the management area. Section 6.8 describes time/area closures, including the trawl footprint closure and ecologically important habitat closures, implemented to mitigate adverse impacts to EFH. The bottom trawl footprint closure prohibits the use of bottom trawl gear in depths greater than 700 fm to the outer extent of groundfish EFH (3,500 m) or the seaward extent of the EEZ, preventing the expansion of the use of this gear type into area where its historical use has been limited. Additional ecologically important habitat areas are also closed to specified gear types shoreward of the trawl footprint boundary. These are areas that are thought to be especially ecologically important or vulnerable to the effects of fishing based on information about substrate type, topography, and the occurrence of biogenic habitat. Section 6.9 describes the range of measures available to control fishing capacity. Reductions in fishing capacity, which may be loosely defined as the number, size, and configuration of vessels participating in a fishery, may reduce overall fishing effort. Reducing fishing effort is relevant to mitigating the effects of fishing on EFH if the aerial or temporal extent of gear contact with EFH is reduced. Although the rationale for measures that result in capacity reduction may be to prevent overfishing, reduce bycatch, or increase economic efficiency, they may have a corollary mitigating effect for EFH impacts. The Council will consider any such mitigating effects when developing capacity reduction programs or measures.

In determining whether it is practicable to minimize an adverse effect from fishing, the Council will consider whether, and to what extent, the fishing activity is adversely affecting EFH, the nature and extent of the adverse effect on EFH, and whether management measures are practicable. The Council will consider the long-term and short-term costs and benefits to the fishery and to EFH, along with any other factors consistent with National Standard 7.

As described in Section 6.2.5, Indian treaty rights apply in U & A grounds of the Makah, Hoh, and Quileute Tribes, and the Quinault Indian Nation. In recognition of the sovereign status and co-manager role of these Indian tribes over shared Federal and tribal fishery resources, the regulations at 50 CFR 660.324(d) establish procedures that will be followed for the development of regulations regarding tribal fisheries within the U & A grounds. They state that the agency will develop regulations in consultation with the affected tribe(s) and insofar as possible, with tribal consensus. Application of management measures intended to mitigate the adverse impacts of fishing on EFH within U & A grounds will be subject to these procedures.

7.5 EFH Coordination, Consultation, and Recommendations

The Magnuson-Stevens Act (§305(b)) also provides a mechanism for NMFS and the Council to address non-fishing impacts to EFH. Federal agencies are required to consult with NMFS on all activities, and

proposed activities, authorized, funded, or undertaken by the agency that may adversely affect EFH, whether it occurs within or outside EFH. (For example, certain terrestrial activities may adversely affect EFH.) NMFS must provide recommendations to conserve EFH to Federal agencies undertaking such activities. Federal agencies must respond within 30 days of receiving conservation recommendations from NMFS, describing measures to avoid, mitigate, or offset the impact of the proposed action on EFH. If the response is inconsistent with NMFS' conservation recommendations, the agency will explain why it did not follow them.

NMFS must also provide recommendations to conserve EFH to state agencies if it receives information on their actions. However, they are not required to initiate consultation with NMFS, nor are they required to respond to any recommendations provided by NMFS.

The Council may provide recommendations on actions that may affect habitat, including EFH. Such recommendations may include measures to avoid, minimize, mitigate, or otherwise offset adverse effects on EFH resulting from actions or proposed actions authorized, funded, or undertaken by that agency. The Council will encourage Federal agencies conducting or authorizing work that may adversely affect groundfish EFH to minimize disturbance to EFH. The Council must provide recommendations if the action is likely to substantially affect salmon habitat or EFH.

Whenever possible, EFH consultations will be combined with other interagency consultations and environmental review procedures, which may be required under the ESA, Clean Water Act, NEPA, Fish and Wildlife Coordination Act, Federal Power Act, Rivers and Harbors Act, or other statutes. EFH consultation may be either programmatic (concerning agency programs or policies) or project-specific. Programmatic consultations involve broad Federal actions as defined under NEPA (40 CFR 1502.4(b)), such as the adoption of new programs or policies. Programmatic actions may encompass several project-specific actions sharing common geographic scope, project elements, or timing. When appropriate, NMFS will use programmatic consultations to consider related projects, thereby eliminating repetitive discussions and helping to focus on the appropriate level of analysis. Considering the broad geographic scope of groundfish EFH, this approach can help address a wide variety of related development activities while also considering their cumulative effects.

7.6 Review and Revision of Essential Fish Habitat Descriptions and Identification

The Council will review the EFH description and identification, HAPC designations, and information on fishing impacts and non-fishing impacts included in this FMP at least every five years. New information may be included in the annual SAFE document or similar document and, if necessary, the FMP may be amended. The Council may schedule more frequent reviews in response to recommendation by the Secretary or for other reasons.

7.7 Habitat-related Research and Monitoring

The five-year review cycle described above accommodates progress in scientific understanding of marine habitat. New data on the habitat needs of groundfish species will improve the assessment model described in Section 7.2.1. Better information about the location, function, and consequences of human activity on habitat underpins efforts to conserve EFH and could enable more precise quantification of adverse impacts to EFH resulting from human activities, including fishing. The Council supports the use of existing research and monitoring programs to increase scientific understanding about EFH. Where practicable, these programs may be supplemented or modified to gather habitat-related information.

Currently, groundfish LE trawl vessels are required to record information on the time and location of fishing activities, along with estimates of catch composition, in a logbook. Some of these data are entered into the PacFIN data system and may be accessed by managers. Information on fishing location has proved invaluable to managers. These data show the spatial distribution of fishing effort, which can be used to evaluate what EFH area may be adversely affected by fishing. The Council supports expansion of the logbook program to cover other fishery sectors besides groundfish LE trawl, where practicable. The Council also supports entering more of the existing information gathered by means of logbooks, such as the haul-back position of trawl tows, into the data system.

This FMP authorizes the use of VMS programs (Section 6.4.2). As of 2004, specified groundfish LE permitted vessels were required to carry VMS transceivers in order to enforce the RCAs. Because the ecologically sensitive area closures and bottom trawl footprint closure (see Sections 6.8 and 7.4) apply to vessels beyond those holding groundfish LE permits, the Council will consider expansion of this requirement to other fishery sectors, as appropriate, to effectively enforce habitat-related closed areas. VMS data also could be valuable in continuing efforts to assess the effects of fishing on EFH if information on track lines of trawl or fixed gear sets could be accessed for research purposes.

Establishing research sites, unaffected by fishing, could be used in comparative studies to better understand the effects of fishing on habitat. Area closures established to manage bycatch, promote stock rebuilding, protect habitat, and for other reasons, offer opportunities to measure the length of time needed for habitat features and function to recover. Over time, these sites could also be compared with sites where fishing is ongoing in order to research the effects of fishing. The Council will support, through the work of its advisory bodies, such as the Habitat Committee, efforts to identify discrete sites within closed areas in order to focus research efforts. By encouraging research at identified sites, results can be more easily compared. Such a system or research sites should include a representative sample of habitat types in order to allow comparison of the effects of fishing across these different types.
[Amended: 11, 19 (all Chapter 7)]

CHAPTER 8 EXPERIMENTAL FISHERIES

Experimental fisheries may be useful to the Council in allowing members of the public to work with government agencies to bring new fishery management ideas into the Council process. For example, there may be some modification to current gear types that will reduce the effects of that gear on habitat, or reduces bycatch rates with that gear in otherwise closed areas. The Council supports the use of EFPs to promote public and agency innovation in furthering the FMP's fishery management goal and objectives. Experimental fishing will be conducted under Federal EFPs issued under Section 303(b)(1) of the Magnuson-Stevens Act.

The Regional Administrator may authorize, for limited experimental purposes, the direct or incidental harvest of groundfish managed under this FMP that would otherwise be prohibited. No experimental fishing may be conducted unless authorized by an EFP issued by the Regional Administrator to the participating vessel in accordance with the criteria and procedures specified in this section. EFPs will be issued without charge. EFPs may be issued to Federal or state agencies, marine fish commissions, or other entities, including individuals. An applicant for an EFP need not be the owner or operator of the vessel(s) for which the EFP is requested. Nothing in this section is intended to inhibit the authority of the Council or any other fishery management entity from requesting that the Regional Administrator consider issuance of EFPs for a particular experiment in advance of the Regional Administrator's receipt of applications for EFPs to participate in that experiment.

EFPs that would result in the directed or incidental take of groundfish should be reviewed through the Council process prior to application to NMFS. The Council review process allows the Council to determine whether portions of the harvest specifications of any groundfish species or species group would need to be set aside for harvest expected to be taken under EFPs. EFP proposals must contain a mechanism, such as at-sea fishery monitoring, to ensure that the harvest limits for targeted and incidental species are not exceeded and are accurately accounted for. Also, EFP proposals must include a description of the proposed data collection and analysis methodology used to measure whether the EFP objectives will be met.

EFP applicants may have their proposals reviewed through the Council process in accordance with Council Operating Procedure #19, Protocol for Consideration of EFPs for Groundfish Fisheries, which applies to EFP proposals targeting management unit species (Table 3-1) or Groundfish EC species (Table 3-2). EFP proposals targeting EC species shared between all four FMPs, including the Groundfish FMP, will be subject to the protocol for Shared EC Species, Council Operating Procedure #24. These protocol~~s~~ include~~s~~ requirements for EFP submission, proposal contents, review and approval, and progress reporting. The Council will give priority consideration to those EFP applications that:

1. Emphasize resource conservation and management with a focus on bycatch reduction (highest

priority);
2. Encourage full retention of fishery mortalities;
3. Involve data collection on fisheries stocks and/or habitat;
4. Encourage innovative gear modifications and fishing strategies to reduce bycatch;
5. Encourage the development of new market opportunities; and
6. Explore the use of higher trip limits or other incentives to increase utilization of underutilized species while reducing bycatch of non-target species.

Criteria and procedures for the issuance of EFPs apply nationwide and are found in Federal regulations at 50 CFR 600.745:

1. Applicants must submit a completed application in writing to the Regional Administrator at least 60 days prior to the proposed effective date of the permit. The application must include, but is not limited to, the following information:
   a. The date of the application;
   b. The applicant's name, mailing address, and telephone number;
   c. A statement of the purposes and goals of the exempted fishery for which an EFP is needed, including justification for issuance of the EFP;
   d. For each vessel to be covered by the EFP:
      (1) A copy of the USCG documentation, state license, or registration of each vessel, or the information contained on the appropriate document; and
      (2) The current name, address, and telephone number of owner and master;
   e. The species (target and incidental) expected to be harvested under the EFP, the amount(s) of such harvest necessary to conduct the exempted fishing, the arrangements for disposition of all regulations species harvested under the EFP, and any anticipated impacts on marine mammals and endangered species;
   f. For each vessel covered by the EFP, the approximate time(s) and place(s) fishing will take place, and the type, size and amount of gear to be used; and
   g. The signature of the applicant.

The Regional Administrator may request from an applicant additional information necessary to make the determinations required under this section.

2. The Regional Administrator will review each application and will make a preliminary determination whether or not the application contains all of the required information and constitutes an activity appropriate for further consideration. If the Regional Administrator finds any application does not warrant further consideration, both the applicant and the Council will be notified in writing of the reasons for the decision. If the Regional Administrator determines that any application warrants further consideration, notification receipt of the application will be published in the *Federal Register* with a brief description of the proposal, and the intent of NMFS to issue an EFP. Interested persons will be given a 15-day to 45-day opportunity to comment and/or comments will be requested during public testimony at a Council meeting. The notification may establish a cutoff date for receipt of additional applications to participate in the same or a similar exempted fishing activity.

   The Regional Administrator also will forward copies of the application to the Council, the United States Coast Guard, and the fishery management agencies of Oregon, Washington, California, and Idaho, accompanied by the following information:

   a. The effect of the proposed EFP on the target and incidental species, including the effect on any ACL/OY;

b. A citation of the regulation or regulations that, without the EFP, would prohibit the proposed activity; and
c. Biological information relevant to the proposal, including appropriate statements of environmental impacts, including impacts on marine mammals and threatened or endangered species.

3. At a Council meeting following receipt of a complete application, the Regional Administrator may choose to consult with the Council and the directors of the state fishery management agencies concerning the permit application. The Council shall notify the applicant in advance of the meeting, if any, at which the application will be considered and invite the applicant to appear in support of the application if the applicant desires.

4. As soon as practicable after receiving responses from the agencies identified above, or after consultation, if any, in paragraph 3 above, the Regional Administrator shall notify the applicant in writing of his decision to grant or deny the EFP, and, if denied, the reasons for the denial. Grounds for denial of an EFP include, but are not limited to, the following:

a. The applicant has failed to disclose material information required, or has made false statements as to any material fact, in connection with his or her application;
b. According to the best scientific information available, the harvest to be conducted under the permit would detrimentally affect the well-being of the stock of any regulated species of fish, marine mammal, or threatened or endangered species in a significant way;
c. Issuance of the EFP would have economic allocation as its sole purpose;
d. Activities to be conducted under the EFP would be inconsistent with the intent of national goals for Magnuson-Stevens Act implementation or the management objectives of this FMP;
e. The applicant has failed to demonstrate a valid justification for the permit; or
f. The activity proposed under the EFP could create a significant enforcement problem.

5. The decision of a Regional Administrator to grant or deny an EFP is the final action of NMFS. If the permit, as granted, is significantly different from the original application, or is denied, NMFS may publish notification in the *Federal Register* describing the exempted fishing to be conducted under the EFP or the reasons for denial.

6. The Regional Administrator may attach terms and conditions to the EFP consistent with the purpose of the exempted fishing, including, but not limited to:

a. The maximum amount of each regulated species that can be harvested and landed during the term of the EFP, including trip limitations, where appropriate;
b. The number, size(s), name(s), and identification number(s) of the vessel(s) authorized to conduct fishing activities under the EFP;
c. The time(s) and place(s) where exempted fishing may be conducted;
d. The type, size, and amount of gear that may be used by each vessel operated under the EFP;
e. The condition that observers, a vessel monitoring system, or other electronic equipment be carried on board vessels operated under an EFP, and any necessary conditions, such as predeployment notification requirements;
f. Reasonable data reporting requirements;
g. Other conditions as may be necessary to assure compliance with the purposes of the EFP consistent with the objectives of this FMP and other applicable law; and
h. Provisions for public release of data obtained under the EFP that are consistent with NOAA

confidentiality of statistics procedures. An applicant may be required to waive the right to confidentiality of information gathered while conducting exempted fishing as a condition of an EFP.

7. Failure of a permittee to comply with the terms and conditions of an EFP shall be grounds for revocation, suspension, or modification of the EFP with respect to all vessels conducting activities under that EFP. Any action taken to revoke, suspend, or modify an EFP shall be governed by Federal regulations.

[Amendment 18, 25]

CHAPTER 9 **SCIENTIFIC RESEARCH**

Nothing in this FMP is intended to inhibit or prevent any scientific research involving groundfish which is acknowledged by the Secretary or his delegee, and is to be conducted in the fishery management area by a scientific research vessel or a commercial vessel contracted to carry out scientific research.

Activity should not be acknowledged as scientific research unless it is submitted in writing to the Secretary of Commerce or his delegee in the form of a research proposal which addresses all of the factors below. An activity may be acknowledged as scientific research if its primary objective, purpose, or product is the acquisition of data, information, or knowledge as determined by consideration of all of the following factors:

1. Clearly researchable subject matter exists which will result in information useful for scientific or management purposes;
2. The application of existing knowledge alone is insufficient to solve the scientific or management subject presented by the scientific research proposal;
3. Facts/data/samples will be collected or observed and analyzed in a scientifically acceptable manner and the results will be formally prepared and available to the public; and
4. Recognized scientific experts, organizations, or institutions with expertise in the field or subject matter area are sponsoring or are otherwise affiliated with the activity.

Secretarial Acknowledgment of Scientific Research:

1. If the Secretary of Commerce or his delegee agrees that an activity constitutes scientific research involving groundfish, a letter of acknowledgment should be issued to the operator or master of the vessel conducting the scientific research.
2. The letter will include information on the purpose, scope, location, and schedule of the acknowledged activities.
3. Any activities not in accordance with the letter of acknowledgment should be subject to all provisions of the Magnuson-Stevens Act and its implementing regulations.
4. The Secretary or his delegee should transmit copies of letters of acknowledgment to the Council and to state and Federal administrative and enforcement agencies to ensure they are aware of the research activities.

Groundfish taken under the scientific research exclusion may be sold to offset all or part of the cost of

carrying out the research plan including costs associated with operating the research vessel.

CHAPTER 10 PROCEDURE FOR REVIEWING STATE REGULATIONS

10.1 Background

There are and will continue to be state regulations affecting groundfish fisheries off the west coast, which are in addition to Federal regulations. This potential extends to waters off all three west coast states, to all gear types, and to both the commercial and recreational fisheries. In some cases, it may be desirable to ensure consistency between state and Federal regulations by implementing Federal regulations that complement state regulations. In other cases, the Council may determine that Federal regulations are not necessary to complement state regulations, but wish to assure a state that its regulations are consistent with the FMP insofar as they are applied to vessels registered in that state when fishing in the EEZ. Section 10.2 describes the framework review process by which any state may petition the Council to initiate a review of its regulations, determine consistency with the FMP and national standards to ensure that the state regulations are enforceable. If appropriate, the Council may also recommend to NMFS that duplicate or different Federal regulations be implemented in the EEZ. While the Council retains the authority to recommend Federal regulations be implemented in the EEZ, the preference is to continue to rely on state regulations in that area as long as they are consistent with the FMP.

10.2 Review Procedure

Any state may propose that the Council review a particular state regulation for the purpose of determining its consistency with the FMP and the need for complementary Federal regulations. Although this procedure is directed at the review of new regulations, review of existing regulations affecting the harvest of groundfish managed by the FMP also will utilize this process. The state making the proposal will include a summary of the regulations in question and concise arguments in support of consistency.

Upon receipt of a state's proposal, the Council may make an initial determination whether or not to proceed with the review. If the Council determines that the proposal has insufficient merit or little likelihood of being found consistent, it may terminate the process immediately and inform the petitioning state in writing of the reasons for its rejection.

If the Council determines sufficient merit exists to proceed with a determination, it will review the state's documentation or prepare an analysis considering, if relevant, the following factors:

1. How the proposal furthers or is not otherwise inconsistent with the objectives of the FMP, the Magnuson-Stevens Act, and other applicable law;
2. The likely effect on or interaction with any other regulations in force for the fisheries in the area concerned;

3. The expected impacts on the species or species group taken in the fishery sector being affected by the regulation;
4. The economic impacts of the regulation, including changes in catch, effort, revenue, fishing costs, participation, and income to different sectors being regulated as well as to sectors which might be indirectly affected; and
5. Any impacts in terms of achievement of quotas or harvest guidelines, maintaining year-round fisheries, maintaining stability in fisheries, prices to consumers, improved product quality, discards, joint venture operations, gear conflicts, enforcement, data collection, or other factors.

The Council will inform the public of the proposal and supporting analysis and invite public comments before and at the next scheduled Council meeting. At its next scheduled meeting, the Council will consider public testimony, public comment, advisory reports, and any further state comments or reports, and determine whether or not the proposal is consistent with the FMP and whether or not to recommend implementation of complementary Federal regulations or to endorse state regulations as consistent with the FMP without additional Federal regulations.

If the Council recommends the implementation of complementary Federal regulations, it will forward its recommendation to the NMFS Regional Director for review and approval.

The NMFS Regional Director will publish the proposed regulation in the *Federal Register* for public comment, after which, if approved, he will publish final regulations as soon as practicable. If the Regional Director disapproves the proposed regulations, he will inform the Council in writing of the reasons for his disapproval.
[Amendment 18]

CHAPTER 11 **GROUNDFISH LIMITED ENTRY**

All references to fishing activities in these proposals are references to catching activities occurring off the Washington, Oregon, and California coasts unless otherwise noted.

11.1 Introduction

11.1.1 Problem to be Addressed by this Groundfish Limited Entry System

The Council adopted the following problem statement in April 1990:

Nearly all groundfish stocks are now fully harvested by domestic fishermen in the Pacific Coast groundfish fishery. While fleet harvesting capacity has increased, harvests are declining as stocks are fished down to MSY levels. Further, there is a general level of excess harvest capacity existing in most West Coast and North Pacific fishing fleets (e.g., shrimp, crab, halibut, salmon, etc.). As these other fisheries grow increasingly overcrowded relative to available harvest, it becomes more likely that capacity will be redirected to the west coast groundfish fishery when downturns occur elsewhere. In addition, the implementation of more restrictive management regulations in other fisheries, including individual trawl quota (ITQ) LE systems, may result in increased effort during season openings in the west coast groundfish fishery.

