

PACIFIC COAST GROUND FISH FISHERY MANAGEMENT PLAN

**FOR THE CALIFORNIA, OREGON, AND
WASHINGTON GROUND FISH FISHERY**

*In track changes format reflecting changes under Amendment 28 (EFH/RCA changes)
Text not specifically included in this transmittal draft are not proposed for changes*

June 2019 Secretarial Review Draft

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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. Re-designated 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.

Current Chapters	Previous Chapters (July 1993 Version)	Summary of Amendment Changes
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 , and 28.) <u>Chapter 6 changed to reflect Amendment 28: 1) Elimination of the trawl RCA off Oregon and California, 2) changed configuration of EFH closed areas, and 3) Closure to bottom contact fishing deeper than 3500m.</u>
	Chapter 7 Experimental Fisheries	Renumbered Chapter 8
	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. <u>Updated to reflect new EFH conservation area configuration under Amendment 28, and to remove review/revision process from FMP text.</u>
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

Current Chapters	Previous Chapters (July 1993 Version)	Summary of Amendment Changes
Guide to Appendices		<p>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.</p> <p><u>Amendment 28 re-organized some Appendices. Appendices B.2, B.3, and B.4 were merged to provide life history, habitat information, and information on habitat suitability modeling in one appendix. Appendix B.5 was eliminated, replaced by the Council's Research and Data Needs Document, which incorporates research needs identified during the Amendment 28 process. Appendix C Part 1 was archived and is available on the Council's website. Appendix C Part 2 was updated with recent information and renamed Part 1.</u></p>

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.

TABLE OF CONTENTS

LIST OF ACRONYMS AND ABBREVIATIONS	ix
CHAPTER 1 INTRODUCTION.....	1
1.1 History of the Fishery Management Plan	1
1.2 How This Document is Organized.....	4
CHAPTER 2 GOALS AND OBJECTIVES	5
2.1 Goals and Objectives for Managing the Pacific Coast Groundfish Fishery	5
2.2 Operational Definition of Terms	5
CHAPTER 3 AREAS AND STOCKS INVOLVED.....	11
CHAPTER 4 PREVENTING OVERFISHING AND ACHIEVING OPTIMUM YIELD	11
CHAPTER 5 PERIODIC SPECIFICATION AND APPORTIONMENT OF HARVEST LEVELS.....	11
CHAPTER 6 MANAGEMENT MEASURES	13
6.1 Introduction.....	13
6.1.1 Overview of Management Measures for West Coast Groundfish Fisheries.....	14
6.2 General Procedures for Establishing and Adjusting Management Measures	14
6.2.1 Routine Management Measures Overview	15
6.2.1.1 Routine Management Measures:	15
6.2.2 Resource Conservation Issues—The Points of Concern Framework	15
6.2.3 Non-biological Issues—The Socioeconomic Framework.....	15
6.2.4 The Habitat Conservation Framework	15
6.2.5 Indian Treaty Rights	16
6.3 Allocation.....	16
6.3.1 Allocation Framework.....	16
6.3.2 Formal Allocations	17
6.3.2.1 Sector Allocations of Sablefish North of 36° N. latitude	17
6.3.2.2 Sector allocations of Pacific Whiting	17
6.3.2.3 Limited Entry Trawl Allocations for Amendment 21 Stocks and Stock Complexes	17
6.4 Standardized Total Catch Reporting and Compliance Monitoring Program.....	17
6.4.1 Total Catch Reporting Methodology	17
6.4.1.1 Monitoring Total Catch At Sea – Observer and Electronic Monitoring Programs	17
6.4.1.2 Commercial Fisheries.....	17
6.4.1.3 Recreational Fisheries	17
6.4.2 Vessel Compliance Monitoring and Reporting Requirements.....	17
6.5 Bycatch Mitigation Program	17

