

Introduction to the West Coast Fishery

I. COMMONLY USED ABBREVIATIONS	1-2
II. INTRODUCTION	1-3
III. HISTORY OF US FISHERIES AND THEIR MANAGEMENT	1-3
<i>1870's to 1900's</i>	1-3
<i>1900 to 1970</i>	1-4
<i>1970 to 2001</i>	1-6
IV. THE WEST COAST GROUND FISH FISHERY AND OBSERVER PROGRAM SINCE 2001	1-13
<i>Summary of WCGOP Data Reports</i>	1-17



I. Commonly Used Abbreviations

A-Shop- At-Sea Hake Observer Program

ABC- Acceptable Biological Catch

aka- also known as

BBL- The Bird Banding Laboratory of the U. S. Geological Survey

BRD-Bycatch Reduction Device

CFR- Code of Federal Regulations

CMA - Conservation and Management Act

CPR- Cardiopulmonary Resuscitation

CPUE- Catch Per Unit Effort

DOC-Department of Commerce

EFP- Exempted Fishing Permit (aka Experimental Fishing Permit)

EM-Electronic Monitoring

EPIRB- Emergency Position Indicating Radio Beacon

ESA- Endangered Species Act

FCC- Federal Communications Commission

FMP- Fishery Management Plan

FRAM D- Fishery Resource Analysis and Monitoring Division

GCA-Groundfish Conservation Area

GPS- Global Positioning System

IFQ-Individual Fishing Quota

IPHC- International Pacific Halibut Commission

IRCS- International Radio Call Sign

LOA - Length overall

MARPOL- Marine Pollution

M-SFCMA- Magnuson-Stevens Fishery Conservation and Management Act

MSA- see M-SFCMA

MSY- Maximum Sustainable Yield

NGO - Non-Governmental Organization

NMFS- National Marine Fisheries Service

NMML- National Marine Mammal Laboratory

NOAA- National Oceanic and Atmospheric Administration

NPGOP-North Pacific Groundfish Observer Program
NWFSC- Northwest Fisheries Science Center
OLE - Office of Law Enforcement (NMFS Enforcement Division)
OTC- Observer Total Catch
OY- Optimum Yield
PFD- Personal Flotation Device
PFMC- Pacific Fisheries Management Council
PSMFC- Pacific States Marine Fisheries Commission
PST- Pacific Standard Time
RCA- Rockfish Conservation Area
SSB- Single Side Band radio
TAC- Total Allowable Catch
USCG- United States Coast Guard
VHF-Very High Frequency (Radio)
VMS - Vessel Monitoring System
WCGOP- West Coast Groundfish Observer Program
WOC – Oceans off Washington, Oregon, and California

II. Introduction

This chapter provides background on important national and regional fisheries events and management responses since the late 1800's, including the circumstances that led to the implementation of the West Coast Groundfish Observer Program (WCGOP).

III. History of US Fisheries and their Management

The following outline focuses on the history of west coast fisheries and important national fisheries policy decisions and events.

1870's to 1900's

- A commercial fishery for rockfish began in California. (mid-1800's)

CHAPTER 1
Introduction to the West Coast Fishery

- The US Commission of Fish and Fisheries was created. This commission was the first federal agency concerned with a natural resource. It focused on marketing fish as a dietary supplement. (1871)
- The Albatross I, the first American research vessel built exclusively for fisheries and oceanographic research, was launched. (1882)
- The first survey of the Pacific coast (California to Alaska) was conducted and the Pacific halibut fishery was inaugurated when a sailing schooner returned to Seattle with its catch. (1888)
- Federal fisheries management began on Alaska salmon when Congress passed regulations that included net restrictions, closed seasons, and spawning escapement requirements. (1896)



1900 to 1970

- The US Fish Commission was turned over to the Department of Commerce (and Labor) and became the Bureau of Commercial Fisheries (BCF). (1903)
- The first assertion of federal authority to manage marine fisheries came with the passage of the Sponge Act. This act set conservation rules for the taking of sponges from the Gulf of Mexico and Straights of Florida. (1906)
- The BCF opened an administration center for Pacific coast operations in Seattle, WA. (1914)
- The first scientific study on a Pacific coast fishery that was aimed at management was started. The study focused on the Pacific halibut fishery. (1915)
- Otter trawls began to be used in Puget Sound and other areas off Washington and Oregon. (1940)