In the Pacific Coast groundfish fishery, declining stocks and the presence of harvest capacity in excess of that necessary to catch the resource result in increasing number and complexity of regulations. Accordingly, the Council faces increased pressure to balance the conflicting need to adopt more restrictive regulations for protecting the resource with the need to provide sufficient allowable catch to sustain the fleet.

Increased number and complexity of regulations have many adverse impacts in such areas as fleet costs, resource utilization, safety, and enforcement costs and effectiveness. Additionally, there is a point beyond which added regulations which interfere with day-to-day vessel operations (e.g., trip limits or mesh size regulations) will not improve the Council's ability to accomplish its goals. Pressures on industry arise not only from management measures which restrict operations, but also the division of the allowable catch among larger numbers of vessels.

Two components comprise fleet harvest capacity: vessel fishing power and number of vessels. As harvesting capacity in the fisheries continues to increase, problems arising from the need for more restrictive management measures and resolution of allocation issues become more acute. It is apparent that no relief from these problems will occur if management actions continue to allow increased harvest capacity.

11.1.2 Goals and Objectives for Groundfish Limited Entry

The following are the goals and objectives for LE adopted by the Council in April 1990. The primary objective directly addresses the overcapacity problem, and the secondary objectives address the ways the Council hopes LE will promote achievement of the Council's goals and objectives for the groundfish fishery.

Goals. The goals for the west coast groundfish fishery LE program are to improve stability and economic viability of the industry while recognizing historic participation, meet groundfish management objectives, and provide for enforceable laws.

Primary Objective. The primary objective of the LE program will be to limit or reduce harvest capacity in the west coast groundfish fishery.

Secondary Objectives. In pursuit of the primary objective, the following secondary objectives will be addressed:

Economic

- Promote long-term economic stability.
- Increase net returns from the fishery.
- Allow flexibility for combination vessels.

Management

- Stabilize management regimes by reducing need for frequent inseason changes.
- Reduce the cost of management.
- Reduce bycatch and waste.
- Encourage effort in underutilized species fisheries.

Enforcement

- Promote cost-effective enforcement by reducing need for frequent changes and tight trip limits.
- Promote logistically viable enforcement by minimizing need to use regulations such as trip limits or subarea closures which are more difficult to enforce.

Social

- Recognize and accommodate historical participation of those investing their life and resources in the fishery.
- Maintain a mechanism for fishery entrance/exit and flexibility for change in the fleet.
- Reduce conflicts between user groups by limiting or reducing effort competition for the same resource.
- Provide a stable supply of groundfish to the public at a reasonable price.

11.1.3 Achievement of Goals and Objectives and Need for Additional Measures to Reduce Capacity

The license limitation system adopted under this amendment to the groundfish FMP will not in itself

immediately accomplish in a readily apparent manner the goals and objectives the Council has set out for LE. It is a first step that may slow or prevent the worsening of conditions which impede the Council from achieving the overall goals and objectives for the fishery. The Council believes it is reasonable to expect that the primary objective will be accomplished through this license limitation system; i.e., there will be an effective limit which reduces growth in the active fleet and results in less capacity in the fishery under the adopted license limitation program than would have been present in its absence. However, movement toward the goals and objectives as compared to the existing fishery will become apparent only when a way is found to substantially reduce the capacity already present.

Establishment of this license limitation system will provide a starting point for any future programs which may be necessary to further reduce harvest capacity. To further reduce harvest capacity, a voluntary buy-back program should be implemented and the appropriate enabling legislation for funding sought. Incremental implementation of a groundfish ITQ program may also be considered as a means of further reducing harvest capacity.

11.1.4 Nature of the Interest Created

Groundfish LE permits and endorsements confer a right to participate in the west coast groundfish fishery with LE gear in accordance with the LE system established under the groundfish FMP as modified by this chapter of the FMP (created under Amendment 6) or any future amendment which may modify or even abolish the LE system. The permits and endorsements are also subject to sanctions, including revocation, as provided by the Magnuson Fishery Conservation and Management Act, 16 USC at 1858(g) and 15 CFR Part 904, Subpart D.[1]

11.1.5 Fisheries Within the Scope of the Limited Entry Program

The provisions of this chapter apply only to the commercial groundfish fisheries. Regulations and allocations for the treaty Indian and recreational fisheries are not affected by the provisions of this chapter unless specifically mentioned. All harvest guidelines, quotas and catches referenced are those specific to the non-treaty commercial fisheries.

11.2 Management, Allocation and General Rules on the Issuance and Use of Groundfish LE Permits, Gear Endorsements, Size Endorsements, and Fixed Gear Sablefish Endorsements

11.2.1 Federal LE Permits Required Only for Gears Fishing on the Limited Access Quota

1. Federal groundfish LE permits will be required and issued only for those vessels catching Council-managed groundfish species[2] with groundfish LE gears (trawl, longline or fishpot gear) under the limited access fishery regulations.[3]
2. Vessels using exempted gears (all gears other than trawl, longline and fishpot) or using longline or fishpot gear[4] without a permit endorsed for one of those gears may continue to catch groundfish

[1] It is intended that a statement of the nature of the interest created be included on the groundfish LE permit.

[2] All references to "Council-managed groundfish" refer only to groundfish species specified in the Council groundfish FMP which are caught in the exclusive economic zone or adjacent state waters off Washington, Oregon and California.

[3] References to longline, pot, and trawl gear are references to legal groundfish gears as defined by the groundfish FMP.

[4] Trawl gear may not be used without a permit because the open access fishery for limited entry gears is aimed at accommodating small producers and will likely be managed under restrictive trip limits. The fishing power of trawl gear would result in

under an open access system. However, catch by vessels with trawl-endorsed LE permits that use such gears may instead be managed with IFQs, as specified in the regulations for the IFQ program (see Appendix E). (Exempted, longline and fishpot gears used by vessels without endorsements for those gears are termed open access gears.)

11.2.2 Allocations Between the Limited Entry and Open Access Fisheries and Management of the Open Access Fishery

1. The division of the fleet into LE and open access participants will require that separate allocations be established for each group where management measures are required to prevent harvest in excess of annual catch limits. For those species, species groups and areas covered by the trawl/non-trawl allocations provided in Table 6-1 and for which the Council determines an allocation is necessary, ad hoc allocations to the directed open access sector will be established as needed through the biennial specifications process.
2. For those species for which trawl/non-trawl allocations are not established in Table 6-1, allocations for the open access fishery will be based on historical catch levels for the period July 11, 1984 to August 1, 1988 by exempted, longline, and fishpot gears used by vessels which did not receive an endorsement for the gear where management measures are required to prevent harvest in excess of ACLs.
    a. On the basis of landings over this period, a percentage of catch[5] for these gears will be determined and applied to harvest guidelines and quotas in order to establish the allocation for the open access portion of the fishery. The open access portion of harvest guideline or quota will be set aside before other allocations are made.
    b. LE/open access allocation percentages for specific species and species groups will be determined after this LE program is implemented, and permitted and non-permitted vessels are identified.
    c. An open access allocation based on catch history will be determined for each separate species, species group, and area for which the Council determines an allocation is necessary.
    d. Initial determination and any subsequent revision of the species or species groups and areas for which an open access allocation will be made will occur through a rulemaking under the appropriate framework in Chapter 6 of this plan.
    e. Open access allocations for species, species groups and areas identified for such allocation by the Council will be specified during the biennial process for setting specifications described in Section 5.4 of this plan.
    f. A change in the catch history allocation method for determining the allocation for the open access fishery will require a plan amendment.
    g. If a group of vessels that initially is to participate in the open access fishery later receives permits in the limited access fishery, the historical catch levels of those vessels shall be deducted from the historical catch levels used to calculate the open access allocation, and the percentages used in setting the open access allocation recalculated. For example, if a vessel whose gear is prohibited by a state or the Secretary of Commerce qualifies for a LE permit under Section 11.3.1.3(9), or if a small LE fleet is incorporated under Section

excessive discards under these trip limits. Additionally, while longline and fishpot vessels catching small quantities of groundfish will be prevented from qualifying by the structure of the minimum landing requirements (MLRs) (a day's landings must be greater than 500 pounds in order for the day to count toward meeting the MLR; Section 11.3.1.3), this structure will provide little barrier for most trawl vessels. Thus, there is no strong reason to provide the open access opportunity to compensate for the 500 pound per landing day threshold.

[5] Percentage of catch as determined through the Pacific Coast Fisheries Information Network database or some comparable database.

11.3.1.4(9) and its vessels are issued LE permits, their catch history with the banned gear or the LE gear for which they are now going to receive permits shall be deducted from the open access fishery's historical catch levels, and open access percentages will be recalculated.

h. Prior to expiration of "B" endorsements, vessels' catch history using gears for which they receive "B" endorsements is not included in the catch history used to calculate the percentage of catch for open access vessels. When "B" endorsements expire, the historic catch levels of vessels which received "B" endorsements for longline or fishpot gear when using that gear will then count toward determining the proportion allocated to the open access quota. The historic catch levels of vessels which received "B" endorsements for trawl gear will continue to count toward determining the limited access quota and will not be transferred to the catch history used to determine the open access quota, even after trawl "B" endorsements expire.

3. For International North Pacific Fisheries Commission areas where quotas or harvest guidelines for a stock are not fully utilized, no limited/open access allocation will be established until it is anticipated the allowable catch for a species or group of species will be reached.

4. Any groundfish catch by a vessel registered to an LE permit will be counted against the allocation for the limited entry gear(s) that the permit is endorsed for when the fishery for the limited entry gear is allowed, except when the vessel is fishing in a fishery for which the catch has already been accounted for in the preseason set-asides deducted from the ACLs. A vessel may not carry or deploy limited entry gear for which its permit is endorsed when the limited entry fishery for that gear is closed or otherwise prohibited. Once the limited entry fishery for the gear for which the permit is endorsed has closed, any groundfish landings by the vessel with open access gear will count toward the allocation covering the open access fishery. The catch of vessels fishing without LE permits will count toward the allocation covering the open access fishery regardless of what open access gear is used, except when the vessel is participating in a fishery for which the catch has already been accounted for in the preseason set-aside deducted from the ACLs.

5. Allocations among gear types for species other than sablefish north of 36° N latitude may be established in the future. If this occurs, portions of the new allocations may, in turn, be allocated to the open access fishery under the principles set forth in this section.

6. Management of the open access fishery.

   a. The open access portion of the fishery will be managed to provide year-round fishing opportunity.

   b. The purpose of providing an open access alternative for vessels using longline or fishpot gear is to allow a group of vessels which has historically fished at low levels, with minimal impacts on the resource (fewer than 5 or 6 landings greater than 500 pounds per vessel during the qualifying window period, July 1, 1984 through August 1, 1988), to remain in the fishery without creating permits which may be used at higher effort levels.

   c. The open access fishery will be managed with the intent of maintaining the historic fishing opportunities for the participant groups and to keep the overall catch in line with historic harvests. For example, trip limits for non-permitted longline and fishpot gears operating in the open access fishery will likely be fairly low because the historic fishing levels of this group are low. Trip limits, when necessary, for some exempted gears will probably be higher because their historic fishing levels are higher.

11.2.3 Initial Issuance of Limited Entry Permits

1. Each qualifying vessel will entitle only the current owner[6] to one LE permit.

[6] An exception to this would occur in the case of a lost vessel (Section 11.2.10.1 paragraph 2), or if a contract transferring vessel

2. A vessel qualifies for an LE permit by meeting the initial issuance criteria for one or more gear endorsements (see Sections 11.2.5 and 11.3).
3. A given vessel will not result in the issuance of more than one LE permit.

11.2.4 Ownership Restriction and Changes in Ownership

1. Only entities (human beings, corporations, etc.) qualified to own a U.S. fishing vessel may be issued or may hold (by ownership or otherwise) an LE permit. (Foreign ownership of LE permits should be limited to the maximum degree possible given what is allowed under the law.)
2. Ownership of a permit will be considered to change when there is an ownership change on U.S. Coast Guard documents; however, an owner can submit documents to demonstrate that the controlling interest has not changed and therefore the change in documentation is not a change in ownership.
3. An entity qualified to hold an LE permit may hold more than one LE permit. If the Council authorizes an LE permit stacking program, in which a vessel could use multiple permits simultaneously, each LE fishery participant would be required to hold at least one LE "base" permit. An LE base permit is the initial permit necessary to participate in the LE fishery, and subject to all of the requirements described herein for LE permit ownership qualifications, and gear and length endorsements. Requirements and additional privileges for permits "stacked" on to base permits may be authorized by Federal rulemaking.
4. For the purpose of provisions specifically identified by the Council, NMFS may promulgate regulations which define a change in ownership of a permit as a change in the identity or ownership interest of a corporation or partnership owning a permit.

11.2.5 Gear Endorsements

1. An LE permit confers no rights without a valid gear endorsement attached.
2. As of Amendment 13 to the FMP, there is only one functioning type of endorsement, the "A" endorsement. With Amendment 13, the provisional "A" endorsement, the "B" endorsement, and the designated species "B" endorsements were removed as expired or defunct.
3. Gear endorsements will be affixed to the LE permit and specify the type of LE gear which may be used to catch Council-managed groundfish.
4. A gear endorsement for a particular gear authorizes the catch of all Council-managed groundfish species with that gear, except in the case of fishing for which a fixed gear sablefish endorsement is required (see Section 11.2.6.1). LE vessels using longline and fishpot gear to catch sablefish against the LE quota north of 36° N latitude are required to hold fixed gear sablefish endorsements during periods specified in the regulations, in addition to the required gear endorsement.
5. More than one gear endorsement may be affixed to a single LE permit.
6. Gear endorsements are required for LE-permitted vessels to use LE gear types (see Section 11.2.1, paragraph 1) to catch groundfish under the regulations governing the LE fishery.
    a. Longline and Fishpot Usage for Vessels with a Permit Endorsed for the Gear. If a vessel has longline or fishpot gear on board, and the vessel is registered to an LE permit that is endorsed for the longline or fishpot gear on board, regulations for the limited access fishery will apply to the vessel. If the vessel also has a trawl endorsement and has opted to participate for a period in the trawl rationalization program using the fixed gear (longline or fishpot) for which it holds an endorsement, then the trawl rationalization portion of the LE fishery regulations will apply

ownership specified that the seller would retain the rights to the LE permit. In this case, a past owner (the seller) may ultimately receive the LE permit.

to the vessel for that period.

b. Exception for Longline and Fishpot Gear Usage for Vessels With a LE Permit not Endorsed for the Gear Being Used:
   i. As specified in Section 11.2.1, paragraph 2, LE vessels may use longline and pot gear without an endorsement, in which case the use of the gear is governed by the open access fishery regulations unless the vessel's LE permit is endorsed for trawl gear.
   ii. As specified in Section 11.2.2, if a vessel registered to a LE permit is fishing with longline or fishpot gear, but without an endorsement for that gear, the catch still counts against the LE fishery allocation.
   iii. As specified in the trawl rationalization program (Section 6.9.3.1 and Appendix E) vessels registered to a trawl-endorsed LE permit and using longline or fishpot gear without a LE endorsement for those gears must cover their landings with trawl IFQ and comply with the provisions of the trawl IFQ program. Open access sector cumulative landing limits (also known as trip limits) will not apply to vessels participating under the IFQ program.

c. Trawl Gear Usage. Trawl gear and Council-managed groundfish may not be on board a vessel at the same time, nor may the gear be deployed, without an LE permit registered for the vessel and endorsed for trawl gear.

7. Depending on the type of gear endorsement (see Section 11.3 on the specific type of gear endorsements):
   a. the period for which the gear endorsement is valid may be limited, and
   b. the gear endorsement may or may not remain valid when the LE permit is transferred.[7]
8. Gear endorsements are not separable from the LE permit and therefore may not be transferred separately from the LE permit.[8]
9. Limitations which apply to a given gear endorsement shall not restrict the use of any other gear endorsement on the same LE permit.
10. Rules on the issuance of gear endorsements and other characteristics of the gear endorsements are specified under sections on each type of gear endorsement (see Section 11.3).

11.2.6 Sector Endorsements

11.2.6.1 Fixed Gear Sablefish Endorsements

1. The permit and gear endorsement requirements of the license limitation program limit the number of vessels which may participate in the groundfish fishery; however, there is still substantial opportunity for vessels to shift between segments of the groundfish fishery. One of the segments of the LE fishery subject to an increase in the number of vessels participating is the LE fixed gear sablefish fishery. To prevent the movement of vessels from non-sablefish segments of the LE fixed gear groundfish fishery to the sablefish segment of the fishery, a fixed gear sablefish endorsement for LE permits is required for longline and fishpot gear LE vessels to take sablefish against the fixed gear LE allocation and as part of the primary fishery, the major LE fixed gear sablefish harvest opportunities north of 36° N latitude. Such endorsements are not required to harvest under fixed gear LE daily-trip-limit or other regulations intended to allow low level or incidental harvest.
2. The fixed gear sablefish endorsement will be affixed to the permit.

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[7] Unless otherwise noted:
   a. Transferable means separable from the vessel owner and vessel.
   b. LE permit transferability, with respect to an owner, means the LE permit may be transferred, inherited, sold, bartered, traded, given or otherwise alienated from the LE permit owner.
   c. LE permit transferability, with respect to a vessel, means the LE permit may be registered for use with a different vessel.

[8] The intent of this provision is to not allow the fishing capacity to expand by separate transfer of endorsements which might otherwise go unused.

3. The fixed gear sablefish endorsement will remain valid when the permit is transferred.
4. Fixed gear sablefish endorsements are not separable from the LE permit and therefore may not be transferred separately from the LE permit.
5. Limitations which apply to the fixed gear sablefish endorsement and fishing there under shall not restrict the use of any trawl gear endorsement on the same LE permit, unless these restrictions are specific in their application to trawl gear.
6. Rules on the issuance of fixed gear sablefish endorsements and other characteristics of the endorsements are specified in Section 11.2.

The fixed gear sablefish endorsement is intended for operations participating in the fixed gear sablefish fishery which were significantly active and dependent on the fishery prior to the end of the qualifying period specified in paragraph 3. The following paragraphs describe qualifying criteria that were used for initial issuance of the fixed gear sablefish endorsement.

1. A fixed gear sablefish endorsement will be affixed to any LE permit which meets the fixed gear sablefish endorsement qualifying criteria.
2. The catch history used to determine whether a permit meets the fixed gear sablefish endorsement qualifying criteria is the permit catch history. Permit catch history includes the catch history of the vessel(s) that initially qualified for the permit and the catch of any other vessels with which the permit rights were associated during the time the rights were associated with the vessel (if the current permit is the result of the combination of multiple permits, then for the combined permit to qualify for an endorsement, at least one of the permits which were combined must have sufficient sablefish history to qualify for an endorsement on its own; or the permit must qualify based on catch occurring after it has combined but within the qualifying period). Permit catch history also includes the catch of any interim permit held by the current owner of the permit during the pendency of an appeal on a permit denied under the groundfish LE program, but only if (1) the appeal on which the interim permit was based was lost and (2) the owner's current permit was used by the owner in the 1995 LE sablefish fishery.
3. The fixed gear sablefish endorsement qualifying criteria are at least 16,000 pounds round weight of sablefish caught with longline or fishpot gear in one year from 1984 to 1994. All catch must be non-Indian harvest from Council-managed areas. Harvest taken in tribal set-aside fisheries does not qualify.
4. The NMFS issuing authority will have broad authority to examine information other than codes on landing tickets in determining whether the qualifying criteria is or is not met.

11.2.6.2 Pacific whiting Catcher-processor (CP) Endorsement

The class of CP endorsed permits (CP permits) is limited by an endorsement placed on an LE permit. LE permits registered to qualified catcher-processor vessels are endorsed as CP permits. A qualified permit is one that harvested and processed in the catcher-processor sector of the Pacific whiting fishery at any time from 1997 through 2003. A vessel that is 75 feet or less LOA that harvests whiting and, in addition to heading and gutting, cuts the tail off and freezes the whiting, is not considered to be a catcher-processor nor is it considered to be processing fish. Such a vessel is considered a participant in the shorebased whiting sector, and is subject to regulations and allocations for that sector (50 CFR 660.373(a)(3). Therefore, such vessels do not require a CP endorsement.

11.2.6.3 Pacific whiting Catcher Vessel (CV(MS)) Endorsement

Permits with a qualifying history are designated as CV(MS) permits through the addition of an endorsement to their LE groundfish permit. Only vessels registered to an LE permit with a CV(MS) endorsement may

participate in the Pacific whiting mothership-processor fishery. A qualified permit is one that has a total of more than 500 mt of whiting deliveries to motherships from 1994 through 2003.

11.2.7 Size Endorsement Will Specify the Vessel Length

The LE base permit will be endorsed with the length overall (as defined for purposes of U.S. Coast Guard documentation) of the vessel for which the LE permit is initially issued. The length for which the LE permit is endorsed will be changed only when LE permits are combined, as per Section 11.2.11.[9] Vessels which do not have documents stating their length overall will have to be measured by a marine surveyor or the U.S. Coast Guard and certified for that length.[10]

If the Council establishes a permit stacking program, that program may or may not require that permits stacked on top of the base LE permit be endorsed with the length overall of the vessel holding the permits.