6.5.1	Bycatch of Groundfish Species in Groundfish Fisheries.....	17
6.5.2	Bycatch and Incidental Take of Non-Groundfish Species in Groundfish Fisheries.....	17
6.5.2.1	Endangered Species Act Species	17
6.5.2.2	Marine Mammal Protection Act Species.....	17
6.5.2.3	Migratory Bird Treaty Act Species.....	17
6.5.2.4	Shared Ecosystem Component Species.....	17
6.5.3	Measures to Reduce Bycatch and Bycatch Mortality.....	17
6.5.3.1	Full Retention Programs	18
6.5.3.2	Sector-specific and Vessel-specific Total Catch Limit Programs	18
6.5.3.3	Catch Allocation to, or Gear Flexibility For, Gear Types with Lower Bycatch Rates	18
6.5.3.4	Recreational Catch and Release Management	18
6.6	Gear Definitions and Restrictions	18
6.6.1	Commercial Fisheries.....	18
6.6.1.1	Prohibitions.....	18
6.6.1.2	Trawl Gear.....	19
6.6.1.3	Non-trawl Gear.....	20
6.6.2	Recreational Fisheries.....	20
6.6.3	Bottom-contact Gear.....	20
6.7	Catch Restrictions	20
6.7.1	All Fisheries	20
6.7.2	Commercial Fisheries.....	20
6.7.3	Recreational Fisheries.....	20
6.8	Time/Area Closures.....	20
6.8.1	Seasons.....	21
6.8.2	Rockfish Conservation Areas	21
6.8.3	Block Area Closures	22
6.8.4	Groundfish Fishing Areas.....	22
6.8.5	Long-term Bycatch Mitigation Closed Areas	23
6.8.6	Ecologically Important Habitat Closed Areas	23
6.8.7	Bottom Trawl Footprint Closure	26
6.8.8	Marine Protected Areas	26
6.8.9	Deep Water Bottom Contact Gear Closure.....	27
6.9	Measures to Control Fishing Capacity, Including Permits and Licenses.....	27
6.9.1	General Provisions For Permits.....	27
6.9.1.1	Commercial Fisheries Permits.....	27
6.9.1.2	Recreational Fisheries Permits.....	27
6.9.1.3	Processor Permits	27
6.9.2	Sector Endorsements	27
6.9.3	Fishery Rationalization.....	27
6.9.3.1	The Trawl Rationalization Programs.....	27

6.9.3.2	Rationalization of Other Fishery Sectors.....	27
6.9.4	Facilitating Public-Private Partnerships that Mitigate EFH Impacts and May Reduce Capacity	27
6.9.5	Capacity Reduction Data Collection.....	28
6.10	Fishery Enforcement and Vessel Safety	28
6.10.1	Managing Enforcement Risks	28
6.10.2	Vessel Safety.....	28
6.10.3	Vessel and Gear Identification	28
6.10.4	Prohibitions and Penalties	28
CHAPTER 7	ESSENTIAL FISH HABITAT	29
7.1	How This FMP Addresses Provisions in the Magnuson-Stevens Act Relating to Essential Fish Habitat.....	29
7.2	Description and Identification of Essential Fish Habitat for Groundfish.....	30
7.2.1	Use of Habitat Suitability Probability to Identify EFH	33
7.3	Habitat Areas of Particular Concern	34
7.3.1	Designated HAPC.....	35
7.3.1.1	Estuaries	35
7.3.1.2	Canopy Kelp.....	35
7.3.1.3	Seagrass	36
7.3.1.4	Rocky Reefs	37
7.3.1.5	Areas of Interest	37
7.3.2	Process for Modifying Existing or Designating New HAPCs	38
7.4	Management Measures to Minimize Adverse Impacts on Essential Fish Habitat from Fishing 41	
7.5	EFH Coordination, Consultation, and Recommendations	42
7.6	Review and Revision of Essential Fish Habitat Provisions.....	42
7.7	Habitat-related Research and Monitoring	43
CHAPTER 8	EXPERIMENTAL FISHERIES.....	45
CHAPTER 9	SCIENTIFIC RESEARCH	45
CHAPTER 10	PROCEDURE FOR REVIEWING STATE REGULATIONS.....	45
CHAPTER 11	GROUND FISH LIMITED ENTRY.....	45
	GUIDE TO APPENDICES.....	47

LIST OF FIGURES

Figure 7-1.	Groundfish EFH.....	32
Figure 7-2.	Groundfish HAPCs.....	40

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 Fishery Management Plan

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 (MS), 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 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. 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, 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 was to address conservation and socioeconomic issues in the shoreside, catcher/processor, and MS 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 sunsetted 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.

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.

Amendment 28 modified the configuration of EFH Conservation Areas (EFHCAs) that are closed to groundfish bottom trawl fishing in order to protect EFH, closed waters deeper than 3500 meters to bottom contact fishing gear, opened the trawl RCA to bottom trawl fishing off Oregon and California, and created a framework to consider and implement more flexible area closures with block area closures.