- The first factory trawler, a British vessel, appeared off the Grand Banks. (1954)
- Washington's first trawl fishery began. The fishery targeted pink shrimp. (1957)
- A trawl fleet began to target bottomfish off the West coast on grounds discovered during a BCF survey. (1960)
- Foreign factory trawlers, primarily Soviet and Japanese vessels, began fishing off the West Coast. Deeper-water rockfish species were targeted off California and Pacific Ocean Perch was targeted off Oregon and Washington. (1963)
- US biologists were placed on Japanese trawlers and factory ships in the Bering Sea and Gulf of Alaska to obtain data on the catch by species, area, and quantity and on gear efficiency. In essence, this was the first observer program. (1963)
- Research began on Pacific hake, as it was seen as a potentially large fishery. After the survey, a new regional fishery began when Pacific hake were fished successfully in Puget Sound. (1964)
- The Bartlett Act was passed which prohibits fishing in US territorial waters (out to 3 miles) by foreign flagged vessels unless they are allowed to by treaty. (1964)
- Public Law 89-658 was passed which extends the US exclusive zone to 12 miles. (1966)
- The BCF awarded a grant for the first commercial fish plant to be built in Aberdeen, WA. (1968)
- US BCF scientists and Japanese scientists cooperatively studied several US fish species, including spiny dogfish, starry flounder, and several rockfish, as potential

ingredients of surimi, a frozen fish product used in Japan to make fish sausages and cakes. (1968)

- The Stratton Commission recommended the creation of the National Oceanic and Atmospheric Administration (NOAA), that would initially include the BCF and other federal marine and anadromous fishery functions. (1969)

1970 to 2001



Big changes began to occur in the fisheries and with fisheries management during this time. This was due to the acknowledgement that fisheries were an important economic enterprise for the US and that fish resources (especially off the Northeast Coast) had begun showing signs of decline.

- The NOAA was formed and the BCF became the National Marine Fisheries Service (NMFS). (1970)
- Four major offshore fisheries research centers were established, the Northwest/Alaska Fisheries Center, the Southwest Fisheries Center, the Northeast Fisheries Center, and the Southeast Fisheries Center. (1971)
- US commercial whaling ended. (1971)
- The NMFS director announced that the agency had a much broader charter than the BCF and was now resource-oriented rather than user-oriented. (1972)
- The Marine Mammal Protection Act (MMPA) was passed, establishing a moratorium on marine mammal takes in US waters and by US citizens in the high seas. (1972)
- The Fisheries Loan Program received \$2.2 million from Congress. The money was used to purchase new vessels or upgrade existing vessels/processors. (1972)

- The Endangered Species Act (ESA) was passed. Its mandate is to protect species and populations whose numbers are small and declining. NMFS is responsible for marine species under the law. (1973)
- The NOAA began placing observers on foreign, fishing vessels operating off the northwest and Alaskan coasts. The primary purpose of these observers was to estimate incidental catch rates of Pacific halibut in groundfish catches and to verify catch statistics in the Japanese crab fishery. (1973)
- A mandatory marine mammal observer program was implemented in the US purse seine fishery for yellowfin tuna in the eastern tropical Pacific ocean. (1974)
- The Magnuson Fisheries Conservation and Management Act (MFCMA) was signed into law. With this Act, the U.S. declared management authority over fish resources within 200 nautical miles from their shores, an area known as the **Exclusive Economic Zone (EEZ)**. The goals of the Magnuson Act were to Americanize the fishery and to implement **fishery management plans (FMPs)** to maintain **optimum yield (OY)** of the resource while rebuilding depleted stocks. Additionally, the Magnuson Act established regional councils to manage the nation's fisheries. The Pacific Fisheries Management Council (PFMC) presides over the EEZ off the coasts of Washington, Oregon, and California. (1976)
- With the passage of the MFCMA, the NMFS mission became the study of commercially fished species and the environmental factors affecting their numbers and counts. (1976)
- A directed fishery for widow rockfish was developed off the west coast. (late 1970's)

Exclusive Economic Zone (EEZ) – the 200-mile jurisdiction zone in which a nation has exclusive fishing rights.