11.2.8 An LE Permit and Necessary Gear Endorsements Will Be Held by the Owner of Record of the Vessel

1. The vessel owner is responsible for acquiring and holding an LE permit with the necessary gear endorsement(s) for each vessel that is required to have an LE permit to catch Council-managed groundfish under the LE system (vessels fishing LE gear under the limited access quota and regulations).
2. The vessel owner is responsible for acquiring and holding an LE permit with the longline or fishpot endorsement(s), and fixed gear sablefish endorsement(s), for each vessel that is required to have such endorsements to catch Council-managed sablefish under the LE system (vessels fishing longline and fishpot gear against the LE fixed gear sablefish allocation and under LE fixed gear sablefish regulations during fishing periods specified in the regulations and north of 36° N latitude).
3. The vessel owner is responsible for maintaining NMFS-required documentation of the LE permit on board the vessel.
4. The LE permit will be used with one vessel only. That vessel must be declared and registered with the NMFS issuing authority. Registration is incomplete until acknowledged in writing by NMFS. (Transfer of an LE permit to a different vessel is allowed as per Section 11.2.9.)
5. A vessel owner may not use a vessel, or allow a vessel to be used, to catch any Council-managed groundfish with LE gear under the limited access quota and regulations unless the vessel owner holds an LE permit with gear endorsement(s) which explicitly allows such catch, and the LE permit has been registered with NMFS for use with that vessel.
6. A vessel owner may not use a vessel, or allow a vessel to be used, to catch any Council-managed sablefish with longline or fishpot gear against the LE fixed gear sablefish allocation as part of the primary fixed gear sablefish fishery specified in the regulations and north of 36° N latitude, unless the vessel owner holds an LE permit with a longline or fishpot gear endorsement and a fixed gear sablefish endorsement, and the LE permit has been registered with NMFS for use with that vessel. Sablefish endorsements are not required to harvest under fixed gear LE daily-trip-limit or other regulations intended to allow low level or incidental harvest.

[9] The FMP included an exception for when LE permits endorsed for trawl gear were transferred to a smaller vessel such that the LE permit will be reissued with a size endorsement for the length of the smaller vessel (from Amendment 6). This exception was removed by Amendment 20.

[10] While not an immediate cap on vessel capacity, the size endorsement places an upward limit on the amount by which the capacity used with an LE permit may increase.

11.2.9 Transfer of an LE Permit to Different Owners or Vessels of the Same Owner

1. LE permits may be transferred to other owners for use with other vessels or used with other vessels under the same ownership, but will continue to be restricted by size and gear endorsements unless otherwise designated through a permit stacking program.
2. Whenever an owner wishes to transfer an LE permit to a different owner or use an LE permit with a different vessel under the same ownership, the NMFS issuing authority must be notified of the change. Notification is not complete until acknowledged in writing by NMFS.
3. LE base permits may be used with vessels greater in length than the endorsed length provided the increase does not exceed five feet of the endorsed length. Original size endorsements will change only when LE permits are combined as per Section 11.2.11, or when an LE permit with a trawl endorsement is transferred to a vessel five feet less in length than the endorsed length. In the latter case, the LE permit will be reissued with a size endorsement for the length of the smaller vessel. Regulations may be promulgated to waive this downsizing requirement if the permit was transferred to a smaller vessel for the purpose of stacking (see Section 11.2.4, paragraph 3).
4. The transfer of LE permits between vessels or owners may not be used to circumvent vessel landing limits.
5. When an LE permit is transferred to a different owner or vessel, provisional "A," "B," and designated species "B" gear endorsements will become invalid, unless the transfer is caused by the total loss of a vessel (as per Section 11.2.10) and ownership of the LE permit is not transferred.

11.2.10 Loss of a Vessel

11.2.10.1 Loss of a Vessel Prior to Permit Issuance

1. A "B" or provisional "A" endorsement will be issued for a vessel which qualified for a "B" or provisional "A" endorsement but is lost before the LE permits are issued. The vessel must be replaced within two years of the loss unless otherwise determined by the NMFS regional director, and the requirements of the third paragraph of Section 11.2.8 apply. The validity of the "B" or provisional "A" gear endorsement on transfer of the LE permit to the new vessel will be subject to review by the NMFS review authority.
2. For a vessel that would qualify an owner for an "A" endorsement, in the case of a vessel's sinking or total loss, all rights to a permit from the fishing history of the vessel prior to the sinking or total loss remain with the owner at the time of sinking or total loss unless specifically transferred. The vessel must be replaced within two years of the loss, unless otherwise determined by the NMFS regional director, and the requirements of the third paragraph of Section 11.2.8 apply.

11.2.10.2 Loss of a Vessel after Permit Issuance

In the event that a vessel is totally lost, the provisional "A" or "B" gear endorsements on an LE permit will remain valid if the LE permit is transferred to a different vessel owned by the same LE permit owner, subject to the following: (1) the replacement vessel may not exceed the endorsed length by five feet of the official length overall and (2) the lost vessel is replaced within two years of the loss unless otherwise determined by the NMFS regional director, and the requirements of the third paragraph of Section 11.2.8 apply. The validity of the provisional "A" or "B" gear endorsements on transfer of the LE permit to the new vessel will be subject to review by the NMFS review authority.

11.2.11 Combining LE Permits

1. Two or more LE permits with "A" gear endorsements for the same type of LE gear (either trawl,

longline or fishpot) may be combined (based on specific criteria) to "step-up" to a permit with a larger size endorsement. NMFS, with professional advice of marine architects and other qualified individuals, and after consultation with the Council and review board, will develop and implement a standardized measure of harvest capacity for the purpose of determining the appropriate endorsed length for LE permits created by combining two or more permits possessing smaller length endorsements. The capacity represented by the appropriate length endorsement for the combined permit should not exceed the sum of the capacities of the LE permits being combined.

2. LE permits may not be divided to "step-down" to more than one permit with smaller size endorsements.
3. Survival of gear endorsements. When LE permits are combined, "A" endorsements identical on both LE permits will remain valid. Provisional "A," "B," and designated species "B" gear endorsements will generally become invalid because they are not separable from the vessel for which they are initially issued. (See table below for examples.)

1st Permit Endorsement on 1st LE Permit	+	2nd Permit Endorsements on 2nd LE Permit	=	Combined Permit Endorsements on the Combined LE Permit
"A" - Trawl		"A" - Pot		None
"A" - Longline		"A" - Longline		"A" - Longline
"A" - Trawl		Provisional "A" - Trawl		None
"A" - Pot		"B" - Pot		None
"A" - Trawl		Designated Species "B" - Shortbelly - Trawl		None

4. Survival of Fixed Gear Sector Endorsements. Fixed gear sablefish endorsements will remain valid only if all the longline or fishpot permits being combined have fixed gear sablefish endorsements.
5. Survival of Trawl Sector Endorsements. When a CP-endorsed LE permit is combined with an LE trawl permit without a CP-endorsement a single CP-endorsed permit with a larger size endorsement will result. A CV(MS) endorsement on a permit being combined with a CP-endorsed permit will not be reissued on the resulting permit. If a CV(MS) endorsed permit is combined with a permit without a sector endorsement, the CV(MS) endorsement is retained on the resulting permit. The resulting size endorsement will be determined based on the permit combination formula authorized in paragraph 1 above.

11.2.12 Permit Renewal

1. Permits must be renewed each year between October 1 and November 30 in order to remain valid for the following calendar year.
2. Notice of upcoming renewal periods will be sent by September 15 each year to the most recent address as provided to the permit issuing authority by the permit holder. It shall be the permit holder's responsibility to provide the permit issuing authority with address changes in a timely manner.
3. An annual fee will be charged which reflects the administrative costs of maintaining the permit system.
4. Failure to renew during this period will result in expiration of the permit at the end of the calendar year.
5. Once a permit has expired because of failure to renew during the renewal period, it may not subsequently be renewed or reissued, except through an appeals process.
6. If a permit expires because of failure to renew, the permit holder may appeal for reissuance, provided the appeal is received by the issuance review authority by March 31 of the following year. Conditions for reissuance of a permit are listed in Section 11.3.5.

11.2.13 Owner-on-board Requirements

In order to preserve the social and historic characteristics and practices in the fishery or to encourage the flow of fishery benefits to fishing communities, on the Council's recommendation, as it deems appropriate and consistent with the goals of the groundfish FMP and National Standards, NMFS may require permit owners to be on-board a vessel during fishing operations.

[Amended: 9, 13, 14, 15, 20, 21]

11.3 Multilevel Gear Endorsement System

This section contains a description of the characteristics specific to each type of gear endorsement. Gear endorsements may not be transferred separate from the LE permit to which they are affixed. An LE permit confers no rights without a valid gear endorsement attached. These and other general characteristics of all gear endorsements are described in Section 11.2.5.

11.3.1 "A" Gear Endorsement

11.3.1.1 Overview of the "A" Endorsement

The "A" endorsement is intended for participants who were significantly active in the groundfish fishery with LE gear(s) during the qualifying window period (July 11, 1984 through August 1, 1988). The "A" endorsement allows the catch of all Council-managed groundfish species with the specified gear, remains valid when the LE permit is transferred, and is valid for an unlimited period of time (subject to Section 11.1.4) except as noted.

11.3.1.2 Description, Use and Transferability of the "A" Endorsement

1. Each "A" endorsement affixed to an LE permit will specify the type of gear with which the LE permit may be used (e.g., "A-Trawl").
2. The vessel for which the LE permit is registered will be allowed to catch all Council-managed groundfish with the gear specified in the "A" endorsement, except for fixed gear sablefish as specified in Section 11.2.6.1.
3. The "A" endorsement will remain valid when the LE permit is transferred to a different owner or vessel.

11.3.1.3 "A" Endorsement Initial Issuance Criteria

1. An "A" endorsement will be affixed to a vessel's LE permit for each gear the vessel qualifies with under these "A" endorsement initial issuance criteria.
2. Vessels must qualify separately for each gear that an "A" gear endorsement is requested.
3. A current owner of a vessel[11] that meets the minimum landing requirements (MLRs) (as per the following paragraph) within the window period (July 11, 1984 and August 1, 1988) may receive an "A" endorsement.[12]

[11] Only the **current** owner of a qualifying vessel at the time the permit is initially issued will be issued an LE permit (except in the case of vessel loss as per Section 11.2.10.1 paragraph 2). Without this provision, a single vessel could qualify several owners for LE permits. If private contractual arrangements have been made between a vessel buyer and seller to reserve to the seller the right to the LE permit issued for the vessel, the LE permit may ultimately be issued to the vessel seller in place of the current owner.

[12] Notice of this qualification period was published in the *Federal Register* on August 4, 1998 (53 FR 29337).

4. MLRs are gear-specific amounts of landings or deliveries (joint-venture or domestic) of west coast groundfish. The MLRs for the LE gears which must be met during the window period would be as follows:

   Trawl: At least 9 days in which over 500 pounds of any groundfish species except Pacific whiting are landed or delivered, or 450 mt of landings or deliveries of any groundfish species except Pacific whiting, or 17 days in which over 500 pounds of Pacific whiting are landed or delivered, or 3,750 mt of landings or deliveries of Pacific whiting.

   Longline: At least 6 days in which over 500 pounds of any groundfish species are landed or delivered, or 37.5 mt of landings or deliveries of any groundfish species.

   Fishpot: At least 5 days in which over 500 pounds of any groundfish species are landed or delivered, or 150 mt of landings or deliveries of any groundfish species.

5. Landings coded as groundfish trawl, longline or fishpot gear may be credited toward meeting the MLRs for the gear except any landing with:
   a. salmon in it will not be counted toward meeting MLRs with longline gear;
   b. shrimp in it will not be counted toward meeting MLRs with trawl gear;[13]
   c. abnormal catches for the indicated gear may result in an issuing authority review of the validity of all tickets presented as evidence of meeting MLRs and a request by the issuing authority that additional evidence be presented that the gear was actually used.
6. In addition to the specifications of the above paragraph, the NMFS issuing authority will have broad authority to examine information other than codes on landing tickets in determining whether MLRs are or are not met by a particular vessel and gear.
7. Prior to permit issuance, all rights of a vessel owner to an "A" endorsement will be considered transferred with the sale of the qualifying vessel unless otherwise stipulated in a contract.[14]
8. Vessel owners who acquire a provisional "A" endorsement will receive an "A" endorsement after meeting the upgrade criteria (Section 11.3.2.4), provided all other requirements of the LE program are met.
9. Members of local LE programs which have been Council certified and incorporated by the issuing authority (as per Section 11.3.1.4) may be issued "A" endorsements subject to the following constraint. The "A" endorsements issued on the basis of a vessel's membership in a certified LE program will be valid only when the vessel for which it is registered is operating under and in conformance with the certified program.
10. The NMFS review authority will have discretionary powers to grant exceptions to the qualification criteria on specified grounds. The basis on which the NMFS review authority may grant exceptions are described in Section 11.3.5.

11.3.1.4 Incorporation of Small Limited Entry Fleets

1. Small LE programs which are operated by local governments, in existence as of July 11, 1991 and have negligible impacts on the resource may be certified as consistent with the goals and objectives of this LE program and incorporated into the Federal LE program.
2. The purpose of this provision is to recognize and provide for small fisheries with unique cultural and social importance that are dependent on the groundfish resource but have negligible impacts on the resource, as long as the size and number of vessels in the fishery are sufficiently controlled through a LE program under local jurisdiction.

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[13] The Council notes that in Washington when shrimp and groundfish are landed together, tickets are sometimes filled out for the groundfish and shrimp separately. The issuing authority will have to be aware of such circumstances in evaluating whether a vessel meets MLRs with trawl gear.

[14] If by contractual agreement permit rights are transferred separate from the vessel, the LE permit size and gear endorsements will continue to be restricted to those which would have been issued to the originally qualifying vessel as per *Federal Register* notice 55 FR 29337.

3. A representative of a small LE fleet may apply to NMFS to be certified as consistent with the goals and objectives of this LE program and incorporated into the LE program. NMFS will refer the application to the permit issuance review board. The board will provide its recommendations to the Council, which in turn will provide its recommendation, together with the reasons therefore, to NMFS. If NMFS determines that a fleet meets the goals and objectives of this LE program and the standards of this section, it shall certify the fleet and incorporate it into the LE program.
4. If a fleet is certified and incorporated into the LE program, vessels in the fleet at the time of incorporation will be issued LE permits with "A" endorsements as provided in Section 11.3.1.3.
5. A permit issued to a vessel in a certified fleet under this section is only valid when the vessel for which it is registered is operating under and in conformance with the certified program. Such a permit and endorsement may be transferred to another vessel that will operate in the same certified fleet as long as the total number of vessels in the fleet does not increase.
6. If more vessels are added to a fleet in a certified LE program, these additional vessels will not receive "A" endorsements unless the program is recertified for the greater number of vessels, and the larger fleet is incorporated into the LE program.
7. For each certified fleet, there may be an upper limit placed on the amount of groundfish that vessels operating in the certified fleet may land.

11.3.1.5 Expiration of the "A" Endorsement

The "A" endorsement is valid for an unlimited period of time, except as noted in Section 11.1.4 and Section 11.2.11.

11.3.2 Provisional "A" Gear Endorsement—Overview

The provisional "A" endorsement was intended for: (1) the vessel owner who, during the window period, was preparing through construction, conversion or purchase to use a vessel with LE gear in the west coast groundfish fisheries; (2) the owner of a replacement vessel who would have otherwise received an "A" endorsement on an LE permit endorsed for a smaller-sized replaced vessel when the replacement has occurred prior to September 30, 1990; and (3) owners of a vessel that landed sufficient groundfish during the window but using a gear type that had been prohibited by a state (Washington, Oregon or California) or the Secretary of Commerce subsequent to the window period. The purpose of the provisional "A" endorsement was to require the owner demonstrate, by actual catching activity, intent to participate in the west coast groundfish fisheries with the vessel and LE gear. When intent had been demonstrated (as per Section 11.3.2.4), the provisional "A" endorsement could have been upgraded to an "A" endorsement. The provisional "A" endorsement allowed the catch of all Council-managed groundfish species with the specified gear became invalid when the LE permit was transferred, except in the case of a lost vessel and was valid for a maximum of three years.

11.3.3 "B" Gear Endorsement—Overview

The "B" endorsement was intended for the vessel owner who was active in the west coast groundfish fishery prior to the cut-off date (August 1, 1988) with a LE gear, but did not land sufficient groundfish with the gear during the window period to qualify for an "A" endorsement. The "B" endorsement provided for an adjustment period during which a vessel owner could seek to acquire a permit with an "A" endorsement or find an alternative fishery. The "B" endorsement, which allowed the catch of all Council-managed groundfish species with the gear and vessel specified in the endorsement, became invalid when the LE permit was transferred or after December 31, 1986, which was three years after implementation of the LE program. To qualify for a "B" endorsement, an owner must have owned a vessel which met the initial issuance requirements and must have owned it during and continually since the time the qualifying activities

occurred.

In accordance with the FMP, the "B" endorsement program expired on December 31, 1996. Amendment 13 to the FMP removed expired "B" endorsement language from the FMP.

11.3.4 Designated Species "B" Gear Endorsements—Overview

The designated species "B" gear endorsement was intended to allow for expansion of domestic processing of underutilized species in the event the LE fleet (those holding LE permits other than the designated species "B" endorsement holders) was unwilling to harvest the full amount of the underutilized species desired by domestic processors or ABC, whichever was less. In this event, designated species "B" endorsements would have been issued to harvesters willing to deliver to domestic processors. In addition, the endorsement may have been issued when the possibility existed that an apportionment to total allowable level of foreign fishing would occur. In that event, designated species "B" endorsements would have been issued to harvesters willing to deliver to JV processors. A separate endorsement was required for each combination of gear type and species. The designated species "B" endorsement allowed the catch of the specified species with the gear and vessel specified in the endorsement. The endorsement became invalid when the LE permit was transferred and would have expired at the end of the fishing year.

Amendment 12 to the FMP declared all species managed under the FMP to be fully utilized. Amendment 13 removed the designated species "B" endorsement option from the FMP.

11.3.5 Exceptions to the Issuance Criteria and Grounds for Appeal

1. Exceptions may be granted for the time limit on replacing lost vessels, and requirements for timeliness with respect to applications for permits and permit renewal, for good cause. With respect to permit renewal, only illness, injury or death of one of the vessel owners will be considered good cause. Additionally, in the following hardship situations, where appropriate, the NMFS issuing authority may grant exceptions to permit issuance and upgrade criteria, the time limit on replacing lost vessels, and requirements for timeliness with respect to applications for permits and permit renewal.[15]
    a. Insufficient documented landings with legal groundfish gear in the qualifying period due to disputes over records of landings (evidence other than landing records may be considered).
    b. Construction or conversion criteria are not met due to documentation disputes or delays in construction or conversion.
    c. A qualified vessel was totally lost before permits were issued (the vessel should be replaced within two years of the loss and the requirements of the third paragraph of Section 11.2.8 apply).
    d. Illness or injury.
    e. Litigation involving the vessel preventing the vessel owner from making sufficient landings in the qualifying period.
    f. Death of a vessel owner preventing the surviving vessel owner(s) from making sufficient landings in the qualifying period because the vessel could not be fished.
    g. Death of a vessel owner preventing fulfillment of upgrade criteria for converting a provisional "B" endorsement to an "A" endorsement.
2. Implementation of the license limitation program will require exercise of judgment in the

[15] Economic hardship, loss or inactivity of a vessel due to a violation (involving the vessel) of domestic laws which prevent the use of the vessel during the window period will not entitle the owner to a LE permit or endorsement granted through the review process.

application of particular provisions. Any dispute over how the issuing authority has applied provisions of the program may be appealed.

[Amendment: 9, 13]

11.4 LE Permit Issuance Review Board

11.4.1 Functions

A permit issuance review board will be created by the Council with three functions:

1. Review appeals related to issuance of permits and gear endorsements.
2. Make recommendations to the Council on whether a non-federal/non-state LE system in place as of July 12, 1991 should be certified as being consistent with the goals and objectives of this LE program, as described in Section 11.1.2.
3. Make reports to the Council on the progress of the program and need for adjustments.

11.4.2 Expenses

The intent of the Council is that the issuance review board be an integral part of the permit issuance process. As such:

1. the board expenses will be included in determining permit fees; and
2. the board members will be reimbursed for expenses.

11.4.3 Advisory Role of Group

Issuance, administration of permits and review of appeals will be through the issuing and reviewing authorities (NMFS regional offices). The issuance review board shall function in an advisory capacity only.

11.4.4 Nominations

Nominations for the board may be made by anyone. Selection will be made by the Council or its designee.