1.2 How This Document is Organized

CHAPTER 2 GOALS AND OBJECTIVES

2.1 Goals and Objectives for Managing the Pacific Coast Groundfish Fishery

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.

Block Area Closure (BAC) is a type of groundfish conservation area bounded on the north and south by commonly used geographic coordinates, and on the east and west by boundary lines approximating depth contours, defined with latitude and longitude coordinates. BACs may be implemented or modified, off Oregon and California, as routine management measures.

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

**CHAPTER 4 PREVENTING OVERFISHING AND
ACHIEVING OPTIMUM YIELD**

**CHAPTER 5 PERIODIC SPECIFICATION AND
APPORTIONMENT OF HARVEST LEVELS**

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 [6.26.2](#) 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 [6.36.3](#) describes the criteria the Council will consider when establishing management measures intended to directly allocate harvest opportunity.
- Sections [6.46.4](#) and [6.56.5](#) 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 [6.66.6](#) through [6.96.9](#) 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 [6.106.10](#) 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 [6.26.2](#).

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 [6.56.5](#).
- 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 [6.66.6](#).
- Restricting catches by defining prohibited species and establishing landing, trip frequency, bag, and size limits—described in Section [6.76.7](#).
- Establishing fishing seasons and closed areas—described in Section [6.86.8](#).
- 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 [6.96.9](#). 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~~[certain fishing gear or methods](#), 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.

6.2.1 ***Routine Management Measures Overview***

6.2.1.1 Routine Management Measures:

6.2.2 ***Resource Conservation Issues—The Points of Concern Framework***

6.2.3 ***Non-biological Issues—The Socioeconomic Framework***

6.2.4 ***The Habitat Conservation Framework***

The primary mechanism for providing habitat protections in Council-managed fisheries is via the EFH provisions in the MSA and detailed at 50 CFR 600.805 – 600.930. The elements of EFH should be reviewed at least every five years and revised if warranted, based on new or newly-available information. Councils may establish closed areas to certain fishing gear or methods, to protect important habitats. In order to protect EFH from the adverse effects of fishing, the Council has identified areas that are closed to bottom trawling and/or other bottom contact gear (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. At the outset of a periodic review, the Council will establish a set of objectives and a scope for the review and revision process, consistent with Federal regulatory guidance on EFH. The Council would initiate a review of information, including any new and newly-available information relevant to EFH, and identify appropriate Council and NMFS staff to coordinate the review. If warranted, the Council could consider modifying groundfish EFH elements currently in place, including the areas currently closed to fishing activities that may adversely affect EFH, and could consider EFH elements that were not included previously. ~~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~~ determination, the Council 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, and condition of important habitat (as defined immediately above).
3. The presence and location of habitat that is vulnerable to the effects of ~~bottom trawl fishing~~ fishing activities.
4. The presence and location of unique, rare, or threatened habitat.
5. New or increasing threats to EFH from non-fishing related activities.

56. The socioeconomic and management-related effects of closures, including changes in the location and intensity of bottom ~~trawl~~-contact fishing effort, the displacement or loss of revenue from fishing, and social and economic effects to fishing communities attributable to the location and extent of closed areas.

The Council should also consider the following habitat objectives:

- Protect a diversity of habitat types across latitude ranges, biogeographic and depth zones, and substrate types supporting all groundfish FMP species and life stages.
- Develop conservation areas with a diversity of habitat types incorporating the ecological principles of connectivity, size, distribution, and relative abundance.
- Prioritize pristine or previously protected areas, or areas with low levels of fishing or non-fishing impacts.
- Protect habitats sensitive to fishing gear and habitats of high complexity across habitat types.
- Distribute socioeconomic costs that would result from implementation of EFH amendments.
- Conduct scientific research to further our understanding of the effects of fishing gear on EFH.

The Council should also consider the following priority habitats:

1. Hard substrate, including rocky ridges and rocky slopes
2. Habitat-forming invertebrates
3. Submarine canyons and gullies
4. Seamounts
5. Areas where the probability of occurrence of an overfishes species was at least 80 percent of the maximum probability of occurrence as predicted by models

~~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~~considering Advisory Body, NMFS, staff reports, and public comment, 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.