Fisheries Management Plans (FMP's) - Documents prepared under the supervision of the appropriate fishery management authority or council for the management of fish stocks judged to be in need of management. The plan must be formally approved. A management plan includes data, analyses, and management measures.

Optimum Yield (OY) – the harvest level for a species that achieves overall benefits including economic, social, and biological considerations.

Groundfish - a general term referring to fish that live on or near the seafloor. Groundfish are also called bottom fish or demersal fish.

The current **Pacific Coast Groundfish FMP** includes over 90 species. See the appendix for a list of FMP species.

- The American Fisheries Promotion Act was passed. This act required that fish quotas be given preferentially to nations that contributed heavily to the development of the US fishing industry. (1980)
- The Northern Pacific Halibut Act was passed to enforce the terms of the US-Canada agreement prohibiting fishing by unauthorized foreign vessels. (1982)
- The **Pacific Coast Groundfish FMP** was approved by the Secretary of Commerce. Prior to the FMP approval, Washington, Oregon, and California were responsible for managing domestic groundfish fisheries off their respective coasts. State regulations had been in effect for about 90 years, with each state acting independently in both management and enforcement. (1982)
- West Coast groundfish landings reached about 116,000 metric tons. (1982)
- The Northwest/Alaska Fisheries Center was divided into the Alaska Fisheries Science Center and the Northwest Fisheries Science Center. (1988)
- US commercial fisheries landings exceeded \$3.5 billion at dock side. (1990)

- All commercial fishing by foreign vessels off the Alaskan and West Coast was terminated. (1991)

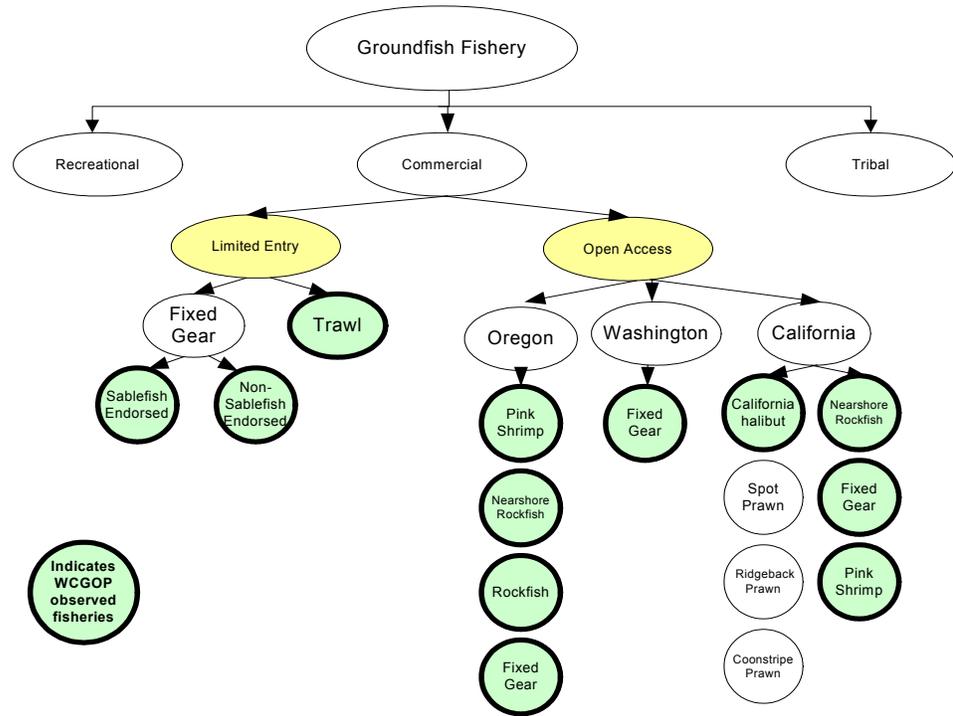


Figure 1-1: WOC Groundfish Fishery

PFMC - The PFMC is composed of 20 members, 15 of whom are eligible to vote on matters brought before the council. The 20 members include representatives of the industry, states (California, Oregon, Washington, and Idaho) NMFS, tribes, the US Coast Guard, and the US Fish and Wildlife Service.