11.4.5 Membership

The board should consist of:

1. "Knowledgeable" fishing industry members.
2. 7 to 10 voting members.[16]
3. Two-thirds of the members must be present for a quorum.

11.4.6 Majority Vote

A simple majority of those present and voting shall be necessary to take action on a review.

[16] The Council should look at the composition of the fishery in each state and determine the appropriate representation from each gear group so that a broad range of expertise is available to the Council.

11.4.7 Terms of Members

The term for a board member shall be three years. Terms will be staggered.

11.4.8 Review of Sablefish Endorsement Appeals

The Council and Council's LE permit review board will not take part in the review of appeals of denied sablefish endorsements.

[Amendment 9]

11.5 Implementation, Application and Appeals Process

1. When NMFS announces it is ready to receive applications, individuals must make application to the issuing entity for LE permits and "A," provisional "A," and "B" endorsements within six months, except as follows: (1) Owners of vessels qualifying for provisional "A" endorsements under the prohibited gear provisions must make application within six months of the prohibition date, or six months of the NMFS announcement that it is ready to receive applications, whichever comes last, and (2) owners of vessels applying for a "B" endorsement after the vessel has failed to meet the provisional "A" endorsement upgrade criteria, must make application within six months of failure to meet upgrade criteria or six months of the NMFS announcement that it is ready to receive applications for permits, whichever comes last.
2. Vessel owners are responsible for submitting evidence that qualification requirements have been met.
3. Applications to the issuing authority involving the hardship situations and other special circumstances described in paragraphs 4 and 5 of Section 11.2.3, shall be submitted within six months of the NMFS announcement that it is ready to receive applications, or six months of the event which would potentially qualify the applicant for a hardship exemption or under a special circumstance, whichever comes last.
4. Untimely applications will be rejected and no permit will be issued thereon. To be timely, an application must provide all of the information required in the NMFS application announcement or in the application form, by the deadline specified in paragraph 1 of this section. If the application is complete and valid, NMFS may request any supplementary information it needs to act on the permit application.
5. If an application is denied, the applicant may appeal to the NMFS regional director. In making such an appeal, the applicant may request that in deciding the issue, the NMFS regional director consult with the Council and its review board. Such a consultation would require the applicant to waive any rights to confidentiality of information.
6. At the time of implementation, NMFS, in consultation with the Council, will set and publish in the *Federal Register* a date after which all vessels using LE gear to catch Council-managed groundfish under the LE quota and management regulations will be required to have an LE permit with endorsements allowing such activity.
7. NMFS will establish a reasonable application period for the fixed gear sablefish endorsement. Untimely applications will be rejected and no sablefish endorsement will be issued thereon. If an application is denied, the applicant may appeal to the NMFS regional director. NMFS will set and publish in the *Federal Register* a date after which requirements for fixed gear sablefish endorsements will be in effect.

[Amendment 9]

11.6 Council Review and Monitoring

On an annual basis, either the NMFS issuing authority or the issuance review board will review the economic status of the fishery and the fishing fleet, and issue a status report to the Council evaluating achievement of the goals and objectives established for the LE system.

[Amendment 6 added chapter]

REFERENCES

Allen, M. J. 1982. Functional structure of soft-bottom fish communities of the southern California shelf. Ph.D Dissertation. University of California.

Alverson, D. L., A. T. Pruter, and L. L. Ronholt. 1964. *A Study of Demersal Fishes and Fisheries of the Northeastern Pacific Ocean*. Vancouver, British Columbia: Institute of Fisheries, University of British Columbia.

Bence, J. R. and J. E. Hightower. 1990. Status of bocaccio in the Conception/Monterey/Eureka INPFC areas in 1990. In *Appendix to Status of the Pacific Coast Groundfish Fishery Through 1990 and Recommended Acceptable Biological Catches for 1991 (SAFE Report)* Portland: Pacific Fishery Management Council.

Bence, J. R. and J. B. Rogers. 1992. Status of bocaccio in the Conception/Monterey/Eureka INPFC areas in 1992. In *Appendix to Status of the Pacific Coast Groundfish Fishery Through 1992 and Recommended Acceptable Biological Catches for 1993 (SAFE Report)* Portland, OR: Pacific Fishery Management Council.

Bond, A. B., Jr J S.Stephens, D. Pondella, M. J. Allen, and M. Helvey. 1998. A method for estimating marine habitat values based on fish guilds, with comparisons between sites in the Southern California Bight. 1 1998. Asilomar, California.

Brodeur, R. D. 2001. Habitat-specific distribution of Pacific ocean perch (*Sebastes alutus*) in Pribilof Canyon, Bering Sea. *Continental Shelf Research* 21(3):207-224.

Browning, R. J. 1980. *Fisheries of the North Pacific: History, Species, Gear, & Processes.* Anchorage, Alaska: Alaska Northwest Publishing Company.

Butler, J. L. and Barnes, T. 2000. Cowcod rebuilding. Portland, OR: Pacific Fishery Management Council. Unpublished report.

Butler, J. L., T. Barnes, P. Crone, and R. Conser. 2003. Cowcod rebuilding review. In *Volume 1: Status of the Pacific Coast Groundfish Fishery Through 2003 and Recommended Acceptable Biological Catches for 2004 (Stock Assessment and Fishery Evaluation)* Portland, OR: Pacific Fishery Management Council.

Butler, J. L., L. D. Jacobson, J. T. Barnes, H. G. Moser, and R. Collins. 1999. Stock assessment of cowcod. In *Appendix to Status of the Pacific Coast Groundfish Fishery Through 1998 and Recommended Acceptable Biological Catches for 1999 (SAFE Report)* Portland, OR: Pacific Fishery Management Council.

Clark, W. G. 1993. The effect of recruitment variability on the choice of a target level of spawning biomass per recruit. Pages 233-246 in Kruse, G., R. J. Marasco, C. Pautzke, and T.J.Quinn II, eds.Alaska Sea Grant College Program Report No.93-02, University of Alaska Fairbanks.

Conser, R. J., J. J. Maguire, R. Methot, P. Spencer, R. Moore, and M. Saelens. 2003. Widow rockfish STAR Panel meeting report. In *Volume 1: Status of the Pacific Coast Groundfish Fishery Through 2003 and Recommended Acceptable Biological Catches for 2004 (Stock Assessment and Fishery Evaluation)* Portland, OR: Pacific Fishery Management Council.

Cowardin, L. M., Carter, V., Golet, F., and LaRoe, E. 1979. Classification of wetlands and deepwater habitats of the United States: U.S. Fish and Wildlife Service.

Crone, P. R., R. D. Methot, R. J. Conser, and T. L. Builder. 1999. Status of the canary rockfish resource off Oregon and Washington in 1999. In *Status of the Pacific Coast Groundfish Fishery Through 1998 and Recommended Acceptable Biological Catches for 1999 (SAFE Report)* Portland, OR: Pacific Fishery Management Council.

de Forges, B. R., J. A. Koslow, and G. C. B. Poore. 2000. Diversity and endemism of the benthic seamount fauna in the southwest Pacific. *Nature* 405(6789):944-947.

Dower, J. F. and R. I. Perry. 2001. High abundance in larval rockfish over Cobb Seamount, an isolated seamount in the Northeast Pacific. *Fisheries Oceanography* 10(3):268-274.

Ebeling, A. W., R. J. Larson, and W. S. Alevizon. 1980. Annual variability of reef-fish assemblages in kelp forest off Santa Barbara, California. *U. S. Natl. Mar. Fish. Serv. Fish. Bull.* 78:361-377.

Eschmeyer, W. N., E. S. Herald, and H. Hammon. 1983. *A Field Guide to Pacific Coast Fishes of North America*. Boston: Houghton Mifflin.

Feder, H. M., C. H. Turner, and C. Limbaugh. 1974. Observations on fishes associated with kelp beds in southern California. *California Department of Fish and Game, Fish Bull.* 160:1-144.

Foster, M. S. and Schiel, D. R. 1985. The ecology of giant kelp forests in California: A community profile. U. S. Fish Wildl. Serv. Biol. Rep. 85(7.2).

Genin, A., L. Haury, and P. Greenblatt. 1988. Interactions of migrating zooplankton with shallow topography: Predation by rockfishes and intensification of patchiness. *Deep-Sea Research* 35(2):151-175.

Haertel, L. and C. Osterberg. 1967. Ecology of Zooplankton, Benthos and Fishers in the Columbia River Estuary. *Ecology* 48(3):459-472.

Hamel, O. S. 2006. Rebuilding Update for Pacific Ocean Perch. In *Volume 3: Status of the Pacific Coast Groundfish Fishery Through 2005, Stock Assessment and Fishery Evaluation: Stock Assessments and Rebuilding Analyses* Portland, OR: Pacific Fishery Management Council.

Haury, L., C. Fey, C. Newland, and January 2000 A.Genin....() pp. 2000. Zooplankton Distribution around four eastern North Pacific seamounts. *Progress in Oceanography* 45(1):69-105.

He, X., A. Punt, A. D. MacCall, and S. Ralston. 2006. Rebuilding Analysis for Widow Rockfish in 2005. In *Volume 3: Status of the Pacific Coast Groundfish Fishery Through 2005, Stock Assessment and Fishery Evaluation: Stock Assessments and Rebuilding Analyses* Portland, OR: Pacific Fishery Management Council.

He, X., A. Punt, A. D. MacCall, and S. V. Ralston. 2003a. Rebuilding analysis for widow rockfish in 2003. In *Volume 1: Status of the Pacific Coast Groundfish Fishery Through 2003 and Recommended Acceptable Biological Catches for 2004 (Stock Assessment and Fishery Evaluation)* Portland, OR: Pacific Fishery Management Council.

He, X., S. V. Ralston, A. D. MacCall, D. E. Pearson, and E. J. Dick. 2003b. Status of the widow rockfish resource in 2003. In *Volume 1: Status of the Pacific Coast Groundfish Fishery Through 2003 and Recommended Acceptable Biological Catches for 2004 (Stock Assessment and Fishery Evaluation)* Portland, OR: Pacific Fishery Management Council.

Herke, W. H. and B. D. Rogers. 1993. Maintenance of the estuarine environment. In *Inland Fisheries Management in North America.*, edited by Kohler, C. C. and W. A. Hubert. Pages 263-286. Bethesda, Maryland: American Fisheries Society.

Hoss, D. E. and G. W. Thayer. 1993. The importance of habitat to the early life history of estuarine dependent fishes. *American Fisheries Society Symposium* 14:147-158.

Ianelli, J. N. and J. Heifetz. 1995. Decision analysis of alternative harvest policies for the Gulf of Alaska Pacific ocean perch fishery. *Fisheries Research* 24:35-63.

Ianelli, J. N., M. Wilkins, and S. Harley. 2000. Status and future prospects for the Pacific ocean perch resource in waters off Washington and Oregon as assessed in 2000. In *Appendix to Status of the Pacific Coast Groundfish Fishery Through 2000 and Recommended Acceptable Biological Catches for 2001 (Stock Assessment and Fishery Evaluation)* Portland, OR: Pacific Fishery Management Council.

Ianelli, J. N. and Zimmerman, M. 1998. Status and future prospects for the Pacific ocean perch resource in waters off Washington and Oregon as assessed in 1998. Portland, OR: Pacific Fishery Management Council.

Lavelle, J. W., E. T. Baker, and G. A. Cannon. 2003. Ocean currents at Axial Volcano, a northeastern Pacific seamount. *Journal of Geophysical Research* 108(C2):3020.

Lenarz, W. H. 1993. An initial examination of the status of the darkblotched rockfish fishery off the coasts of California, Oregon, and Washington. In *Appendix C in Appendices to the Status of the Pacific Coast Groundfish Through 1993 and Recommended Acceptable Biological Catches for 1994*.

Love, M. S. 1991. *Probably More Than You Want to Know About the Fishes of the Pacific Coast.* Santa Barbara, California: Really Big Press.

Love, M. S., Morris, P., McCrae, M., and Collins, R. 1990. Life history aspects of 19 rockfish species (Scorpaenidae: *Sebastes*) from the southern California bight. NOAA, NMFS Tech. Rep. 87.

Love, M. S., M. Yoklavich, and L. Thorsteinson. 2002. *The Rockfishes of the Northeast Pacific.* Berkeley, California: University of California Press.

MacCall, A. D. 2006. Bocaccio Rebuilding Analysis for 2005. In *Volume 1: Status of the Pacific Coast Groundfish Fishery Through 2005, Stock Assessment and Fishery Evaluation: Stock Assessments and Rebuilding Analyses* Portland, OR: Pacific Fishery Management Council.

MacCall, A. D. 2002. Status of bocaccio off California in 2002. In *Volume 1 Status of the Pacific Coast Groundfish Fishery Through 2002 and Recommended Acceptable Biological Catches for 2003 (Stock Assessment and Fishery Evaluation)* Portland, OR: Pacific Fishery Management Council.

MacCall, A. D. 2003a. Bocaccio rebuilding analysis for 2003. In *Volume 1: Status of the Pacific Coast*

Groundfish Fishery Through 2003 and Recommended Acceptable Biological Catches for 2004 (Stock Assessment and Fishery Evaluation) Portland, OR: Pacific Fishery Management Council.

MacCall, A. D. 2003b. Status of bocaccio off California in 2003. In *Volume 1: Status of the Pacific Coast Groundfish Fishery Through 2003 and Recommended Acceptable Biological Catches for 2004 (Stock Assessment and Fishery Evaluation)* Portland, OR: Pacific Fishery Management Council.

MacCall, A. D. and X. He. 2002. Bocaccio rebuilding analysis for 2002. In *Volume 1: Status of the Pacific Coast Groundfish Fishery Through 2002 and Recommended Acceptable Biological Catches for 2003 (Stock Assessment and Fishery Evaluation)* Portland, OR: Pacific Fishery Management Council.

MacCall, A. D., S. Ralston, D. Pearson, and E. Williams. 1999. Status of bocaccio off California in 1999 and outlook for the next millennium. In *Appendix to Status of the Pacific Coast Groundfish Fishery Through 1999 and Recommended Acceptable Biological Catches for 2000 (Stock Assessment and Fishery Evaluation)* Portland, OR: Pacific Fishery Management Council.

Mace, P. M. 1994. Relationships between common biological reference points used as thresholds and targets of fisheries management strategies. *Canadian Journal of Fisheries and Aquatic Sciences* 51:110-122.

Methot, R. D. 2000a. Rebuilding analysis for canary rockfish. Portland, OR: Unpublished report prepared for the Pacific Fishery Management Council.

Methot, R. D. 2000b. Technical description of the stock synthesis assessment program. NOAA Technical Memorandum NMFS-NWFSC-43.

Methot, R. D. and K. Piner. 2002a. Rebuilding analysis for canary rockfish update to incorporate results of coastwide assessment in 2002. In *In Volume 1 Status of the Pacific Coast Groundfish Fishery Through 2002 and Recommended Acceptable Biological Catches for 2003 (Stock Assessment and Fishery Evaluation)* Portland, OR: Pacific Fishery Management Council.

Methot, R. D. and K. Piner. 2002b. Rebuilding analysis for yelloweye rockfish: update to incorporate results of coastwide assessment in 2002. In *Volume 1: Status of the Pacific Coast Groundfish Fishery Through 2003 and Recommended Acceptable Biological Catches for 2004 (Stock Assessment and Fishery Evaluation)* Portland, OR: Pacific Fishery Management Council.

Methot, R. D. and K. Piner. 2002c. Status of the canary rockfish resource off California, Oregon and Washington in 2001. In *Volume 1 Status of the Pacific Coast Groundfish Fishery Through 2002 and Recommended Acceptable Biological Catches for 2003 (Stock Assessment and Fishery Evaluation)* Portland, OR: Pacific Fishery Management Council.

Methot, R. D. and Rogers, J. 2001. Rebuilding analysis for darkblotched rockfish. Portland, OR: Unpublished report prepared for the Pacific Fishery Management Council.

Methot, R. D. and I. J. Stewart. 2006. Status of the U.S. canary rockfish resource in 2005. In *Volume 6: Status of the Pacific Coast Groundfish Fishery Through 2005, Stock Assessment and Fishery Evaluation: Stock Assessments and Rebuilding Analyses* Portland, OR: Pacific Fishery Management Council.

Methot, R. D., F. Wallace, and K. Piner. 2003. Status of yelloweye rockfish off the U.S. West Coast in

2002. In *Volume 1: Status of the Pacific Coast Groundfish Fishery Through 2003 and Recommended Acceptable Biological Catches for 2004 (Stock Assessment and Fishery Evaluation)* Portland, OR: Pacific Fishery Management Council.

Miller, D. J. and R. N. Lea. 1972. Guide to the coastal marine fishes of California. *Calif. Dept. Fish and Game, Fish. Bull.* 157:249.

Monterey Bay National Marine Sanctuary. 2005. SIMoN: Sanctuary Integrated Monitoring Network [WWW].

MRAG Americas Inc., TerraLogic GIS Inc., NMFS Northwest Fisheries Science Center FRAM Division, and NMFS Northwest Region. 2004. Identification of Essential Fish Habitat for the Pacific Groundfish FMP. Portland, OR: Pacific States Marine Fisheries Commission. Apr. 2004. Exhibit C.6.b, Attachment 1, April 2004 Council Meeting.

Mullineaux, L. S. and S. W. Mills. 1997. A test of the larval retention hypothesis in seamount-generated flows. *Deep Sea Research* 44(5):745-770.

Myers, R. A., Barrowman, N. J., and Hilborn, R. 2000. The Meta-analysis of the maximum reproductive rate for fish populations to estimate harvest policy; a review.: Unpublished report distributed at the March 20-23, 2000, West Coast Groundfish Harvest Rate Policy Workshop sponsored by the Scientific and Statistical Committee of the Pacific Fishery Management Council.

National Research Council. 2002. *Effects of Trawling and Dredging on Seafloor Habitat*. Washington, D.C.: National Academy Press.

O'Connell, V. M. and D. W. Carlile. 1993. Habitat-specific density of adult yelloweye rockfish *Sebastes ruberrimus* in the eastern Gulf of Alaska. *Fish. Bull.* 91:304-309.

O'Connell, V. M. and F. C. Funk. 1986. Age and growth of yelloweye rockfish (*Sebastes ruberrimus*) landed in southeastern Alaska. Pages 171-185 in Anchorage, Alaska: Alaska Sea Grant College Program.

PFMC. 2002. Status of the Pacific coast groundfish fishery through 2001 and recommended acceptable biological catches for 2002. Stock Assessment and fishery evaluation. Portland, OR: Pacific Fishery Management Council.

PFMC. 2006. Proposed Groundfish Acceptable Biological Catch and Optimum Yield Specifications and Management Measures: 2007-2008 Pacific Coast Groundfish Fishery; Final Environmental Impact Statement Including Regulatory Impact Review and Initial Regulatory Flexibility Analysis. Portland, OR: Pacific Fishery Management Council. Oct. 2006.

Piner, K. 2006. Cowcod Rebuilding Analysis 2005 Analysis of the Progress towards Rebuilding in the Southern California Bight. In *Volume 1: Status of the Pacific Coast Groundfish Fishery Through 2005, Stock Assessment and Fishery Evaluation: Stock Assessments and Rebuilding Analyses* Portland, OR: Pacific Fishery Management Council.

Punt, A. E. 2002. SSC default rebuilding analysis: Technical specifications and user manual. Portland, OR: Pacific Fishery Management Council.

Punt, A. E. and Ianelli, J. N. 2001. Revised rebuilding analysis for Pacific ocean perch. Portland, OR:

Unpublished report to the Pacific Fishery Management Council.

Punt, Andre E. and MacCall, Alec D. 2002. Revised rebuilding analysis for widow rockfish for 2002. Portland, OR: Unpublished report to the Pacific Fishery management Council.

Ralston, S., J. N. Ianelli, D. E. Pearson, M. E. Wilkins, R. A. Miller, and D. Thomas. 1996. Status of bocaccio in the Conception/Monterey/Eureka INPFC areas in 1996 and recommendations for management in 1997. In *Appendix Vol. 1: Status of the Pacific Coast Groundfish Fishery Through 1996 and Recommended Acceptable Biological Catches for 1997 (Stock Assessment and Fishery Evaluation)* Portland, OR: Pacific Fishery Management Council.

Rogers, J. B. 2006. Update of Darkblotched Rockfish (*Sebastes crameri*) Rebuilding Analyses. In *Volume 3: Status of the Pacific Coast Groundfish Fishery Through 2005, Stock Assessment and Fishery Evaluation: Stock Assessments and Rebuilding Analyses* Portland, OR: Pacific Fishery Management Council.

Rogers, J. B., R. D. Methot, T. L. Builder, K. Piner, and M. Wilkins. 2000. Status of the darkblotched rockfish (*Sebastes crameri*) resource in 2000. In *Appendix to Status of the Pacific Coast Groundfish Fishery Through 2000 and Recommended Acceptable Biological Catches for 2001 (Stock Assessment and Fishery Evaluation)* Portland, OR: Pacific Fishery Management Council.