[Amendment 19, 28]

6.2.5 ***Indian Treaty Rights***

6.3 **Allocation**

6.3.1 ***Allocation Framework***

6.3.2 ***Formal Allocations***

6.3.2.1 Sector Allocations of Sablefish North of 36° N. latitude

6.3.2.2 Sector allocations of Pacific Whiting

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

6.4 Standardized Total Catch Reporting and Compliance Monitoring Program

6.4.1 ***Total Catch Reporting Methodology***

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

6.4.1.2 Commercial Fisheries

6.4.1.3 Recreational Fisheries

6.4.2 *Vessel Compliance Monitoring and Reporting Requirements*

6.5 Bycatch Mitigation Program

6.5.1 ***Bycatch of Groundfish Species in Groundfish Fisheries***

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

6.5.2.1 Endangered Species Act Species

6.5.2.2 Marine Mammal Protection Act Species

6.5.2.3 Migratory Bird Treaty Act Species

6.5.2.4 Shared Ecosystem Component Species

6.5.3 ***Measures to Reduce Bycatch and Bycatch Mortality***

6.5.3.1 Full Retention Programs

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

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

6.5.3.4 Recreational Catch and Release Management

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, as an EFH protection measure. This boundary line is defined in Federal regulations by precise latitude-longitude coordinates (see 50 CFR 660, Subpart ~~GC~~). ~~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).

Groundfish fishing (often based on gear type) may be subject to depth, area, or seasonal restrictions as

described in Federal regulations at 50 CFR 660.

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 2002 the Council introduced Rockfish Conservation Areas (RCAs, Section 6.8.2), initially through emergency rulemaking and later through permanent regulations, as a catch control mechanism, primarily for overfished species. Large footrope trawl gear had been prohibited inshore of the trawl RCA (typically the line approximating 100 fm). In 2018 the Council took action to remove the trawl RCA offshore of Oregon and California because the trawl catch shares program (Amendment 20) effectively reduced rockfish bycatch and the trawl RCA was no longer needed as a year-round catch control tool, but the trawl

RCA remains in place offshore of Washington. However, large footrope gear (larger than 8") will still be prohibited shoreward of the 100 fm contour, coastwide.

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 ~~6.6.1.16-6.1.1~~. 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

6.6.2 *Recreational Fisheries*

6.6.3 *Bottom-contact Gear*

6.7 Catch Restrictions

6.7.1 *All Fisheries*

6.7.2 *Commercial Fisheries*

6.7.3 *Recreational Fisheries*

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~~ habitat. 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 a combination of latitude lines and depth zones extending from shore to the EEZ boundary to close ~~large~~ sections of the EEZ for part or all 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. As part of Amendment 28, RCAs were removed off the coasts of Oregon and California. Groundfish fishing areas (GFAs) (Section 6.8.4) 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 and the bottom trawl footprint closure (Section ~~06.8.6~~) are established in order to mitigate the adverse effects of fishing on EFH. MPAs (Section ~~06.8.7~~) 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 MS 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, which vary by gear type, 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. Under Amendment 28, the Council took action to remove the groundfish trawl RCA off Oregon and California because the trawl catch shares program (Amendment 20) effectively reduced rockfish bycatch and the trawl RCA was no longer needed as a year-round catch control tool. The trawl RCA is a management measure that remains in place off Washington. 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.~~39071-39474~~. 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 Block Area Closures

Block Area Closures (BACs) are a groundfish bottom trawl-specific management tool introduced as part of Amendment 28. BAC boundary lines are latitudes and depth contour approximations described in Federal regulations at 50 CFR 660.11 and 71-74. BACs (one or more) may be closed or reopened inseason via the routine management measures process (Section 6.2.1) using latitude and longitude boundary lines defined in regulation. One or more of those polygons, as necessary may be closed to groundfish bottom trawl gear to control harvest of groundfish species or to reduce the catch of protected species. BACs are available off Oregon and California, and are intended as a catch control mechanism, not for habitat protection.

6.8.36.8.4 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)

6.8.5 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.

6.8.6 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 ~~6.6.1.26-6.1.2~~). For the purposes of BCCAs, the definition of bottom contact gear in this FMP (Section ~~6.6.36-6.3~~) and in Federal regulations applies. As part of Amendment 28, the Council took action to revise the suite of BTCAs.