Trip Limits – A trip limit is a specified weight of fish that can be landed during a:

- Two-month period
- Day

Groundfish trawlers are regulated mainly by two-month trip limits while limited entry fixed gear and open access vessels have daily, weekly, and monthly limits.

- The **PFMC** divided the commercial groundfish fishery into two sectors: the limited entry and the open access. (See Figure 1-1) A federal limited entry permit is required to participate in the limited entry sector of the fishery, with permits issued based on the fishing history of qualifying vessels. The limited entry program had the effect of “freezing” potential harvest capacity at the 1994 level. (1994)

The PFMC uses a number of management measures to regulate the fishery. In the effort to ensure year-round fishing and marketing opportunities, the PFMC divides each species/species complex OY into six, two-month cumulative **trip limit** periods. During each period, all FMP species are constrained by a landing limit. These limits are published in trip limit tables. (See Figure 1-2) In addition to trip limits, the fishery is also constrained

by annual harvest guidelines, size limits, species-to-species ratio restrictions, and other measures.

- The Enhanced Data Collection Project (EDCP), sponsored by the Oregon Department of Fish and Wildlife, collected data on discards in the Oregon trawl fishery. The EDCP produced the first estimates of discard incorporated into WOC commercial fisheries management. (1995-1998)
- The MFCMA, known today as the Magnuson-Stevens Fisheries Conservation and Management Act (MSFCMA), was reauthorized as the Sustainable Fisheries Act. The new authority emphasized the need to prioritize essential fish habitat, bycatch reduction, fishing communities and fishing vessel safety. The Act also brought substantial changes to the management of marine fisheries, with more stringent requirements to rebuild **overfished** fisheries and prevent overfishing. (1996)

Overfished – when the population of a groundfish is 25% or less of its “unfished biomass”. Unfished biomass is the size the stock would be if there were no fishing.
- A level of fishing mortality that jeopardizes the capacity of a fishery to produce a continuing maximum sustainable yield.

Table 3 (North) to Part 660, Subpart G -- 2005-2006 Trip Limits for Limited Entry Trawl Gear North of 40°10' N. Lat.
Other Limits and Requirements Apply -- Read § 660.301 - § 660.390 before using this table 112005