Rosenthal, R. J., Haldorson, L., Field, L. J., Moran-O'Connell, V., LaRiviere, M. G., Underwood, J., and Murphy, M. C. 1982. Inshore and shallow offshore bottomfish resources in the southeastern Gulf of Alaska (1981-1982). Juneau, Alaska: Alaska Dept. Fish and Game.

Sampson, D. B. 1996. Appendix C: Stock status of canary rockfish off Oregon and Washington in 1996. In *Status of the Pacific Coast Groundfish Fishery Through 1996 and Recommended Acceptable Biological Catches for 1997: Stock Assessment and Fishery Evaluation*, edited by Pacific Fishery Management Council. Portland, OR: Pacific Fishery Management Council.

Sampson, D. B. and E. M. Stewart. 1994. Appendix G: Status of the canary rockfish resource off Oregon and Washington in 1994. In *Status of the Pacific Coast Groundfish Fishery Through 1994 and Recommended Acceptable Biological Catches for 1995: Stock Assessment and Fishery Evaluation* Portland, OR: Pacific Fishery Management Council.

SSC. 2001. SSC terms of reference for groundfish rebuilding analyses. Portland: Pacific Fishery Management Council. Apr. 2001. Briefing Book Exhibit F.7.

Tsou, T. and F. R. Wallace. 2006. Updated Rebuilding Analysis for Yelloweye Rockfish Based on Stock Assessment in 2006. In *Volume 6: Status of the Pacific Coast Groundfish Fishery Through 2005, Stock Assessment and Fishery Evaluation: Stock Assessments and Rebuilding Analyses* Portland, OR: Pacific Fishery Management Council.

Wallace, F. R. 2002. Status of the yelloweye rockfish resource in 2001 for northern California and Oregon waters. In *Appendix to the Status of the Pacific Coast Groundfish Fishery Through 2001 and Acceptable Biological Catches for 2002 (Stock Assessment and Fishery Evaluation)* Portland, OR: Pacific Fishery Management Council.

Williams, E. H., A. D. MacCall, S. Ralston, and D. E. Pearson. 2000. Status of the widow rockfish resource in Y2K. In *Appendix to Status of the Pacific Coast Groundfish Fishery Through 2000 and Recommended Acceptable Biological Catches for 2001 (Stock Assessment and Fishery*

Evaluation) Portland, OR: Pacific Fishery Management Council.

Williams, E. H., S. Ralston, A. D. MacCall, D. Woodbury, and D. E. Pearson. 1999. Stock assessment of the canary rockfish resource in the waters off southern Oregon and California in 1999. In *Status of the Pacific Coast Groundfish Fishery Through 1999 and Recommended Acceptable Biological Catches for 2000 (Stock Assessment and Fishery Evaluation)* Portland, OR: Pacific Fishery Management Council.

Wyllie-Echeverria, S. W. and J. D. Ackerman. 2003. The seagrasses of the Pacific Coast of North America. In *World Atlas of Seagrasses*, edited by Green, E. P. and F. T. Short. Page 199 – 206. Berkeley: University of California Press.

GUIDE TO APPENDICES

In the July 1993 version of the FMP the Appendices appeared as Chapter 11.0. Section 11.10 was added by Amendment 11 in 1998. Sections 11.1–11.9 contain descriptive material about stocks, fisheries, habitat, and other applicable laws, which under the proposed revision will become Appendix A. Prior to the currently proposed amendments, this material was moved out of a chapter format to a separate volume, causing the remaining chapters in the FMP to be renumbered. The Appendices contain descriptive information in support of the management program. This material may be updated without the need for a formal FMP amendment process. Language to this effect is added to Chapter 1 of the FMP. The appendices incorporated into the FMP by Amendment 19 are described below. These appendices are reproduced under separate cover.

APPENDIX A: Information in Support of the Management Program

- Biological and Environmental Characteristics of the Resource
- Description of the Fishery
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- History of Management
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- Management and Enforcement Costs

APPENDIX B: Pacific Coast Groundfish Essential Fish Habitat

1. Assessment Methodology for Groundfish Essential Fish Habitat
2. Groundfish Life History Descriptions
3. Essential Fish Habitat Text Descriptions (Habitat Use Database Output of Species/Life Stage Distribution/Associations
4. Habitat Suitability Probability Maps for Individual Groundfish Species and Life History Stages
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APPENDIX C: The Effects of Fishing on West Coast Groundfish Essential Fish Habitat and Current Conservation Measures

1. Description of the Impacts Model
2. MRAG Americas, Inc. 2004. *The effects of fishing gears on habitat: West Coast perspective* (Draft 6). Portland: Pacific States Marine Fisheries Commission. July 28, 2004.
3. Map of EFH Conservation Areas
4. Coordinates for EFH Conservation Areas

APPENDIX D: Non-fishing Effects on West Coast Groundfish Essential Fish Habitat and Recommended Conservation Measures

Hanson, J., M. Helvey, and R. Strach (eds.). 2003. *Non-fishing Effects on West Coast Groundfish Essential Fish Habitat and Recommended Conservation Measures* (Version 1). National Marine Fisheries Service. August 2003.

APPENDIX E: Description of Trawl Rationalization (Catch Shares) Program

APPENDIX F: Overfished Species Rebuilding Plans

Pacific Coast Groundfish Fishery Management Plan

For the California, Oregon and Washington Groundfish Fishery

Appendix F Overfished Species Rebuilding Plans

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1.1 Introduction

This appendix provides the rebuilding plans for the overfished species managed through the Pacific Coast Groundfish Fishery Management Plan consistent with Section 4.6 (Ending Overfishing and Rebuilding). This appendix contains 3 sections: 1) current rebuilding plans, including the rebuilding strategy and parameters and management measures used to limit the catch of each species; 2) a summary of past rebuilding plan parameters; and 3) a summary of the status of each stock at the time it was declared overfished as well as a detailed description of the rebuilding strategy and the communities affected by rebuilding restrictions for each species.

As described in Section 4.6.3.4, if the numerical specification of the harvest control rule or target year for a given overfished species is changed, the new T_{TARGET} and the harvest control rule (type and numerical value) will be published in Federal groundfish regulations and revised in Section 1.2.1 of this appendix. In addition, subsequent SAFE documents or NEPA documents analyzing new harvest specifications and rebuilding plans may include updated values for the parameters listed in Section 4.6.3.3 and Table F-1 in this appendix.

Through each biennial specifications and management measures process the Council may consider changes to rebuilding plans as necessary to respond to the best scientific information available. Any revisions to the rebuilding periods must be consistent with the MSA; rebuilding time periods must be as short as possible, taking into account the status and biology of the depleted species, the socioeconomic needs of west coast fishing communities, and the interaction of the depleted stocks within the marine ecosystem.

Rebuilding plans were first addressed in this FMP through the implementation of Amendment 12 which established a framework for rebuilding plans. Amendment 16-1 was also implemented to address frameworking issues with rebuilding plans and Amendments 16-2 through 16-5 implemented the first rebuilding plans for overfished species.

1.2 Overfished Species Rebuilding Plans

1.2.1 Current Rebuilding Plan Parameters and ACLs

It is likely that over time the parameters listed in this section will change. Consistent with the specifications developed through the Council's biennial specifications and management measures process, the rebuilding parameters and ACLs in this section would be updated following final implementation by NMFS, usually through the publication of a final rule in the *Federal Register*. Further detail on ACLs can be found in the FEIS for 2015-2016 Harvest Specifications and Management Measures on the Council's website at http://www.pcouncil.org/, as well as the ~~2014~~ 2016 Stock Assessment and Fishery Evaluation document at http://www.pcouncil.org/wp-content/uploads/Groundfish_SAFE_~~August~~June_201~~4~~6.pdf.

Table F-1. Current Rebuilding Parameters and ACLs for ~~2015~~ 2017 and beyond.

Species	B_0	B_{MSY}	T_{MIN}	$T_{F=0}$	T_{MAX}	T_{TARGET}	20175 Annual Catch Limit (ACL)	Harvest Control Rule Specification
Bocaccio	~~7,946~~6,363 B eggs	3,~~178~~022 mt~~B eggs~~	2018	20186	2031	2022	~~349~~ 790 mt	SPR 77.7%
~~Canary~~	~~25,993 mt~~	~~10,397 mt~~	~~2024~~	~~2024~~	~~2050~~	~~2030~~	~~122 mt~~	~~SPR 88.7%~~
Cowcod	1,549 mt	620 mt	2019	2019	2057	2020	10 mt; 4 mt ACT	E = 0.007 (equivalent to an SPR of 82.7%)
Darkblotched	3~~2,800 mt~~,203 M eggs	~~13,112 mt~~1,474 M eggs	2012	2016	2037	2025	~~338~~ 490 mt	~~SPR 64.9%~~490 mt constant catch ACL
POP	37,780 mt	15,112 mt	2017	2018	2071	2051	~~158~~ 171 mt	SPR 86.4%
~~Petrale sole~~	~~25,334 mt~~	~~6,334 mt~~	~~2014~~	~~2014~~	~~2021~~	~~2016~~	~~2,816 mt~~	~~25-5 Rule~~
Yelloweye	994 M eggs	389 M eggs	2044	2047	2083	2074	~~18~~ 20 mt	SPR 76%

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1.2.2 Rebuilding Strategy

This section describes the rebuilding strategy for each species and the management measures used to attain rebuilding.

1.2.2.1 Bocaccio South of 40°10' N latitude

The rebuilding strategy for bocaccio is a constant SPR harvest rate. Management measures used to limit the catch of bocaccio, such that projected impacts to the stock attain rebuilding objectives, include depth-based time and area closures for recreational fisheries and Groundfish Conservation Areas (GCAs) for commercial fisheries. GCAs enclose depth ranges where bycatch of overfished species is most likely to occur based on information retrieved from logbooks, the at-sea observer program, surveys, and other sources. The boundaries vary by season and fishery sector, and may be modified in response to new information about the geographic and seasonal distribution of bycatch.

A large proportion of bocaccio catch occurs in recreational fisheries in central and southern California. Recreational depth closures that restrict fishing to shallow waters, bag limits, and seasonal closures have been used to reduce recreational bocaccio catches.

1.2.2.2 Canary Rockfish

Canary rockfish was declared successfully rebuilt in 2016 based on a 2015 assessment (Thorson and Wetzel 2015) which indicated the stock was above the $B_{40\%}$ B_{MSY} threshold with a depletion of 55.5% at the start

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of 2015. ~~The rebuilding strategy for canary is a constant SPR harvest rate. Management measures used to limit the catch of canary, such that projected impacts to the stock attain the rebuilding objectives, include depth-based closed areas where bycatch of overfished species is most likely to occur, based on information retrieved from logbooks, the at-sea observer program, surveys, and other sources. The boundaries vary by season and fishery sector, and may be modified in response to new information about the geographic and seasonal distribution of bycatch.~~

~~Canary rockfish prefer rocky areas on the continental shelf so management measures in use at the time of rebuilding plan adoption were intended to discourage fishing in these areas. Under the regulations in place since 2003, commercial fishing is prohibited in the gear- and sector-specific GCAs, which encompasses depth ranges where canary rockfish are most frequently caught. In addition, the aforementioned restrictions on the use of trawl nets equipped with large footropes and anti-chafing gear discourage fishing in the rocky habitat preferred by this species. In areas shoreward of the GCA large footrope gear is prohibited, preventing trawlers from accessing rocky habitat in these depths. In areas deeper than the GCA, either small or large footrope gear may be used, although large footrope gear is the preferred type in these depths. In addition, cumulative trip limits, trawl IFQ allocations and accumulation limits, and total catch limits in the at-sea whiting fishery are structured to encourage vessels to fish in deeper water where canary rockfish (and many other overfished species) are not encountered.~~

~~Recreational fisheries are managed mainly through bag limits, size limits, and fishing seasons established for each west coast state. Currently, canary rockfish is a prohibited species in west coast recreational fisheries, meaning they are not allowed to be retained or landed. In addition, managers have the option of closing areas to recreational fishing if needed to prevent the canary rockfish ACL from being exceeded.~~

1.2.2.3 Cowcod South of 40°10' N latitude

The rebuilding strategy for cowcod is a constant harvest rate (E = 0.007 calculated as catch/estimated age 11+ biomass). Management measures used to limit the catch of cowcod, such that projected impacts to the stock attain rebuilding objectives, include depth-based closed areas where bycatch of overfished species is most likely to occur, based on information retrieved from logbooks, the at-sea observer program, surveys, and other sources. The boundaries vary by season and fishery sector, and may be modified in response to new information about the geographic and seasonal distribution of bycatch.

Because cowcod is a fairly sedentary species, establishment of two marine protected areas, considered two of the GCAs, is the key strategy for limiting cowcod fishing mortality. The Cowcod Conservation Areas (CCAs) in the Southern California Bight encompass two areas of greatest cowcod density as estimated in 2000, based on historical cowcod catch and catch rates in commercial and recreational fisheries. To aid in enforcement, the CCAs are bounded by straight lines enclosing simple polygons. Dick (2011) concluded that the CCAs have been effective in reducing bycatch to levels projected to allow stock rebuilding. Estimated fishery removals have been at levels sufficient to rebuild the stock, since the CCAs were implemented.

Given the particular life history characteristics of cowcod, the Council will continue to use species-specific area closures to protect cowcod. As new information becomes available on cowcod behavior and fisheries interactions with cowcod, the boundaries or related regulations concerning the current CCAs may change, and additional CCAs may be established by regulation.

1.2.2.4 Darkblotched Rockfish

The rebuilding strategy for darkblotched rockfish is a constant SPR harvest rate. Management measures

used to limit the catch of darkblotched such that projected impacts to the stock attain rebuilding objectives, include depth-based closed areas for the trawl fishery (darkblotched rockfish are predominantly caught by trawl gear) where bycatch of overfished species is most likely to occur, based on information retrieved from logbooks, the at-sea observer program, surveys, and other sources. The boundaries vary by season and fishery sector, and may be modified in response to new information about the geographic and seasonal distribution of bycatch.

To limit darkblotched rockfish bycatch, the outer boundary of the trawl GCA was set to shift fishing activity into deeper water, away from the depth range of higher abundance for this species. Periodically since 2003, this outer boundary was modified during the winter months to allow targeting of petrale sole and other flatfish species in shallower depths while still minimizing bycatch. Trawl IFQ allocations and accumulation limits, as well as total catch limits in the at-sea whiting fishery, are structured to minimize the incidental bycatch of darkblotched in trawl fisheries.

1.2.2.5 Lingcod

The west coast lingcod stock was declared successfully rebuilt in 2005 after the 2005 assessment indicated the stock's spawning biomass was above the $B_{40\%}$ B_{MSY} threshold with a depletion of 64 percent of unfished biomass ($B_{64\%}$).

1.2.2.6 Pacific Ocean Perch (POP)

The rebuilding strategy for POP is a constant SPR harvest rate. Management measures used to limit the catch of POP, such that projected impacts to the stock attain rebuilding objectives, include depth-based closed areas where bycatch of overfished species is most likely to occur, based on information retrieved from logbooks, the at-sea observer program, surveys, and other sources. The boundaries vary by season and fishery sector, and may be modified in response to new information about the geographic and seasonal distribution of bycatch.

Because POP tend to co-occur with darkblotched rockfish, management measures applicable to that species also serve to constrain catches of POP. These measures include configuring the outer boundary of the trawl GCA so that vessels fish in deeper water, where POP are less abundant. Trawl IFQ allocations and accumulation limits, as well as total catch limits in the at-sea whiting fishery, are structured to minimize the incidental bycatch of POP in trawl fisheries.

1.2.2.7 Petrale Sole

Petrale sole was declared successfully rebuilt in 2016 based on a 2015 update assessment (Stawitz, *et al.* 2015), which indicated the coastwide petrale sole stock was successfully rebuilt with a depletion of 31% at the start of 2015.~~The rebuilding strategy for petrale sole is to apply a variable harvest strategy for 2012 and beyond, known as the 25-5 control rule (Figure 4-2). This strategy uses a progressively more conservative SPR harvest rate at lower biomass levels (for details on this strategy see Section 4.6.1 in the FMP).~~

~~Petrale sole is one of the primary target stocks in the non-whiting trawl fishery and is predominantly caught by that sector. No other sector currently targets petrale sole, although other sectors do incidentally catch petrale sole in relatively small amounts. For this reason, the Council chose to rebuild the petrale sole stock by constraining fishing opportunities for the non-whiting trawl sector, while holding all other sectors harmless.~~

~~Petrale sole make seasonal inshore-offshore migrations and are targeted in bottom trawl efforts on the shelf~~

~~in the summer and in spawning aggregations in discrete areas on the shelf/slope break in the winter. One strategy for faster rebuilding of petrale sole is closing the petrale sole fishing areas where they aggregate and spawn in the winter. The 200 fm seaward boundary line is modified in discrete areas to open the petrale sole fishing areas during the winter months. The 2009 and 2011 petrale assessments and rebuilding analyses indicate larger, more mature fish are caught by the offshore winter fleet. Reducing these fishing opportunities has been shown to rebuild the stock relatively faster than allowing the mix of summer and winter petrale fishing that has occurred prior to 2010. The high productivity exhibited by the petrale sole stock (steepness (h) is estimated to be 0.86) projects rapid rebuilding of petrale sole regardless of whether a winter fishing opportunity is allowed or not. Petrale are mixed on the shelf in the summer months with other flatfish species, all of which are targeted as a mixed assemblage. It appears it may be easier for the trawl fleet fishing offshore in the winter to avoid petrale while targeting other species such as the DTS (Dover sole, thornyheads, and sablefish) assemblage, than it is for the summer fleet when targeting flatfish and other species.~~

1.2.2.8 Widow Rockfish

The west coast widow rockfish stock was declared successfully rebuilt in 2011 after the 2011 assessment indicated the stock's spawning biomass was above the $B_{40\%}$ B_{MSY} threshold with a depletion of 51 percent of unfished biomass ($B_{51\%}$).

1.2.2.9 Yelloweye Rockfish

The rebuilding strategy for yelloweye rockfishis a constant SPR harvest rate. Management measures used to limit the catch of yelloweye rockfish, such that projected impacts to the stock attain rebuilding objectives, include depth-based closed areas where bycatch of overfished species is most likely to occur, based on information retrieved from logbooks, the at-sea observer program, surveys, and other sources. The boundaries vary by season and fishery sector, and may be modified in response to new information about the geographic and seasonal distribution of bycatch.

Yelloweye rockfish impacts in commercial fisheries are managed by implementation of gear- and sector-specific GCAs. Also, trawl IFQ allocations and accumulation limits are structured to minimize the incidental bycatch of yelloweye rockfish in the groundfish bottom trawl fishery.

In addition to the more general measures described above, which are intended to reduce bycatch of all overfished species, several Yelloweye Rockfish Conservation Areas (YRCAs) are in place that prevent recreational groundfish and halibut anglers from targeting this species in areas where they are concentrated. Recreational bag and size limits are also used to manage total yelloweye rockfish fishing mortality.

Given the particular life history characteristics of yelloweye rockfish, the Council will continue to use a species-specific area closure or closures to protect yelloweye rockfish. As new information becomes available on yelloweye rockfish behavior and fisheries interactions with yelloweye rockfish, the boundaries or related regulations concerning the current YRCAs may change, and additional YRCAs may be established by regulation.

1.3 Rebuilding Plan History and Background

This section contains previous rebuilding plan parameters as well as more detailed information on the history of each rebuilding plan since implementation.

1.3.1 Previous Rebuilding Plan Parameters

Table F-2. Specified rebuilding plan parameters at the time of plan adoption under Amendments 16-2 and 16-3.

Species	Year Stock Declared Overfished	Year Rebuilding Plan Adopted	B_0	B_{MSY}	T_{MIN}	T_{MAX}	P_{MAX}	T_{TARGET}	Harvest Control Rule
Bocaccio a/	1999	2004	13,387 B eggs in 2003	5,355 B eggs	2018	2032	70%	2023	F=0.0498
Canary	2000	2003	31,550 mt	12,620 mt	2057	2076	60%	2074	F=0.022
Cowcod	2000	2004	3,367 mt	1,350 mt	2062	2099	60%	2090	F=0.009
Darkblotched	2000	2003	29,044 mt	11,618 mt	2014	2047	80%	2030	F=0.027
Lingcod	1999	2003	28,882 mt N; 20,971 mt S	9,153 mt N; 8,389 mt S	2007	2009	60%	2009	F=0.0531 N; F=0.061 S
POP	1999	2003	60,212 units of spawning output	24,084 units of spawning output	2012	2042	70%	2027	F=0.0082
Widow b/	2001	2004	43,580 M eggs	17,432 M eggs	2026	2042	60%	2038	F=0.0093
Yelloweye	2002	2004	3,875 mt	1,550 mt	2027	2071	80%	2058	F=0.0153

a/ Based on the STATc base model in MacCall (MacCall 2003b).
b/ Based on the Model 8 base model in He, *et al.* (He, *et al.* 2003b).