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. 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 ~~6.26-2~~ D. As of June 30, 2006, under Amendment 19 (see 50 CFR 660.306(h)), there are were 50 such closures. With the implementation of Amendment 28, there are several additional closures and spatial modifications to several existing closures:

Bottom Trawl Closed Areas

Off of Washington:

1. Olympic 2
2. Biogenic 1
- ~~3.~~ Biogenic 2
- ~~3-4.~~ Quinault Canyon†
- ~~4-5.~~ Grays Canyon*
- ~~6.~~ Biogenic 3
- ~~7.~~ Willapa Canyonhead†
- ~~5-8.~~ Willapa Deep†

Off of Oregon:

- ~~1.~~ Astoria Canyon
- ~~1-2.~~ Astoria Deep†
- ~~3.~~ Nehalem Bank/Shale Pile*
- ~~4.~~ Garibaldi Reef N†
- ~~2-5.~~ Garibaldi Reef S†
- ~~3-6.~~ Siletz Deepwater
- ~~4-7.~~ Daisy Bank/Nelson Island*
- ~~8.~~ Newport Rockpile/Stonewall Bank*
- ~~5-9.~~ Hydrate Ridge†
- ~~6-10.~~ Heceta Bank*
- ~~11.~~ Deepwater off Coos Bay
- ~~7-12.~~ Arago Reef†
- ~~8-13.~~ Bandon High Spot*
- ~~14.~~ Rogue Canyon
- ~~9-15.~~ Rogue River Reef†

Off of California:

- ~~1.~~ Brush Patch†
- ~~2.~~ Trinidad Canyon†
- ~~3.~~ Mad River Rough Patch†
- ~~4.~~ Samoa Deepwater†
- ~~1-5.~~ Eel River Canyon*

- ~~2-6.~~ Blunts Reef*
- ~~3-7.~~ Mendocino Ridge*
- ~~4-8.~~ Delgada Canyon*
- ~~9.~~ Tolo Bank
- ~~5-10.~~ Navarro Canyon†
- ~~6-11.~~ Point Arena North
- ~~12.~~ Point Arena South Biogenic Area*
- ~~13.~~ The Football†
- ~~14.~~ Gobblers Knob†
- ~~7-15.~~ Point Reyes Reef†
- ~~16.~~ Cordell Bank/Biogenic Area*
- ~~8-17.~~ Rittenburg Bank†
- ~~18.~~ Farallon Islands/Fanny Shoal/Cochrane Bank*
- ~~9-19.~~ Farallon Escarpment†
- ~~20.~~ Half Moon Bay
- ~~21.~~ Pescadero Reef†
- ~~22.~~ Pigeon Point Reef†
- ~~23.~~ Ascension Canyonhead†
- ~~10-24.~~ South of Davenport†
- ~~25.~~ Monterey Bay/Canyon*
- ~~11-26.~~ West of Sobranes Point†
- ~~12-27.~~ Point Sur Deep*
- ~~28.~~ Big Sur Coast/Port San Luis*
- ~~29.~~ La Cruz Canyon†
- ~~13-30.~~ West of Piedras Blancas State Marine Conservation Area†
- ~~14-31.~~ East San Lucia Bank
- ~~15-32.~~ Point Conception
- ~~16-33.~~ Hidden Reef/Kidney Bank
- ~~17-34.~~ Catalina Island
- ~~18-35.~~ Potato Bank*
- ~~19-36.~~ Cherry Bank
- ~~37.~~ Cowcod Conservation Area East
- ~~20-38.~~ Southern California Bight†

**These areas were modified as part of Amendment 28.*

†These areas were added as part of Amendment 28.

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.

6.8.7 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. Under Amendment 28, the boundary line that approximates the 700 fm isobath off the north California coast and off Monterey Bay, CA was modified slightly, resulting in relatively small reopenings and closures that affect less than 20 mi².

6.8.8 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]

6.8.9 Deep Water Bottom Contact Gear Closure

Amendment 28 to the Groundfish FMP established a deep water bottom contact gear closure in the EEZ in waters deeper than 3500m (the deepest extent of EFH). Although still inside the EEZ, waters deeper than 3500m are not identified as groundfish EFH. Amendment 28 closed these waters to all bottom contact fishing gear, to protect deep water habitats including deep sea corals. Because these waters are outside of Groundfish EFH, the closure will be implemented via MSA discretionary authorities in Sections 303(b)(2).

Exceptions could be made to this closure, but only if a permittee or vessel owner were to apply for and receive approval from the Council to do so via an EFP issued by NMFS, through established procedures described in Chapter 8.