	JAN	FEB	MAR-APR	MAY-JUN	JUL-AUG	SEP-OCT	NOV-DEC
Rockfish Conservation Area (RCA) ^{6f}:							
North of 40°10' N. lat.	75 fm - modified 200 fm ^{7f}		100 fm - 200 fm		shoreline - 250 fm		
Selective flatfish trawl gear is required shoreward of the RCA; all trawl gear (large footrope, selective flatfish trawl, and small footrope trawl gear) is permitted seaward of the RCA. Midwater trawl gear is permitted only for vessels participating in the primary whiting season.							
See § 660.370 and § 660.381 for Additional Gear, Trip Limit, and Conservation Area Requirements and Restrictions. See §§ 660.390-660.394 for Conservation Area Descriptions and Coordinates (including RCAs, YRCA, CCAs, Farallon Islands, and Cordell Banks).							
State trip limits may be more restrictive than federal trip limits, particularly in waters off Oregon and California.							
¹ Minor slope rockfish ^{2f} & Darkblotched rockfish	2,000 lb/ month	4,000 lb/ 2 months					CLOSED
² Pacific ocean perch	1,500 lb/ month	3,000 lb/ 2 months					
³ DTS complex							
⁴ Sablefish							
⁵ large & small footrope gear	7,000 lb/ month	9,500 lb/ 2 months	17,000 lb/ 2 months	18,000 lb/ 2 months		11,000 lb/ 2 months	
⁶ selective flatfish trawl gear	2,500 lb/ month	10,000 lb/ 2 months		15,000 lb/ 2 months		11,000 lb/ 2 months	
⁷ multiple bottom trawl gear ^{8f}	2,500 lb/ month	9,500 lb/ 2 months	10,000 lb/ 2 months	15,000 lb/ 2 months		11,000 lb/ 2 months	
⁸ Longspine thornyhead							
⁹ large & small footrope gear	7,500 lb/ month	15,000 lb/ 2 months	23,000 lb/ 2 months			7,000 lb/ 2 months	
¹⁰ selective flatfish trawl gear	1,500 lb/ month	1,000 lb/ 2 months		8,000 lb/ 2 months		7,000 lb/ 2 months	
¹¹ multiple bottom trawl gear ^{8f}	1,500 lb/ month	1,000 lb/ 2 months		8,000 lb/ 2 months		7,000 lb/ 2 months	
¹² Shortspine thornyhead							
¹³ large & small footrope gear	2,000 lb/ month	3,500 lb/ 2 months	4,900 lb/ 2 months	5,200 lb/ 2 months		3,500 lb/ 2 months	
¹⁴ selective flatfish trawl gear	1,500 lb/ month	1,000 lb/ 2 months	3,000 lb/ 2 months	4,000 lb/ 2 months		3,500 lb/ 2 months	
¹⁵ multiple bottom trawl gear ^{8f}	1,500 lb/ month	1,000 lb/ 2 months	3,000 lb/ 2 months	4,000 lb/ 2 months		3,500 lb/ 2 months	
¹⁶ Dover sole							
¹⁷ large & small footrope gear	25,000 lb/ month	69,000 lb/ 2 months	30,000 lb/ 2 months		35,000 lb/ 2 months	20,000 lb/ 2 months	
¹⁸ selective flatfish trawl gear	10,000 lb/ month	35,000 lb/ 2 months	35,000 lb/ 2 months			20,000 lb/ 2 months	
¹⁹ multiple bottom trawl gear ^{8f}	10,000 lb/ month	35,000 lb/ 2 months	30,000 lb/ 2 months		35,000 lb/ 2 months	20,000 lb/ 2 months	

TABLE 3 (North)

Figure 1-2: Trip Limit Table Example

- By the late 1990's, the West coast fishery was showing signs of trouble. Ex-vessel revenue decreased by 47% between 1983 and 1999. This decline occurred in spite of a concurrent 12% increase in aggregate commercial shoreside groundfish landings, up to 121,500 metric tons. During this time period, rockfish landing fell by 78% and flatfish landings fell by 41%.
- The PFMC adopted a lower harvest rate for rockfish on the basis of scientific information suggesting those stocks were less productive than previously believed. (1998)



- Bocaccio rockfish, lingcod*, and Pacific ocean perch were designated as overfished by the PFMC (See Figure 1-3). (1999)

*Lingcod was declared rebuilt in 2005.

- A NOAA Fisheries (aka NMFS) report to Congress on the status of fish stocks on the west coast stated that five of fifty-four rockfish species were “approaching overfished condition”, four were “not approaching overfished condition”, and the status of the remaining forty-five species (83%) was unknown. (1998)