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Table F-3. Specified rebuilding plan parameters revised under Amendment 16-4.

Species	B_0	B_{MSY}	T_{MIN} a/	T_{MAX}	$T_{F=0}$ a/	P_{MAX}	T_{TARGET}	Harvest Control Rule (SPR Harvest Rate)
Bocaccio	13,402 B eggs in 2005	5,361 B eggs	2018	2032	2021	77.7%	2026	77.7%
Canary	34,155 mt	13,662 mt	2048	2071	2053	55.4%	2063	88.7%
Cowcod	3,045 mt	1,218 mt	2035	2074	2035	90.6%	2039	90.0%
Darkblotched	26,650 M eggs	10,660 M eggs	2009	2033	2010	100%	2011	60.7%
POP	37,838 units of spawning output	15,135 units of spawning output	2015	2043	2015	92.9%	2017	86.4%
Widow	49,678 M eggs	19,871 M eggs	2013	2033	2013	95.2%	2015	95.0%
Yelloweye	3,322 mt	1,328 mt	2046	2096	2048	80%	2084	71.9% b/

a/ T_{MIN} is the shortest time to rebuild from the onset of the rebuilding plan or from the first year of a rebuilding plan, which is usually the year after the stock was declared overfished. The shortest possible time to rebuild the stocks with rebuilding plans under consideration in Amendment 16-4 is $T_{F=0}$, which is the median time to rebuild the stock if all fishing-related mortality were eliminated beginning in 2007.

b/ The yelloweye rebuilding plan specifies a harvest rate ramp-down strategy before resuming a constant harvest rate in 2011. $F_{71.9\%}$ is the constant harvest rate beginning in 2011.

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Table F-4. Specified rebuilding plan parameters revised under Amendment 16-5.

Species	B_0	B_{MSY}	T_{MIN}	$T_{F=0}$	T_{MAX}	T_{TARGET}	2013 Annual Catch Limit (ACL)	Harvest Control Rule Specification
Bocaccio	7,946 B eggs	3,178 B eggs	2018	2018	2031	2022	320 mt	SPR 77.7%
Canary	25,993 mt	10,397 mt	2024	2024	2050	2030	116 mt	SPR 88.7%
Cowcod	2,183 mt	873 mt	2059	2060	2097	2068	3 mt	SPR 82.7%
Darkblotched	32,800 mt	13,112 mt	2012	2016	2037	2025	317 mt	SPR 64.9%
POP	37,780 mt	15,112 mt	2017	2018	2071	2051	150 mt	SPR 86.4%
Petrale sole	25,334 mt	6,334 mt	2014	2014	2021	2016	2,592 mt	25-5 Rule
Yelloweye	994 M eggs	389 M eggs	2044	2047	2083	2074	18 mt	SPR 76%

1.3.2 Rebuilding Plan Background

1.3.2.1 Bocaccio Rockfish South of 40°10' N. Latitude

Status of the Bocaccio Stock and Fisheries Affected by Stock Rebuilding Measures at the Time of Rebuilding Plan Adoption (April 2004)

Assessment scientists and managers have treated west coast bocaccio as independent stocks north and south of Cape Mendocino. The southern stock, which has been declared overfished, occurs south of Cape Mendocino and the northern stock north of 48 N. latitude in northern Washington (off Cape Flattery).
The overfished southern bocaccio rockfish stock occurs in Central and Southern California waters, on the continental shelf and in nearshore areas, often in rocky habitat. They are caught in both commercial and recreational fisheries in approximately equal amounts. Commercial catches mainly occur in LE trawl fisheries.

Bocaccio have long been an important component of California rockfish fisheries. Catches increased to high levels in the 1970s and early 1980s as relatively strong year-classes recruited to the stock. The Council began to recommend increasingly restrictive regulations after an assessment of the southern stock in 1990 (Bence and Hightower 1990) indicated that fishing rates were too high. The southern stock has been assessed six times (Bence and Hightower 1990; Bence and Rogers 1992; MacCall, *et al.* 1999; MacCall 2002; MacCall 2003b; Ralston, *et al.* 1996) and has suffered poor recruitment during the warm water conditions that have prevailed off Southern California since the late 1980s. The 1996 assessment (Ralston, *et al.* 1996) indicated the stock was in severe decline. NMFS formally declared the stock overfished in March 1999 after the groundfish FMP was amended to incorporate the tenets of the Sustainable Fisheries Act. MacCall et al. (MacCall, *et al.* 1999) confirmed the overfished status of bocaccio and estimated spawning output of the southern stock to be 2.1 percent of its unfished biomass and 5.1 percent of the MSY level. The northern stock of bocaccio has not been assessed.

While previous assessments only used data from Central and Northern California, an assessment in 2002

(MacCall and He 2002) also included data for southern California. While relative abundance increased slightly from the last assessment (4.8 percent of unfished biomass), potential productivity appears lower than previously thought, making for a more pessimistic outlook. The Council assumed a medium recruitment scenario for the 1999 year class, which was not assessed (MacCall, *et al.* 1999). The 2002 assessment revealed the 1999 year class experienced relatively lower recruitment. Therefore, although the 1999 year class contributed a substantial quantity of fish to the population, it did not contribute as much to rebuilding as was previously thought.

The 2003 bocaccio assessment differs greatly from the 2002 assessment. It is driven by the strength of the incoming 1999 year class that had not recruited into the indices used for the 2002 assessment and by a revised lower estimate of natural mortality (MacCall 2003b). In addition to the 2001 Triennial Survey data, the 2003 assessment used larval abundance data from recent CalCOFI surveys as well as length and catch per unit effort (CPUE) data from recreational fisheries. In calculating the recreational CPUE information, a new method was used that identifies relevant fishing trips by species composition and adjusts the catch history for regulatory changes that affect the level of discard and avoidance. The results of these calculations suggest that recreational CPUE has increased dramatically in recent years and is at a record high level in Central California north of Pt. Conception. The Stock Assessment Review (STAR) Panel recommended the use of two assessment models as a means of bracketing uncertainty from the very different signals between the Triennial Survey and the recreational CPUE data. Following the STAR Panel meeting, MacCall presented a third "hybrid" model that incorporated the data from all of the indices. The SSC recommended, and the Council approved, the use of this third modeling approach. This resulted in modest improvement in estimated stock size, but significantly affected the estimated productivity of the stock. These results had substantial effects on the rebuilding outlook for bocaccio which, under the 2002 assessment, was not expected to rebuild within T_{MAX} even with no fishing-related mortality. Total mortality in 2003 fisheries was restricted to less than 20 mt as a means of conserving the stock while minimizing adverse socioeconomic impacts to communities. The current rebuilding analysis (MacCall 2003a), using the "hybrid" model, suggests the stock could rebuild to B_{MSY} within 25 years while sustaining an OY of approximately 300 mt in 2004.

The Council adopted a rebuilding plan for bocaccio rockfish at its April 2004 meeting, as described by the parameter values listed in Table F-2. These values are based on a rebuilding analysis conducted by MacCall (2003b).

Amendment 16-4, adopted by the Council at its June 2006 meeting, revised the rebuilding parameters for bocaccio, as listed in Table F-3. These values are based on a rebuilding analysis conducted by MacCall (2006) which had determined that the bocaccio stock was at 10.7 percent of its unfished level in 2005.

Fisheries in central and southern California are affected by the bocaccio rebuilding plan because the overfished population occurs in these waters. Recreational and LE trawl fisheries in this region have accounted for the bulk of landings in recent years.

Methods Used to Calculate Stock Rebuilding Parameters

The methods used in the rebuilding analysis (MacCall 2003a) upon which the original rebuilding plan was based, and those used for the rebuilding plan revision under Amendment 16-4 (MacCall 2006) do not differ substantially from the approach described in Section 4.6.2.

Rebuilding Parameter Values at the Time of Rebuilding Plan Adoption

Table F-2 lists the numerical values for B_0, B_{MSY}, T_{MIN}, T_{MAX}, P_{MAX}, T_{TARGET} and F. The values of B_0, B_{MSY}, T_{MIN}, and T_{MAX} are derived from the rebuilding analysis used in formulating the rebuilding plan (MacCall

2003a). Using the STAT base model from the most recent stock assessment (MacCall 2003b), the Council chose a value of 70 percent for P_{MAX}, based on a harvest control rule of F = 0.0498. This results in a target year of 2023.

Rebuilding Parameter Values from the Amendment 16-4 Rebuilding Plan Update

Table F-3 lists the numerical values for B_0, B_{MSY}, T_{MIN}, T_{MAX}, $T_{F=0}$, P_{MAX}, T_{TARGET} and an SPR harvest rate. The values of B_0, B_{MSY}, T_{MIN}, $T_{F=0}$, and T_{MAX} are derived from the rebuilding analysis used in formulating the rebuilding plan (MacCall 2006). The Council chose a target rebuilding year of 2026.

Bocaccio Fishing Communities

Amendment 16-4 revised the Council's approach to rebuilding plans, requiring an analysis of the needs of fishing communities in relation to overfished species rebuilding times, in addition to the traditional analysis of rebuilding times in relation to the status and biology of the stock. For Amendment 16-4 and the 2007-2008 fisheries, fishing community needs are described and analyzed in an Environmental Impact Statement (EIS) (PFMC 2006). Chapter 7 of that EIS discusses the communities that make up the socio-economic environment of the Pacific Coast groundfish fisheries. In general, bocaccio is a continental shelf species that is most frequently taken south of 40°10' N. latitude in all of the groundfish fisheries, commercial and recreational. All groundfish fishing communities off the southern U.S. west coast are affected by bocaccio rebuilding measures.

Bocaccio Rockfish Rebuilding Strategy

As shown in Table F-2, at the inception of the rebuilding plan the harvest control rule for bocaccio rockfish was a fishing mortality rate of 0.0498. Based on the 2003 rebuilding analysis, this harvest rate is likely to rebuild the stock by the target year of 2023. This value is likely to change over time as stock size and structure changes. Any updated value will be published in Federal groundfish regulations. The fishing mortality rate is applied to the exploitable biomass estimate to determine the OY for a given fishing period.

Management measures are implemented through the biennial harvest specification and management process described in Chapter 5. The types of management measures that may be implemented through this process are described in Chapter 6. In 2004, at the time of rebuilding plan adoption, measures intended to limit bycatch of overfished species included prohibiting retention of certain overfished species during some parts of the year, reducing landing limits (cumulative trip limits) on co-occurring species, establishing extensive time/area closures, and restricting the use of trawl nets equipped with large footropes. (By using large footropes with heavy roller gear, bottom trawlers can access rocky habitat on the continental shelf. This is the preferred habitat for some overfished species.)

Beginning in 2002, time/area closures known as Groundfish Conservation Areas (GCAs) came into use as a way of decreasing bycatch of overfished species. GCAs enclose depth ranges where bycatch of overfished species is most likely to occur, based on information retrieved from logbooks and the at-sea observer program. The boundaries vary by season and fishery sector, and may be modified in response to new information about the geographic and seasonal distribution of bycatch.

As noted, a large proportion of bocaccio catch occurs in recreational fisheries in Central and Southern California. Recreational depth closures, restricting fishing to shallow waters, bag limits, and seasonal closures have been used to reduce recreational bocaccio catches.

The Council's rebuilding measures for 2007-2008, adopted at the same time as the Council's adoption of Amendment 16-4, continue the Council's strategy of constraining bocaccio total mortality by restricting

fishing on co-occurring healthy stocks, particularly chilipepper rockfish, and preventing fishing in areas where bocaccio may be taken incidentally.

~~1.3.2.2 Canary Rockfish~~

~~**Status of the Canary Rockfish Stock and Fisheries Affected by Stock Rebuilding Measures at the Time of the Council's Rebuilding Plan Adoption (June 2003)**~~

~~Canary rockfish exploitation began in the early 1940s when World War II increased demand for protein (Alverson, *et al*. 1964; Browning 1980). Through this decade the trawl fishery expanded in Oregon and Washington, accounting for most of the canary rockfish catch; in California, longlines were mainly used to target rockfish during this period. Other gear historically used to catch canary rockfish include hook and line (primarily vertical longline), shrimp trawls, and pots and traps. From 1966 until 1976, foreign trawlers were responsible for most of the harvest. After passage of the Magnuson Act in 1977 domestic vessels became the dominant harvesters of this species. In recent years, canary rockfish have become an important recreational target north of Cape Mendocino.~~

~~Overfishing, or exceeding the MFMT, was detected by a 1994 stock assessments and subsequent update (Sampson 1996; Sampson and Stewart 1994). In both cases the harvest rate exceeded the $F_{20\%}$ threshold. In 1999, two age-based stock assessments showed that the stock was overfished in a northern area comprising the Columbia and U.S. Vancouver management zones (Crone, *et al*. 1999) and in a southern area comprising Conception, Monterey, and Eureka management zones (Williams, *et al*. 1999). Based on these assessments, the stock was declared overfished in January 2000.~~

~~The first rebuilding analysis (Methot 2000a) used results from the northern area assessment to project rates of potential stock recovery. The stock was found to have extremely low productivity, defined as production of recruits in excess of the level necessary to maintain the stock at its current low level. According to the analysis, rates of recovery are highly dependent on the level of recent recruitment, which could not be estimated with high certainty.~~

~~A subsequent assessment (Methot and Piner 2002c) treated the stock as a single coastwide unit (covering the area from the Monterey zone through the U.S. Vancouver zone). This differed from past assessments, where northern and southern areas were treated separately. The lack of older, mature females in surveys and other assessment indices was another consideration in this assessment. Older females may simply have a higher natural mortality rate, or survey and fishing gear may be less effective at catching them. If these fish are in fact un-sampled, productivity estimates should be higher because older, larger fish are more fecund. Methot and Piner (Methot and Piner 2002c) combined these two hypotheses in a single age-structured version of the SSC endorsed stock synthesis assessment model (Methot 2000b). They estimated the 2002 abundance of canary rockfish coastwide was about 8 percent of B_0.~~

~~The canary rockfish rebuilding plan was adopted by the Council at its June 2003 meeting and is based on a 2002 rebuilding analysis (Methot and Piner 2002a). The 2002 rebuilding analysis updated the first rebuilding analysis for canary rockfish, completed in 2000, using information from the aforementioned stock assessment. The Council's rebuilding strategy, when combined with the results of this rebuilding analysis, required a substantial reduction in the OY for 2003. As a result, fisheries must be managed for canary rockfish bycatch, often limiting the amount of target species that may be harvested.~~

~~Amendment 16-4, adopted by the Council at its June 2006 meeting, revised the rebuilding parameters for canary rockfish, as listed in Table F-3. These values are based on a rebuilding analysis conducted by Methot (2006) which had determined that the canary rockfish stock was at 9.4 percent of its unfished level in 2005.~~

Canary rockfish are encountered in a relatively wide variety of both commercial and recreational fisheries. However, LE trawlers targeting flatfish and arrowtooth flounder account for a large proportion of the landed catch, mainly north of Cape Mendocino. Much smaller amounts are caught in the whiting and DTS LE trawl fisheries, and by fixed gear vessels targeting groundfish on the continental shelf. Charter vessels account for most of recreationally-caught canary rockfish, mainly off of Northern California and Oregon.

Methods Used to Calculate Stock Rebuilding Parameters

The methods used in the rebuilding analysis (Methot and Piner 2002a) upon which the original rebuilding plan was based, and those used for the rebuilding plan revision under Amendment 16-4 (Methot and Stewart 2006), do not differ substantially from the approach described in Section 4.6.2.

Rebuilding Parameter Values at the Time of Rebuilding Plan Adoption

Table F-2 lists the numerical values for B_0, B_{MSY}, T_{MIN}, T_{MAX}, P_{MAX}, T_{TARGET} and F. The values of B_0, B_{MSY}, T_{MIN}, and T_{MAX} are derived from the rebuilding analysis used in formulating the rebuilding plan (Methot and Piner 2002a). The Council chose a value of 60 percent for P_{MAX}, based on a harvest control rule of F = 0.022. This results in a target year of 2074.

Rebuilding Parameter Values from the Amendment 16-4 Rebuilding Plan Update

Table F-3 lists the numerical values for B_0, B_{MSY}, T_{MIN}, T_{MAX}, $T_{F=0}$, P_{MAX}, T_{TARGET} and an SPR harvest rate. The values of B_0, B_{MSY}, T_{MIN}, $T_{F=0}$, and T_{MAX} are derived from the rebuilding analysis used in formulating the rebuilding plan (Methot and Stewart 2006). The Council chose a target rebuilding year of 2063.

Canary Rockfish Fishing Communities

Amendment 16-4 revised the Council's approach to rebuilding plans, requiring an analysis of the needs of fishing communities in relation to overfished species rebuilding times, in addition to the traditional analysis of rebuilding times in relation to the status and biology of the stock. For Amendment 16-4 and the 2007-2008 fisheries, fishing community needs are described and analyzed in an EIS (PFMC 2006). Chapter 7 of that EIS discusses the communities that make up the socio-economic environment of the Pacific Coast groundfish fisheries. In general, canary rockfish is a continental shelf species that is taken coastwide in all of the groundfish fisheries, commercial and recreational, as well as in many commercial and recreational fisheries targeting species other than groundfish. All groundfish fishing communities and many non-groundfish fishing communities off the U.S. west coast are affected by canary rockfish rebuilding measures.

Canary Rockfish Rebuilding Strategy

As shown in Table F-2, at the inception of the rebuilding plan the harvest control rule for canary rockfish was a fishing mortality rate of 0.022. Based on the 2002 canary rockfish rebuilding analysis (Methot and Piner 2002a), this harvest rate is likely to rebuild the stock by the target year of 2074. This value is likely to change over time as stock size and structure changes. Any updated value will be published in Federal groundfish regulations. The fishing mortality rate is applied to the exploitable biomass estimate to determine the OY for a given fishing period.

Management measures are implemented through the biennial harvest specification and management process described in Chapter 5. The types of management measures that may be implemented through this process are described in Chapter 6. In 2003, at the time of rebuilding plan adoption, measures intended to limit bycatch of overfished species included prohibiting retention of certain overfished species during some parts of the year, reducing landing limits (cumulative trip limits) on co-occurring species, establishing

~~extensive time/area closures, and restricting the use of trawl nets equipped with large footropes. (By using large footropes with heavy roller gear, bottom trawlers can access rocky habitat on the continental shelf. This is the preferred habitat for some overfished species.)~~

~~Beginning in 2002 time/area closures, referred to as GCAs, came into use as a way of decreasing bycatch of overfished species. GCAs enclose depth ranges where bycatch of overfished species is most likely to occur, based on information retrieved from log books and the at-sea observer program. The boundaries vary by season and fishery sector, and may be modified in response to new information about the geographic and seasonal distribution of bycatch.~~

~~Canary rockfish prefer rocky areas on the continental shelf, so management measures in use at the time of rebuilding plan adoption were intended to discourage fishing in these areas. Under the regulations in place during 2003, bottom trawling is prohibited in the GCA, which encompasses depth ranges where canary rockfish are most frequently caught. In addition, the aforementioned restrictions on the use of trawl nets equipped with large footropes discourage fishing in the rocky habitat preferred by this species. In areas shoreward of the GCA, large footrope gear is prohibited, preventing trawlers from assessing rocky habitat in these shallower depths. In areas deeper than the GCA, either small or large footrope gear may be used, although large footrope gear is the preferred type in these depths. In addition, cumulative trip limits are structured to encourage vessels to fish exclusively in deep water where canary rockfish (as well as some other overfished species) are not encountered. Vessels are allowed to use all gear configurations during any given cumulative limit period (currently two months). However, vessels which use the small footrope configuration are restricted to lower cumulative trip limits than vessels using large footrope configurations. Since the large footrope configuration may only be used offshore of the GCA, these measures encourage fishing exclusively in deeper water to take advantage of the higher limits afforded this gear type.~~

~~Recreational fisheries are managed mainly through bag limits, size limits, and fishing seasons established for each west coast state. Bag and size limits have been established for canary rockfish. In addition, managers have the option of closing areas to recreational fishing if needed to prevent the canary rockfish OY from being exceeded.~~

~~The Council's rebuilding measures for 2007-2008, adopted at the same time as the Council's adoption of Amendment 16-4, continue the Council's strategy of constraining canary rockfish total mortality by restricting fishing on co-occurring healthy stocks and preventing fishing in areas where canary rockfish may be taken incidentally. Additionally, the Council has adopted a requirement that trawl vessels operating north of 40°10' N. latitude use selective flatfish trawl gear when operating in nearshore waters, a gear that minimizes rockfish bycatch during flatfish trawl fishing. The Council has also adopted canary rockfish bycatch limits for the Pacific whiting fishery, which has some canary rockfish incidental catch.~~

~~1.3.2.3~~1.3.2.2 Cowcod

Status of the Cowcod and Fisheries Affected by Stock Rebuilding Measures at the Time of Rebuilding Plan Adoption (April 2004)

Relatively little is known about cowcod, a species of large rockfish that ranges from Ranger Bank and Guadalupe Island in central Baja California to Usal, Mendocino County, California (Miller and Lea 1972), and may infrequently occur as far north as Newport, Oregon. Cowcod have been assessed only once (Butler, *et al.* 1999). Adult cowcod are primarily found over high relief rocky areas (Allen 1982). They are generally solitary, but occasionally aggregate (Love, *et al.* 1990).