[Amendment 28]

6.9 Measures to Control Fishing Capacity, Including Permits and Licenses

6.9.1 General Provisions For Permits

6.9.1.1 Commercial Fisheries Permits

6.9.1.2 Recreational Fisheries Permits

6.9.1.3 Processor Permits

6.9.2 Sector Endorsements

6.9.3 Fishery Rationalization

6.9.3.1 The Trawl Rationalization Programs

6.9.3.2 Rationalization of Other Fishery Sectors

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

- 6.9.5 ***Capacity Reduction Data Collection***
- 6.10 Fishery Enforcement and Vessel Safety**
 - 6.10.1 ***Managing Enforcement Risks***
 - 6.10.2 ***Vessel Safety***
 - 6.10.3 ***Vessel and Gear Identification***
 - 6.10.4 ***Prohibitions and Penalties***

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.

To ensure that habitat-related decisions are based on the best scientific information available (BSIA), scientific and technical analyses are typically reviewed by the Pacific Council’s Scientific and Statistical Committee (SSC), as required by the Magnuson Stevens Act. The Pacific Council’s SSC reviewed numerous analyses throughout the review/revision process informing Amendment 28. In addition, NMFS reviews FMP and regulatory actions to determine consistency with National Standard 2, which requires the use of BSIA.

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 (and/or links) 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 procedures for the review and revision of EFH provisions.
- Section 7.7-7.6 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 the Council's Research and Data Needs Document (available on the Council website or on request) 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 Detailed descriptions of EFH, life histories, prey species, and more are included in Appendix B. Future~~ 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~~ [Figure 7-1](#) shows the extent of this EFH identification.