While cowcod are not a major component of the groundfish fishery, they are highly desired by both recreational and commercial fishers because of their bright color and large size. In recent years small

amounts have been caught by LE trawl vessels and recreational anglers in Southern California. The cowcod stock south of Cape Mendocino has experienced a long-term decline. The cowcod stock in the Conception area was assessed in 1998 (Butler, *et al.* 1999). Abundance indices decreased approximately tenfold between the 1960s and the 1990s, based on commercial passenger fishing vessel logs (Butler, *et al.* 1999). Recreational and commercial catch also declined substantially from peaks in the 1970s and 1980s, respectively.

B_0 was estimated to be 3,370 mt, and 1998 spawning biomass was estimated at 7 percent of B_0, well below the 25 percent overfishing threshold. As a result, NMFS declared cowcod in the Conception and Monterey management areas overfished in January 2000. Large areas off Southern California (the Cowcod Conservation Areas [CCAs]) have been closed to fishing for cowcod. The stock's low productivity and declined spawning biomass also necessitates an extended rebuilding period, estimated at 62 years with no fishing-related mortality (T_{MIN}), to achieve a 1,350 mt B_{MSY} for the Conception management area.

There is relatively little information about the cowcod stock, and there are major uncertainties in the one assessment that has been conducted. The assessment authors needed to make estimates of early landings based on more recent data and reported total landings of rockfish. Age and size composition of catches are poorly sampled, population structure is unknown, and the assessment was restricted to Southern California waters.

A cowcod rebuilding review was completed in 2003, which validated the assumption that non-retention regulations and area closures have been effective in constraining cowcod fishing mortality (Butler, *et al.* 2003). These results, although encouraging, are based on cowcod fishery-related removals from catch per fishing vessel observations and angler-reported discards. Non-retention regulations and limited observation data have increased the need for fishery independent population indices.

The Council adopted a rebuilding plan for cowcod at its April 2004 meeting, as described by the parameter values listed in Table F-2. These values are based on a rebuilding analysis conducted by Butler and Barnes (Butler and Barnes 2000).

Amendment 16-4, adopted by the Council at its June 2006 meeting, revised the rebuilding parameters for cowcod, as listed in Table F-3. These values are based on a rebuilding analysis conducted by Piner (2006) which had determined that the cowcod stock was between 14 percent and 21 percent of its unfished level in 2005.

Methods Used to Calculate Stock Rebuilding Parameters

The Cowcod rebuilding analysis (Butler and Barnes 2000) was completed before the SSC default rebuilding analysis methodology (Punt 2002), described in Section 4.6.2, had been developed. Instead, it uses a surplus production model using a log-normal distribution fitted to recruitment during 1951-1998. At the time of rebuilding plan adoption (2004) a new cowcod stock assessment and rebuilding analysis had not been completed. In April 2004 the SSC recommended that future cowcod stock assessments use a model whose output can be used in the default rebuilding analysis methodology.

The methods in the rebuilding analysis (Piner 2006) used to develop the revised cowcod rebuilding plan under Amendment 16-4 do not differ substantially from the approach described in Section 4.6.2.

Rebuilding Parameter Values at the Time of Rebuilding Plan Adoption

Table F-2 lists the numerical values for B_0, B_{MSY}, T_{MIN}, T_{MAX}, P_{MAX}, T_{TARGET} and F. The values of B_0, B_{MSY}, T_{MIN}, and T_{MAX} are derived from the rebuilding analysis (Butler and Barnes 2000) used in formulating the

rebuilding plan. The Council chose a value of 60 percent for P_{MAX}, based on a harvest control rule of F = 0.009. This results in a target year of 2090.

Rebuilding Parameter Values from the Amendment 16-4 Rebuilding Plan Update

Table F-3 lists the numerical values for B_0, B_{MSY}, T_{MIN}, T_{MAX}, $T_{F=0}$, P_{MAX}, T_{TARGET} and an SPR harvest rate. The values of B_0, B_{MSY}, T_{MIN}, $T_{F=0}$, and T_{MAX} are derived from the rebuilding analysis used in formulating the rebuilding plan (Piner 2006). The Council chose a target rebuilding year of 2039.

Cowcod Fishing Communities

Amendment 16-4 revised the Council's approach to rebuilding plans, requiring an analysis of the needs of fishing communities in relation to overfished species rebuilding times, in addition to the traditional analysis of rebuilding times in relation to the status and biology of the stock. For Amendment 16-4 and the 2007-2008 fisheries, fishing community needs are described and analyzed in an EIS (PFMC 2006). Chapter 7 of that EIS discusses the communities that make up the socio-economic environment of the Pacific Coast groundfish fisheries. In general, cowcod is a sedentary and site-loyal continental shelf species that is most frequently taken off southern California in commercial non-trawl and recreational fisheries. All groundfish fishing communities off the southern U.S. west coast are affected by cowcod rebuilding measures.

Cowcod Rebuilding Strategy

As shown in Table F-2, at the inception of the rebuilding plan the harvest control rule for cowcod was a fishing mortality rate of 0.009. Based on the 2000 cowcod rebuilding analysis (Butler and Barnes 2000), this harvest rate is likely to rebuild the stock by the target year of 2090. This value is likely to change over time as stock size and structure changes. Any updated value will be published in Federal groundfish regulations. The fishing mortality rate is applied to the exploitable biomass estimate to determine the OY for a given fishing period.

Management measures are implemented through the biennial harvest specification and management process described in Chapter 5. The types of management measures that may be implemented through this process are described in Chapter 6. In 2004, at the time of rebuilding plan adoption, measures intended to limit bycatch of overfished species included prohibiting retention of certain overfished species during some parts of the year, reducing landing limits (cumulative trip limits) on co-occurring species, establishing extensive time/area closures, and restricting the use of trawl nets equipped with large footropes. (By using large footropes with heavy roller gear, bottom trawlers can access rocky habitat on the continental shelf. This is the preferred habitat for some overfished species.)

Beginning in 2002, time/area closures known as GCAs came into use as a way of decreasing bycatch of overfished species. GCAs enclose depth ranges where bycatch of overfished species is most likely to occur, based on information retrieved from logbooks and the at-sea observer program. The boundaries vary by season and fishery sector, and may be modified in response to new information about the geographic and seasonal distribution of bycatch.

Because cowcod is a fairly sedentary species, establishment of a marine protected area, considered one of the GCAs, is the key strategy for limiting cowcod fishing mortality. The CCAs in the Southern California Bight encompass two areas of greatest cowcod density, as estimated in 2000, based on historical cowcod catch and catch rates in commercial and recreational fisheries. To aid in enforcement, the CCAs are bounded by straight lines enclosing simple polygons. Butler, et al. (Butler, *et al.* 2003) concluded that the CCAs have been effective in reducing bycatch to levels projected to allow stock rebuilding. Estimated fishery removals have been at levels sufficient to rebuild the stock, since the CCAs were implemented,

except in 2001 when 5.6 mt was caught in the Conception management area. Most of this catch occurred in the spot prawn trawl fishery, which subsequently has been phased out.

Given the particular life history characteristics of cowcod, the Council will continue to use species-specific area closures to protect cowcod. As new information becomes available on cowcod behavior and fisheries interactions with cowcod, the boundaries or related regulations concerning the current CCAs may change, and additional CCAs may be established by regulation.

The Council's rebuilding measures for 2007-2008, adopted at the same time as the Council's adoption of Amendment 16-4, continue the Council's strategy of constraining cowcod total mortality by restricting or eliminating fishing in areas where cowcod commonly occur and may be taken incidentally.

~~1.3.2.4~~1.3.2.3 Darkblotched Rockfish

Status of the Darkblotched Stock and Fisheries Affected by Stock Rebuilding Measures at the Time of the Council's Rebuilding Plan Adoption (June 2003)

Historically, darkblotched rockfish were managed as part of a coastwide Sebastes complex, which was later segregated into north and south management units divided at 40º30' N. latitude. As a result, fishery-dependent data from this period are generally unavailable. The first darkblotched rockfish stock assessment estimated the proxy MSY harvest rate and overfishing rate for the stock (Lenarz 1993).

Rogers et al. (Rogers, *et al.* 2000) assessed darkblotched stock status in 2000 and determined the stock was at 14 percent to 31 percent of its unfished level. This range in biomass estimates encompasses the MSST threshold of 25 percent; uncertainty in past catches by foreign vessels, which targeted Pacific ocean perch and also caught darkblotched rockfish, was the most important contributor to this wide range for the biomass estimate. A larger unfished biomass (B_0) is computed using larger historic catch estimates. Since the MSST is expressed as a percent of unfished biomass, a larger B_0 increases the absolute value of this threshold, making an overfished determination more likely. Without definitive information on foreign catches, managers assumed darkblotched comprised 10 percent of this catch, leading to the conclusion that the spawning stock biomass was 22 percent of its unfished level. Because this is below the MSST, the stock was declared overfished in 2000.

The Council adopted a rebuilding plan for darkblotched rockfish at its June 2003 meeting, as described by the parameter values listed in Table F-2. These values are based on a rebuilding analysis conducted by Methot and Rogers (Methot and Rogers 2001).

Darkblotched rockfish occur on the outer continental shelf and continental slope, mainly north of Point Reyes. Because of this distribution, they are caught exclusively by commercial vessels. Most landings have been made by bottom trawl vessels targeting flatfish on the continental shelf, rockfish on the continental slope, and the Dover sole-thornyhead-sablefish complex, also on the slope.

Methods Used to Calculate Stock Rebuilding Parameters

The methods used in the rebuilding analysis (2001) upon which the original rebuilding plan was based, and those used for the rebuilding plan revision under Amendment 16-4 (2006), do not differ substantially from the approach described in Section 4.6.2.

Rebuilding Parameter Values at the Time of Rebuilding Plan Adoption

Table F-2 lists the numerical values for B_0, B_{MSY}, T_{MIN}, T_{MAX}, P_{MAX}, T_{TARGET} and F. The values of B_0, B_{MSY},

T_{MIN}, and T_{MAX} are derived from the rebuilding analysis used in formulating the rebuilding plan (Methot and Rogers 2001). The Council chose a value of 80 percent for P_{MAX}, based on a harvest control rule of F = 0.027. This results in a target year of 2030.

Rebuilding Parameter Values from the Amendment 16-4 Rebuilding Plan Update

Table F-3 lists the numerical values for B_0, B_{MSY}, T_{MIN}, T_{MAX}, $T_{F=0}$, P_{MAX}, T_{TARGET} and an SPR harvest rate. The values of B_0, B_{MSY}, T_{MIN}, $T_{F=0}$, and T_{MAX} are derived from the rebuilding analysis used in formulating the rebuilding plan (Rogers 2006). The Council chose a target rebuilding year of 2011.

Darkblotched Rockfish Fishing Communities

Amendment 16-4 revised the Council's approach to rebuilding plans, requiring an analysis of the needs of fishing communities in relation to overfished species rebuilding times, in addition to the traditional analysis of rebuilding times in relation to the status and biology of the stock. For Amendment 16-4 and the 2007-2008 fisheries, fishing community needs are described and analyzed in an EIS (PFMC 2006). Chapter 7 of that EIS discusses the communities that make up the socio-economic environment of the Pacific Coast groundfish fisheries. In general, darkblotched rockfish is a continental slope species that is most frequently taken in the commercial trawl fisheries north of 38° N. latitude. Fishing communities that participate in the slope trawl fisheries of the northern U.S. west coast are most strongly affected by darkblotched rebuilding measures.

Darkblotched Rockfish Rebuilding Strategy

As shown in Table F-2, at the inception of the rebuilding plan the harvest control rule for darkblotched rockfish was a fishing mortality rate of 0.027. Based on the 2001 rebuilding analysis, this harvest rate is likely to rebuild the stock by the target year of 2030. This value is likely to change over time as stock size and structure changes. Any updated value will be published in Federal groundfish regulations. The fishing mortality rate is applied to the exploitable biomass estimate to determine the OY for a given fishing period.

Management measures are implemented through the biennial harvest specification and management process described in Chapter 5. The types of management measures that may be implemented through this process are described in Chapter 6. In 2003, at the time of rebuilding plan adoption, measures intended to limit bycatch of overfished species included prohibiting retention of certain overfished species during some parts of the year, reducing landing limits (cumulative trip limits) on co-occurring species, establishing extensive time/area closures, and restricting the use of trawl nets equipped with large footropes. (By using large footropes with heavy roller gear, bottom trawlers can access rocky habitat on the continental shelf. This is the preferred habitat for some overfished species.)

Beginning in 2002, time/area closures, referred to as GCAs, came into use as a way of decreasing bycatch of overfished species. GCAs enclose depth ranges where bycatch of overfished species is most likely to occur, based on information retrieved from log books and the at-sea observer program. The boundaries vary by season and fishery sector, and may be modified in response to new information about the geographic and seasonal distribution of bycatch.

To limit darkblotched rockfish bycatch, an outer boundary of the GCA was set to move fishing activity into deeper water, away from the depth range of higher abundance for this species. In 2003 this outer boundary was modified during the winter months to allow targeting of petrale sole and other flatfish in shallower depths while still minimizing bycatch. The cumulative trip limits for minor slope rockfish north of Cape Mendocino, the species complex that darkblotched rockfish are managed under, and for splitnose rockfish, a co-occurring target species, were also lowered. Trip limits for other target species also may be adjusted

to reduce darkblotched rockfish bycatch.

The Council's rebuilding measures for 2007-2008, adopted at the same time as the Council's adoption of Amendment 16-4, continue the Council's strategy of constraining darkblotched rockfish total mortality by restricting fishing on co-occurring healthy stocks and preventing fishing in areas where darkblotched rockfish may be taken incidentally. Additionally, the Council has adopted darkblotched rockfish bycatch limits for the Pacific whiting fishery, which has some darkblotched rockfish incidental catch.

~~1.3.2.5~~1.3.2.4 Pacific Ocean Perch

Status of the Pacific Ocean Perch Stock and Fisheries Affected by Stock Rebuilding Measures at the Time of the Council's Rebuilding Plan Adoption (June 2003)

Pacific ocean perch (POP) were targeted by Soviet and Japanese factory trawlers between 1965 and 1975. Their large catches during this period substantially contributed to a decline in the west coast stock. In 1981, just before this FMP was implemented, the Council declared the POP stock depleted and recommended conservative harvest policies. Although management measures discouraged targeting POP while allowing continued fishing of other species, the stock did not recover, and the Council recommended still more restrictive measures. A 1998 stock assessment (Ianelli and Zimmerman 1998) estimated POP biomass was 13 percent of the unfished level, leading NMFS to declare the stock overfished in 1999.

The Council adopted a rebuilding plan for POP at its June 2003 meeting, as described by the parameter values listed in Table F-2. These values are based on a 2000 stock assessment (Ianelli, *et al.* 2000) and subsequent rebuilding analysis (Punt and Ianelli 2001). A retrospective analysis of foreign fleet catches, underway at the time of rebuilding plan adoption, may change the rebuilding period estimates on which the rebuilding plan is based.

Amendment 16-4, adopted by the Council at its June 2006 meeting, revised the rebuilding parameters for POP, as listed in Table F-3. These values are based on a rebuilding analysis conducted by Hamel (2006), which had determined that the POP stock was at 23.4 percent of its unfished level in 2005.

POP tend to occur at similar depths as darkblotched rockfish, although they have a more northerly geographic distribution. As a result, POP are caught in similar fisheries as darkblotched rockfish, but only north of Cape Mendocino. At the time the rebuilding plan was adopted, LE trawl vessels targeting flatfish, including petrale sole and arrowtooth flounder, accounted for more than 90 percent of all POP landings. POP are not an important component of the recreational fishery.

Methods Used to Calculate Stock Rebuilding Parameters

The methods in the rebuilding analysis (Punt and Ianelli 2001) upon which the original rebuilding plan was based, and those used for the rebuilding plan revision under Amendment 16-4 (Hamel 2006), do not differ substantially from the approach described in Section 4.6.2.

Rebuilding Parameter Values at the Time of Rebuilding Plan Adoption

Table F-2 lists the numerical values for B_0, B_{MSY}, T_{MIN}, T_{MAX}, P_{MAX}, T_{TARGET} and F. The values of B_0, B_{MSY}, T_{MIN}, and T_{MAX} are derived from the rebuilding analysis used in formulating the rebuilding plan (Punt and Ianelli 2001). The Council chose a value of 70 percent for P_{MAX}, based on a harvest control rule of F = 0.0082. This results in a target year of 2027.

Rebuilding Parameter Values from the Amendment 16-4 Rebuilding Plan Update

Table F-3 lists the numerical values for B_0, B_{MSY}, T_{MIN}, T_{MAX}, $T_{F=0}$, P_{MAX}, T_{TARGET} and an SPR harvest rate. The values of B_0, B_{MSY}, T_{MIN}, $T_{F=0}$, and T_{MAX} are derived from the rebuilding analysis used in formulating the rebuilding plan (Hamel 2006). The Council chose a target rebuilding year of 2017.

Pacific Ocean Perch Fishing Communities

Amendment 16-4 revised the Council's approach to rebuilding plans, requiring an analysis of the needs of fishing communities in relation to overfished species rebuilding times, in addition to the traditional analysis of rebuilding times in relation to the status and biology of the stock. For Amendment 16-4 and the 2007-2008 fisheries, fishing community needs are described and analyzed in an EIS (PFMC 2006). Chapter 7 of that EIS discusses the communities that make up the socio-economic environment of the Pacific Coast groundfish fisheries. In general, POP is a continental slope species that is most frequently taken in the commercial trawl fisheries north of 40° 10' N. latitude. Fishing communities that participate in the slope trawl fisheries of the northern U.S. west coast are most strongly affected by POP rebuilding measures.

Pacific Ocean Perch Rebuilding Strategy

As shown in Table F-2, at the inception of the rebuilding plan the harvest control rule for POP was a fishing mortality rate of 0.0082. Based on the 2001 POP rebuilding analysis (Punt and Ianelli 2001), this harvest rate is likely to rebuild the stock by the target year of 2027. This value is likely to change over time as stock size and structure changes. Any updated value will be published in Federal groundfish regulations. The fishing mortality rate is applied to the exploitable biomass estimate to determine the OY for a given fishing period.

Management measures are implemented through the biennial harvest specification and management process described in Chapter 5. The types of management measures that may be implemented through this process are described in Chapter 6. In 2003, at the time of rebuilding plan adoption, measures intended to limit bycatch of overfished species included prohibiting retention of certain overfished species during some parts of the year, reducing landing limits (cumulative trip limits) on co-occurring species, establishing extensive time/area closures, and restricting the use of trawl nets equipped with large footropes. (By using large footropes with heavy roller gear, bottom trawlers can access rocky habitat on the continental shelf. This is the preferred habitat for some overfished species.)

Beginning in 2002 time/area closures, referred to as GCAs, came into use as a way of decreasing bycatch of overfished species. GCAs enclose depth ranges where bycatch of overfished species is most likely to occur, based on information retrieved from log books and the at-sea observer program. The boundaries vary by season and fishery sector, and may be modified in response to new information about the geographic and seasonal distribution of bycatch.

Because POP tend to co-occur with darkblotched rockfish, management measures applicable to that species also serve to constrain catches of POP. These measures include configuring the outer boundary of the GCA so that vessels fish in deeper water, where POP are less abundant. A cumulative trip limit, which represents the maximum amount of an identified species or species group that may be landed within the cumulative limit period (in 2003, two months) is also established for this species. Trip limits for overfished species are intended to discourage targeting on them while permitting any incidental catch to be landed. (Bycatch discarded at sea is more difficult to monitor.) As with darkblotched rockfish, trip limits for target species also may be adjusted in order to minimize bycatch of overfished species.

The Council's rebuilding measures for 2007-2008, adopted at the same time as the Council's adoption of

Amendment 16-4, continue the Council's strategy of constraining POP total mortality by restricting fishing on co-occurring healthy stocks and preventing fishing in areas where POP may be taken incidentally.

~~1.3.2.6 Petrale Sole~~

~~**Status of the Petrale Sole Stock and Fisheries Affected by Stock Rebuilding Measures at the Time of Rebuilding Plan Adoption (June 2010)**~~

~~A new petrale sole (*Eopsetta jordani*) assessment was done in 2009 (Haltuch and Hicks 2009b), which indicated that the coastwide stock had declined to an overfished status at 11.6 percent of unfished biomass. Past assessments (Demory 1984; Sampson and Lee 1999; Turnock, *et al.* 1993) considered petrale sole in the Columbia and U.S. Vancouver INPFC areas a single stock. Sampson and Lee (1999) assumed that petrale sole in the Eureka and Monterey INPFC areas represented two additional distinct stocks. The more recent 2005 petrale sole assessment (Lai, *et al.* 2006) assumed two stocks, northern (U.S. Vancouver and Columbia INPFC areas) and southern (Eureka, Monterey and Conception INPFC areas), to maintain continuity with previous assessments. Lai et al. (2006) estimated the relative depletion of the northern and southern stocks to be $B_{34\%}$ and $B_{29\%}$, respectively. The 2005 assessment introduced a significant amount of reconstructed historical catch extending the catch history back to 1876, which increased the estimate of unfished biomass and lowered the relative depletion of the stock.~~

~~The most significant change in the 2009 assessment was that a single coastwide model was used, rather than independent assessments of northern and southern components of the stock. Other changes included incorporation of discard data in the model, addressing problems with petrale sole age data and ageing error information, and estimation of different natural mortality rates for females and males. Despite these changes, the new assessment estimates of stock size and trend are highly consistent with the previous assessment. The most notable exception is that the previous assessment showed a strong increase in stock size in the last years of the assessment. The current assessment now shows a recent decline in stock size that is driven by four consecutive years of decline in the NWFSC trawl survey index since 2005.~~

~~The 2009 assessment indicates that, according to the No Action proxy reference points, fishing mortality on petrale sole has continually exceeded the target of $F_{40\%}$ since the 1940s, and that the stock has been below the $B_{25\%}$ overfished threshold since 1953. These results are to a large degree driven by two basic pieces of information: 1) the high landings of petrale sole during the 1940s and 1950s, and 2) age and size composition data that are consistent with a high exploitation rate (e.g., the recent age composition data show that very few old fish are present in the population).~~

~~The SSC was concerned that certain assessment results were so extreme that the overall plausibility of the assessment was called into question. Attention focused primarily on the estimated catchability of the NWFSC survey, the estimate of stock-recruit steepness (0.95), and confounding of estimated model parameters. The assessment used two indices of abundance, the National Marine Fisheries Science Alaska Fisheries Science Center (AFSC) triennial survey from 1980 to 2004, and NWFSC survey from 2003 to 2008. The estimated catchability of the AFSC survey was 0.52 and 0.72 for early and late periods, while the estimated catchability of the NWFSC survey was 3.07. A catchability of 1.0 would imply that the survey net captured all the fish in front of the net and that fish density is the same in trawlable and untrawlable areas. Catchability greater than 1.0 could be a result of two general processes: herding of fish into the net and lower densities of fish in untrawlable areas. Although it is reasonable to expect that these factors may be important for petrale sole, it is difficult to reconcile a catchability of 3.07 with the likely magnitude of these factors inferred from studies of flatfish herding by research trawls in other areas, and initial estimates of trawlable and untrawlable areas off the west coast.~~

~~The SSC developed a list of analytical requests for the Council's petrale sole stock assessment team (STAT)~~

to address. The SSC's groundfish subcommittee and the STAT reviewed the model and proxies of $F_{40\%}$ and $B_{40\%}$. After further consideration by the SSC's groundfish subcommittee, the full SSC endorsed the petrale sole stock assessment model approved by the Council's STAR Panel, and recommended that proxies of $B_{25\%}$ for B_{MSY} and $F_{30\%}$ for F_{MSY} be established for all assessed flatfish species.

The SSC agreed that the base petrale sole model represents the best available scientific information, and endorsed its use for status determination and management in the Council process. The SSC concluded that there is no basis for rejecting the assessment based on the estimated catchability coefficient (q) for NWFSC trawl survey. However the SSC encouraged further investigation of the catchability coefficient of the survey by experimental evaluation of trawl performance, quantification of trawlable and untrawlable habitat off the west coast, or by synthesis of available information and expert knowledge through development of an informative prior, as had been anticipated from the 2008 survey catchability workshop. The SSC also endorsed further evaluation of fishery CPUE data in the next petrale sole assessment.

A rebuilding plan for petrale sole was adopted under Amendment 16-5 (also referred to as Secretarial Amendment 1[1]) in 2010. The new rebuilding plan specified a target rebuilding year of 2016, or two years longer than T_{MIN} (Table F-1). The rebuilding strategy is to set the 2011 ACL equal to the ABC, and then assume a variable harvest rate strategy using the 25-5 ACL harvest control rule beginning in 2012.

Status Determination Criteria for Petrale Sole and Other Flatfish Species

The proxy status determination criteria (SDC) for petrale sole and other flatfish species were revised under Amendment 16-5. The default proxy F_{MSY} harvest rate of $F_{40\%}$; B_{MSY} target of $B_{40\%}$; and the minimum stock size threshold (MSST) of $B_{25\%}$; were revised to $F_{30\%}$, $B_{25\%}$, and $B_{12.5\%}$, respectively.

The SSC recommended a change in these SDC used to manage west coast flatfish species based on a meta-analysis of the relative productivity of assessed west coast flatfish species and other assessed *Pleuronectid* species internationally. Figure F-1 depicts the depletion of petrale sole from 1945 to present relative to the No Action and Preferred biomass reference points recommended by the SSC. The level of depletion estimated at the beginning of 2009 for the coastwide petrale sole stock is 11.6 percent of its unfished biomass, which is below the MSST under the SDC currently used to manage flatfish ($B_{25\%}$), as well as the new proposed MSST of $B_{12.5\%}$ for flatfish. Therefore, a new rebuilding plan for petrale sole was adopted under Amendment 16-5 which specified rebuilding to the new proxy B_{MSY} target of $B_{25\%}$ by 2016.

[1] The Council's preferred petrale sole rebuilding plan was part of Amendment 16-5, which also included modifications to rebuilding plans established for other species. The Secretary of Commerce disapproved the Council's preferred modifications to the cowcod and yelloweye rebuilding plans. The process required the Council to consider amending their preferred alternative for Amendment 16-5; however, when this decision was presented to the Council in June 2011 they declined to take action to better ensure new regulations would be implemented on time in 2012. Therefore, NMFS acted under their authority to pursue a Secretarial amendment, which required no further Council process, and hence referred to Amendment 16-5 as Secretarial Amendment 1.

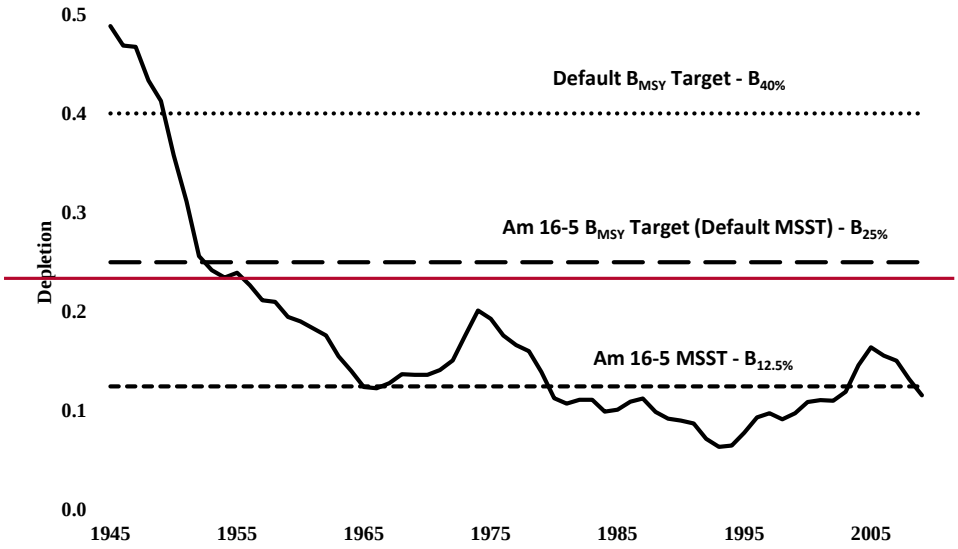

Figure F-1. Petrale sole depletion time series, 1945 - 2009, relative to default (i.e., previous to amendment) and Amendment 16-5 status determination criteria adopted for petrale sole and other assessed west coast flatfish species.

Methods Used to Calculate Stock Rebuilding Parameters

The methods used in the rebuilding analysis (Haltuch and Hicks 2009) upon which the rebuilding plan was based do not differ substantially from the approach described in Section 4.6.2. The new proxy F_{MSY} harvest rate $F_{30\%}$ was used to calculate the OFL and the new B_{MSY} target of $B_{25\%}$ was used in projecting future ACLs under the 25-5 rule.

Rebuilding Parameter Values at the Time of Rebuilding Plan Adoption under Amendment 16-5

The rebuilding parameters adopted under the Amendment 16-5 petrale sole rebuilding plan are shown in Table F-1. A target rebuilding year of 2016, which is two years longer than T_{MIN}, was adopted. The 2011 ACL was set equal to the ABC (decided using a P* of 0.45) and ACLs in 2012 and beyond are based on the 25-5 ACL harvest control rule.

Petrale Sole Fishing Communities

Coastwide U.S. west coast fishing communities dependent on the non-whiting groundfish trawl industry will be impacted by implementation of the Amendment 16-5 petrale sole rebuilding plan. Ports most dependent on the non-whiting groundfish trawl fishery are north of 40º10' N. latitude.

Petrale Sole Rebuilding Strategy

Petrale sole is one of the primary target stocks in the non-whiting trawl fishery and is predominantly caught

~~by that sector. No other sector currently targets petrale sole, although other sectors do incidentally catch petrale sole in relatively small amounts. For this reason, the Council chose to rebuild the petrale sole stock by constraining fishing opportunities for the non-whiting trawl sector and holding all other sectors harmless. This is analogous to the widow rockfish rebuilding strategy where the whiting sectors are constrained but all other sectors are not.~~

~~Petrale sole make seasonal inshore-offshore migrations and are targeted in bottom trawl efforts on the shelf in the summer and in spawning aggregations in discrete areas on the shelf/slope break in the winter. One strategy for faster rebuilding of petrale sole is closing the petrale sole fishing areas where they aggregate and spawn in the winter. The 200 fm seaward boundary line is modified in discrete areas to open the petrale sole fishing areas. The 2009 petrale assessment and rebuilding analysis indicate larger, more mature fish are caught by the offshore winter fleet. Reducing these fishing opportunities has been shown to rebuild the stock relatively faster than allowing the mix of summer and winter petrale fishing that has occurred prior to 2010. The high productivity exhibited by the petrale sole stock (steepness (h) is estimated to be 0.95) projects rapid rebuilding of petrale sole regardless of whether a winter fishing opportunity is allowed or not. Petrale are mixed on the shelf in the summer months with other flatfish species, all of which are targeted as a mixed assemblage. It appears it may be easier for the trawl fleet fishing offshore in the winter to avoid petrale while targeting other species such as the DTS (Dover sole/thornyheads, and sablefish) assemblage, than it is for the summer fleet when targeting flatfish and other species.~~

~~1.3.2.7~~1.3.2.5 Yelloweye Rockfish

Status of the Yelloweye Rockfish Stock and Fisheries Affected by Stock Rebuilding Measures at the Time of Rebuilding Plan Adoption (April 2004)

Yelloweye rockfish are common from Central California northward to the Gulf of Alaska. They are bottom-dwelling, generally solitary, rocky reef fish, found either on or just over reefs (Eschmeyer, *et al.* 1983; Love 1991; Miller and Lea 1972; O'Connell and 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 and 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 and Carlile 1993). Yelloweye rockfish are potentially caught in a range of both commercial and recreational fisheries. Because of their preference for rocky habitat, they are more vulnerable to hook-and-line gear.

The first ever yelloweye rockfish stock assessment was conducted in 2001 (Wallace 2002). This assessment incorporated two area assessments: one from Northern California using CPUE indices constructed from Marine Recreational Fisheries Statistical Survey (MRFSS) sample data and California Department of Fish and Game (CDFG) data collected onboard commercial passenger fishing vessels, and the other from Oregon using Oregon Department of Fish and Wildlife (ODFW) sampling data. The assessment concluded current yelloweye rockfish stock biomass is about 7 percent of unexploited biomass in Northern California and 13 percent of unexploited biomass in Oregon. The assessment revealed a 30-year declining biomass trend in both areas with the last above average recruitment occurring in the late 1980s. The assessment's conclusion that yelloweye rockfish biomass was well below the 25 percent of unexploited biomass threshold for overfished stocks led to this stock being separated from the rockfish complexes in which it was previously listed. Until 2002, when yelloweye rockfish were declared overfished, they were listed in the remaining rockfish complex on the shelf in the Vancouver, Columbia, and Eureka management areas and the "other rockfish" complex on the shelf in the Monterey and Conception areas. As with the other overfished stocks, yelloweye rockfish harvest is now tracked separately.

In June 2002 the SSC recommended that managers should conduct a new assessment incorporating Washington catch and age data. This recommendation was based on evidence that the biomass distribution

of yelloweye rockfish on the west coast was centered in waters off Washington and that useable data from Washington were available. Based on that testimony, the Council recommended completing a new assessment in the summer of 2002, before a final decision was made on 2003 management measures. Methot et al. (Methot and Piner 2002b) did the assessment, which was reviewed by a STAR Panel in August 2002. The assessment result was much more optimistic than the one prepared by Wallace (Wallace 2002), largely due to the incorporation of Washington fishery data. While the overfished status of the stock was confirmed (24 percent of unfished biomass), Methot et al. (Methot and Piner 2002b) provided evidence of higher stock productivity than originally assumed. The assessment also treated the stock as a coastwide assemblage. This assessment was reviewed and approved by the SSC and the Council at the September 2002 Council meeting. Methot and Piner (2002) prepared a rebuilding analysis based on this assessment.

The Council adopted a rebuilding plan for yelloweye rockfish at its April 2004 meeting, as described by the parameter values listed in Table F-2. These values are based on a rebuilding analysis conducted by Methot and Piner (Methot and Piner 2002a).

Amendment 16-4, adopted by the Council at its June 2006 meeting, revised the rebuilding parameters for yelloweye rockfish, as listed in Table F-3. These values are based on a rebuilding analysis conducted by Tsou and Wallace (2006) which had determined that the yelloweye rockfish stock was at 17.7 percent of its unfished level in 2006.

Because yelloweye rockfish prefer rocky reef habitat on the continental shelf, they are most vulnerable to recreational and commercial fixed gear fisheries. In the past, the groundfish trawl sector has accounted for a large proportion of the catch: from 1990 to 1997, trawlers took an average of 46 percent of the catch coastwide (although most catches occur in Washington and Oregon waters). (This discussion is based on data in the table on page 3 of Methot, *et al.* 2003). Trip limit reductions after 1997 and the imposition of restrictions on large footrope trawl gear in 2000 have substantially diminished the amount of yelloweye rockfish caught by the trawl sector. (Large footrope gear had made it possible for trawlers to access the rocky habitat where yelloweye live.) Trawl vessels accounted for only 14 percent of the catch on average from 1998 to 2001. Commercial fixed gear catches have also taken a significant share of the catch, 38 percent in the years 1990-1997. However, the implementation of the non-trawl RCA, which encloses much yelloweye habitat, has resulted in their share falling also. Open access directed groundfish fisheries and the Pacific halibut longline fleet also catch small amounts of yelloweye rockfish. Recreational catches have become more significant with the reduction in commercial catches. Comparing the 1990-1997 and 1998-2001 periods, their share of the total coastwide catch almost doubled to 30 percent, although actual average catches declined slightly. Most recreational catches occur in Washington State waters.

Methods Used to Calculate Stock Rebuilding Parameters

The methods used in the rebuilding analysis (Methot and Piner 2002a) upon which the original rebuilding plan was based, and those used for the rebuilding plan revision under Amendment 16-4 (Tsou and Wallace 2006), do not differ substantially from the approach described in Section 4.6.2.

Rebuilding Parameter Values at the Time of Rebuilding Plan Adoption

Table F-2 lists the numerical values for B_0, B_{MSY}, T_{MIN}, T_{MAX}, P_{MAX}, T_{TARGET}, and F. The values of B_0, B_{MSY}, T_{MIN}, and T_{MAX} are derived from the rebuilding analysis used in formulating the rebuilding plan (Methot and Piner 2002a). The Council chose a value of 80 percent for P_{MAX}, based on a harvest control rule of F = 0.0153. This results in a target year of 2058.

Rebuilding Parameter Values from the Amendment 16-4 Rebuilding Plan Update

Table F-3 lists the numerical values for B_0, B_{MSY}, T_{MIN}, T_{MAX}, $T_{F=0}$, P_{MAX}, T_{TARGET} and an SPR harvest rate. The values of B_0, B_{MSY}, T_{MIN}, $T_{F=0}$, and T_{MAX} are derived from the rebuilding analysis used in formulating the rebuilding plan (Tsou and Wallace 2006). The Council chose a target rebuilding year of 2084.

Yelloweye Rockfish Fishing Communities

Amendment 16-4 revised the Council's approach to rebuilding plans, requiring an analysis of the needs of fishing communities in relation to overfished species rebuilding times, in addition to the traditional analysis of rebuilding times in relation to the status and biology of the stock. For Amendment 16-4 and the 2007-2008 fisheries, fishing community needs are described and analyzed in an EIS (PFMC 2006). Chapter 7 of that EIS discusses the communities that make up the socio-economic environment of the Pacific Coast groundfish fisheries. In general, yelloweye rockfish is a site-loyal continental shelf species that is most frequently taken in recreational and commercial hook-and-line fisheries north of 40°10' N. latitude. Measures to rebuild yelloweye rockfish by eliminating its directed harvest and preventing its incidental catch affect all hook-and-line groundfish fishing off the northern U.S. west coast.

Yelloweye Rockfish Rebuilding Strategy

As shown in Table F-2, at the inception of the rebuilding plan the harvest control rule for canary rockfish was a fishing mortality rate of 0.0153. Based on the 2002 rebuilding analysis (Methot and Piner 2002), this harvest rate is likely to rebuild the stock by the target year of 2058. This value is likely to change over time as stock size and structure changes. Any updated value will be published in Federal groundfish regulations. The fishing mortality rate is applied to the exploitable biomass estimate to determine the OY for a given fishing period.

Management measures are implemented through the biennial harvest specification and management process described in Chapter 5. The types of management measures that may be implemented through this process are described in Chapter 6. In 2004, at the time of rebuilding plan adoption, measures intended to limit bycatch of overfished species included prohibiting retention of certain overfished species during some parts of the year, reducing landing limits (cumulative trip limits) on co-occurring species, establishing extensive time/area closures, and restricting the use of trawl nets equipped with large footropes. (By using large footropes with heavy roller gear, bottom trawlers can access rocky habitat on the continental shelf. This is the preferred habitat for some overfished species.)

Beginning in 2002, time/area closures known as GCAs came into use as a way of decreasing bycatch of overfished species. GCAs enclose depth ranges where bycatch of overfished species is most likely to occur, based on information retrieved from logbooks and the at-sea observer program. The boundaries vary by season and fishery sector, and may be modified in response to new information about the geographic and seasonal distribution of bycatch.

In addition to the more general measures described above, which are intended to reduce bycatch of all overfished species, the Yelloweye Rockfish Conservation Area (YRCA), a C-shaped closed area off the Washington coast, near Cape Flattery, prevents recreational groundfish and halibut anglers from targeting this species in an area where they are concentrated. Recreational bag and size limits are also used to manage total yelloweye rockfish fishing mortality.

Given the particular life history characteristics of yelloweye rockfish, the Council will continue to use a species-specific area closure or closures to protect yelloweye rockfish. As new information becomes available on yelloweye rockfish behavior and fisheries interactions with yelloweye rockfish, the boundaries

or related regulations concerning the current YRCA may change, and additional YRCAs may be established by regulation.

The Council's rebuilding measures for 2007-2008, adopted at the same time as the Council's adoption of Amendment 16-4, continue the Council's strategy of constraining yelloweye rockfish total mortality by restricting fishing on co-occurring healthy stocks and preventing fishing in areas where yelloweye rockfish may be taken incidentally. Additionally, the Council has adopted yelloweye rockfish rebuilding measures in the Pacific halibut fisheries and new YRCAs for the commercial groundfish and salmon fisheries operating off the northern U.S. west coast.

The Council recognized the need to restrict the fisheries based on the new yelloweye rockfish assessment, but also took into account the potentially widespread negative effects of an immediate reduction in OY and recommended an OY ramp-down strategy over a 5-year period (see the footnote to Table F-3). The ramp-down strategy provides time to collect much-needed additional data that could better inform new management measures for greater yelloweye rockfish protection, and reduces the immediate adverse impacts to fishing communities while altering the rebuilding period by less than one year.