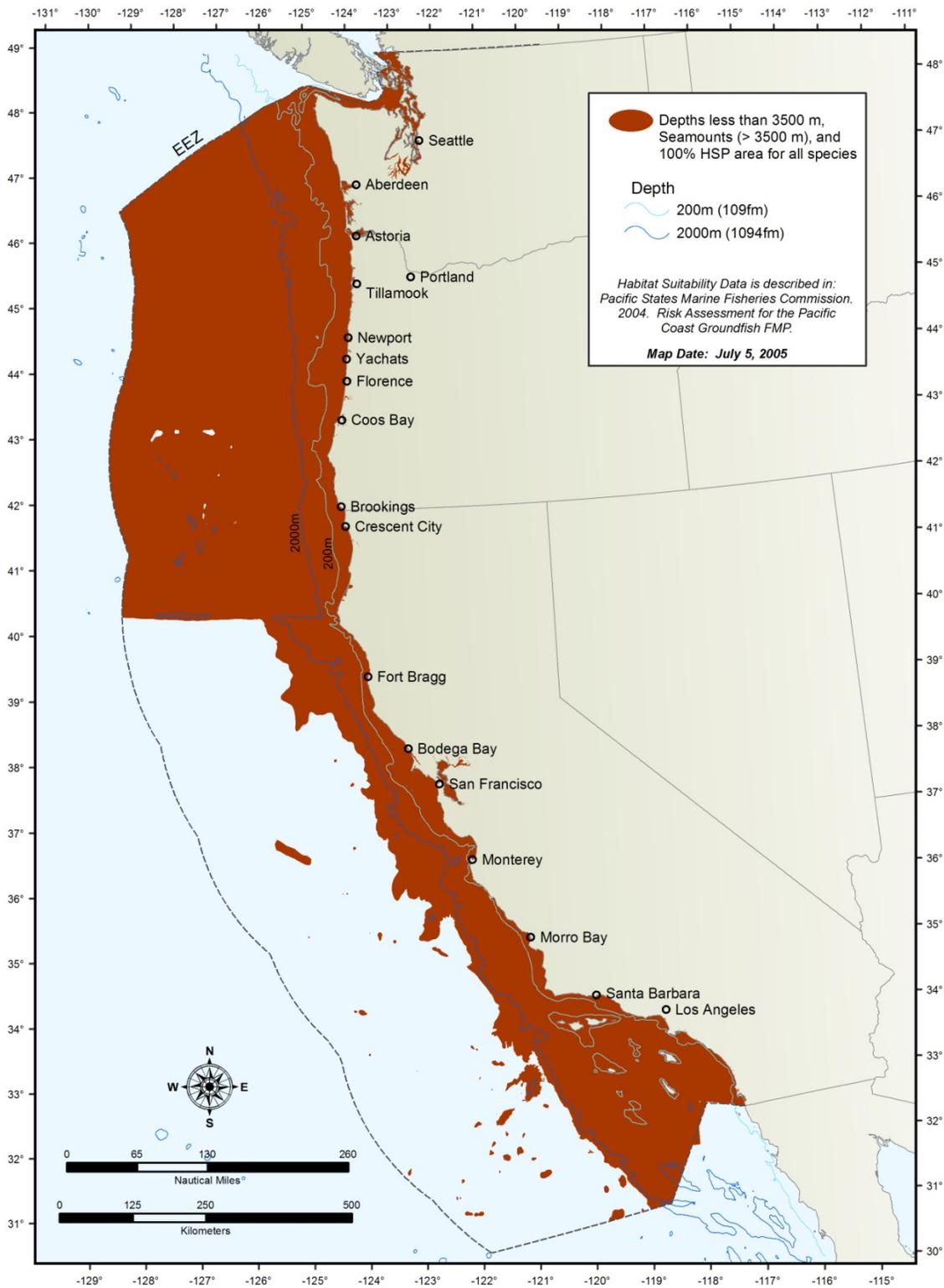


Figure 7-1. Groundfish EFH.

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~~ ~~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~~ ~~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.* (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 (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

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).

management. Currents generated by seamounts retain rockfish larvae (Mullineaux and Mills 1997; Dower 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, or identify new threats that warrant designating additional HAPCs, the Council may designate a new HAPC or modify or eliminate an existing HAPC through an interim process, ~~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.~~

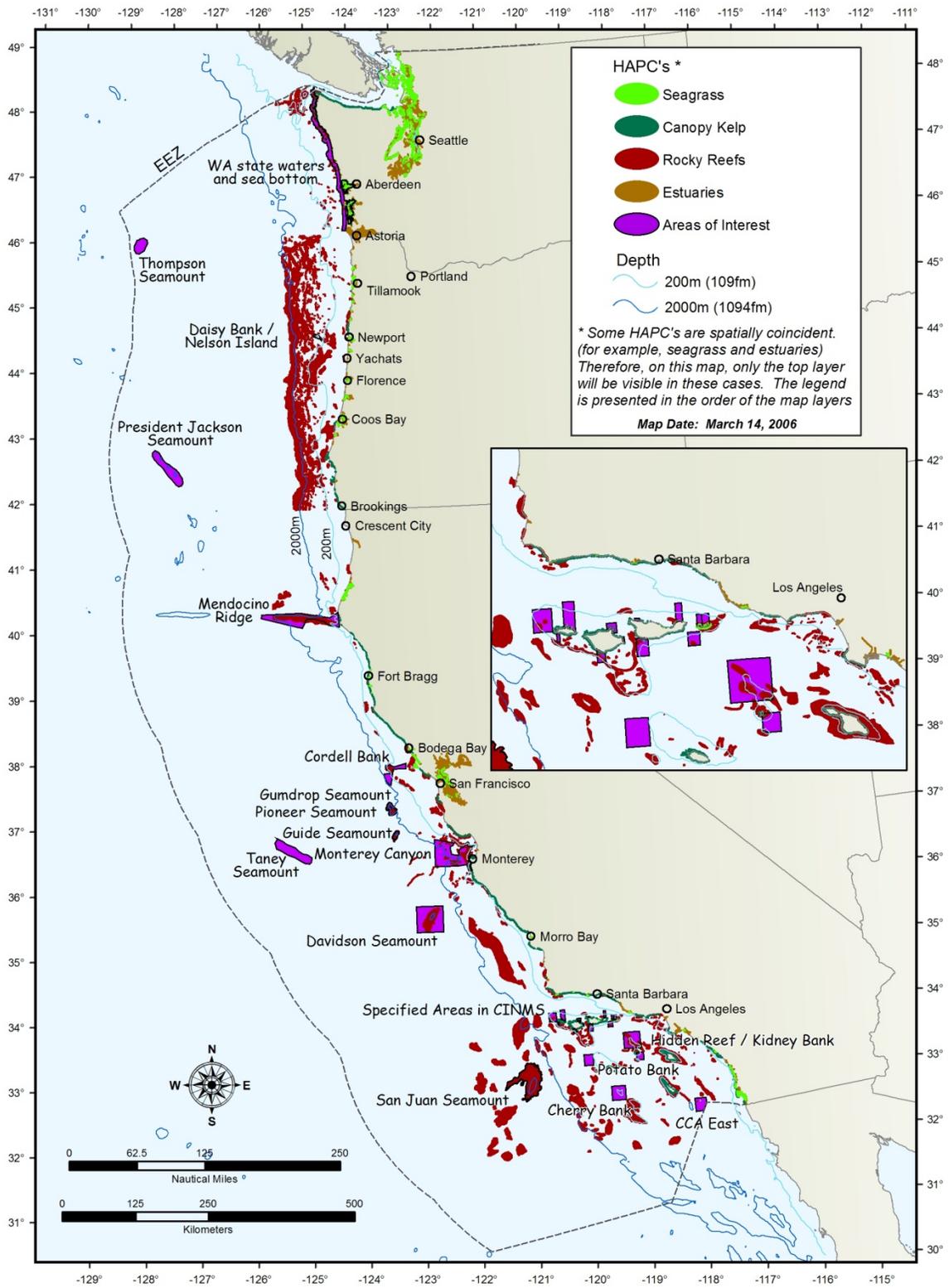


Figure 7-2. Groundfish HAPCs.

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.

Federal regulatory guidance on EFH requires consideration of adverse effects and minimization measures for non-Magnuson Stevens Act fishing activities that use bottom trawl gear, such as the pink shrimp and ridgeback prawn fisheries, or bottom contact gear, such as pot gear and dinglebar fisheries. Because bottom trawl and other bottom contact fishing gear has similar adverse habitat effects regardless of the target stock, all bottom trawl and bottom contact gear closures apply to both MSA and non-MSA fisheries. For example, bottom trawling for pink shrimp (a state-managed species) in EFHCAs is prohibited, and pot gear fishing is prohibited in the EFHCAs that are closed to bottom contact gear. (The prohibition on non-MSA bottom trawling does not apply to RCAs, which are designed for species conservation rather than habitat protection).

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 Provisions

The Council will review the EFH description and identification, HAPC designations, ~~and~~ information on fishing impacts and non-fishing impacts, ~~and other EFH provisions~~ included in this FMP at least every five years. The Council may choose to review specific elements of EFH on an interim basis, such as HAPCs, particularly if inaction could result in significant harm, and should conduct a complete review of all EFH information 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.

The purpose of periodic reviews is to ensure that all EFH provisions are based on the best scientific information available, the current nature of the fishery, as well as other new information. During periodic reviews, the Council and NMFS will consider whether new information may warrant changes to minimization measures, EFH description and identification, socio-economic considerations, or any other elements of EFH. Amendment 19 to the Groundfish FMP utilized state-of-the art analyses to determine overall extent of EFH, practicable minimization measures (i.e., specific areas closed to certain fishing activities and gear), and other EFH provisions. Under Amendment 28 the Council modified the configuration of areas open and closed to groundfish bottom trawling, based on new information, and to minimize to the extent practicable, adverse impacts to EFH. Details of the analysis can be found in the Amendment 28 EIS.

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. Habitat-related research recommendations can be found in the Council's Research and Data Needs document.

~~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 on 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**

CHAPTER 9 **SCIENTIFIC RESEARCH**

CHAPTER 10 **PROCEDURE FOR REVIEWING
STATE REGULATIONS**

CHAPTER 11 **GROUND FISH LIMITED ENTRY**

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 [in some cases](#) 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 [and updated by Amendment 28](#) 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
- Social and Economic Characteristics of the Fishery
- History of Management
- History of Research
- Weather-Related Vessel Safety
- Relationship of this FMP to Existing Laws and Policies
- Management and Enforcement Costs

APPENDIX B: Pacific Coast Groundfish Essential Fish Habitat

1. Assessment Methodology for Groundfish Essential Fish Habitat
2. Groundfish Life History [and Essential Fish Habitat Text Descriptions, Habitat Use Database Description, and Habitat Suitability Probability Information](#)
- ~~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~~
- ~~5. Research Needs and Data Gaps Analysis for Groundfish Essential Fish Habitat~~

APPENDIX C: The Effects of Fishing on West Coast Groundfish Essential Fish Habitat and Current Conservation Measures

- ~~1. Description of the Impacts Model~~
- ~~2.1. MRAG Americas, Inc. 2004. *The effects of fishing gears on habitat: West Coast West Coast perspective* (Draft 6). Portland: Pacific States Marine Fisheries Commission. July 28, 2004. [The Effects of Fishing on Groundfish Habitat: West Coast Perspective.](#)~~
- ~~3. Map of EFH Conservation Areas~~
- ~~4.2. 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 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