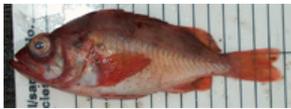
 <p>Yelloweye Rockfish Status: Declared overfished 2002 % of unfished biomass: 16.4% (2007) Generation time: 44 years Target rebuilding year: 2084</p>	 <p>Widow Rockfish Status: Declared overfished 2001 % of unfished biomass: 35.5% (2007) Generation time: 17 years Target rebuilding year: 2033</p>	 <p>Dark-blotched Rockfish Status: Declared overfished 2001 % of unfished biomass: 22.4% (2007) Generation time: 25 years Target rebuilding year: 2028</p>	 <p>Bocaccio Rockfish Status: Declared overfished 1999 (South of Cape Mendocino) % of unfished biomass: 13% (2007) Generation time: 14 years Target rebuilding year: 2026</p>
 <p>Cowcod Status: Declared overfished 2000 (South of Point Conception) % of unfished biomass: 3.8% (2007) Generation time: 38 years Target rebuilding year: 2061</p>	 <p>Canary Rockfish Status: Declared overfished 2000 % of unfished biomass: 32.4% (2007) Generation time: 22 years Target rebuilding year: 2020</p>	 <p>Pacific Ocean Perch Status: Declared overfished 1999 % of unfished biomass: 27.5% (2007) Generation time: 28 years Target rebuilding year: 2017</p>	 <p>Petrale Sole Status: Declared overfished 2009 % of unfished biomass: 11.6% (2009) Generation time: 16 years Target rebuilding year: TBD</p>

Figure 1-3: Overfished Species

- The West Coast Groundfish fishery was declared a failure by NOAA Fisheries. Penny Dalton, NOAA Fisheries director, said “A major underlying cause for the current situation is the lack of basic scientific data about these fish. If money is made available, we would like to work with fishermen to gather more data and improve our understanding of this valuable fishery.” (2000)

When a fishery is declared a failure, federal funds become available for any activity that will restore the fishery or prevent a similar failure, as long as the activity does not expand the commercial fishery failure into another fishery. Declarations of failed fisheries often lead to fleet capacity reduction programs.

- The PFMC designates Canary rockfish and Cowcod as overfished. (2000)

IV. The West Coast Groundfish Fishery and Observer Program Since 2001

<p>Discards – Individuals caught by fishing gear but not landed (thrown out at-sea)</p> <p>Retained – Individuals caught by fishing gear and landed (sold).</p>

- The PFMC implements the West Coast Groundfish Observer Program (WCGOP). The goal of the program is to gather the data necessary to manage the groundfish fisheries off the coasts of Washington, Oregon, and California. The WCGOP focuses on estimating the amount of **discards** in relation to **retained**. (May 2001)
- The At-Sea Hake Observer Program (A-SHOP) is moved from the Alaska Fisheries Science Center to the Northwest Fisheries Science Center. The A-SHOP collects data on large, factory trawlers that catch and process Pacific hake off the Oregon and Washington coasts. (2001)
- To reduce capacity in the limited entry sablefish endorsed fleet, the PFMC implements permit stacking.



Bycatch - Fish that are captured in a fishery, but that are discarded (returned to the sea) rather than being sold, kept for personal use, or donated to a charitable organization. Bycatch plus landed catch equals the total catch or total estimated fishing mortality.

Permit stacking allows each sablefish vessel to fish up to three permits on a single vessel. (2001)

- The first WCGOP training is conducted. (July 2001)
- The first WCGOP observers are deployed in the limited entry sablefish fleet. (August 2001)
- Observer coverage begins in the bottom trawl fleet. (September 2001)
- Darkblotched rockfish and widow rockfish are designated as overfished. (2001)
- The WCGOP begins pilot coverage in the nearshore open access fisheries in California and Oregon. (2002)
- Yelloweye rockfish is designated as overfished. (2002)
- The WCGOP publishes its first report on discard rates for the limited entry trawl fishery. These discard rates are incorporated into a **bycatch** model which predicts the total catch weight of a bycatch species at a given cumulative landing. The output of the model was used to set quotas for the 2004 limited entry trawl fishery. (2003)
- To reduce capacity in the trawl fleet, 92 limited entry trawl permits were bought out of the fishery by the US government and the remaining limited entry trawl and pink shrimp fishers. The bought out permits represented approximately 50% of trawl fleet effort. (November 2003)

To comply with the Sustainable Fisheries Act's commitment to end overfishing, the PFMCI implemented the Rockfish Conservation Area (RCA). The RCA is a depth-based closure, ranging from 75fm to 200fm. (See Figure 1-4) This area has the highest concentration of overfished species and with its closure the pressure on these species decreased

significantly. The specific closure area changes throughout the year based upon fish migration. (January 2004)

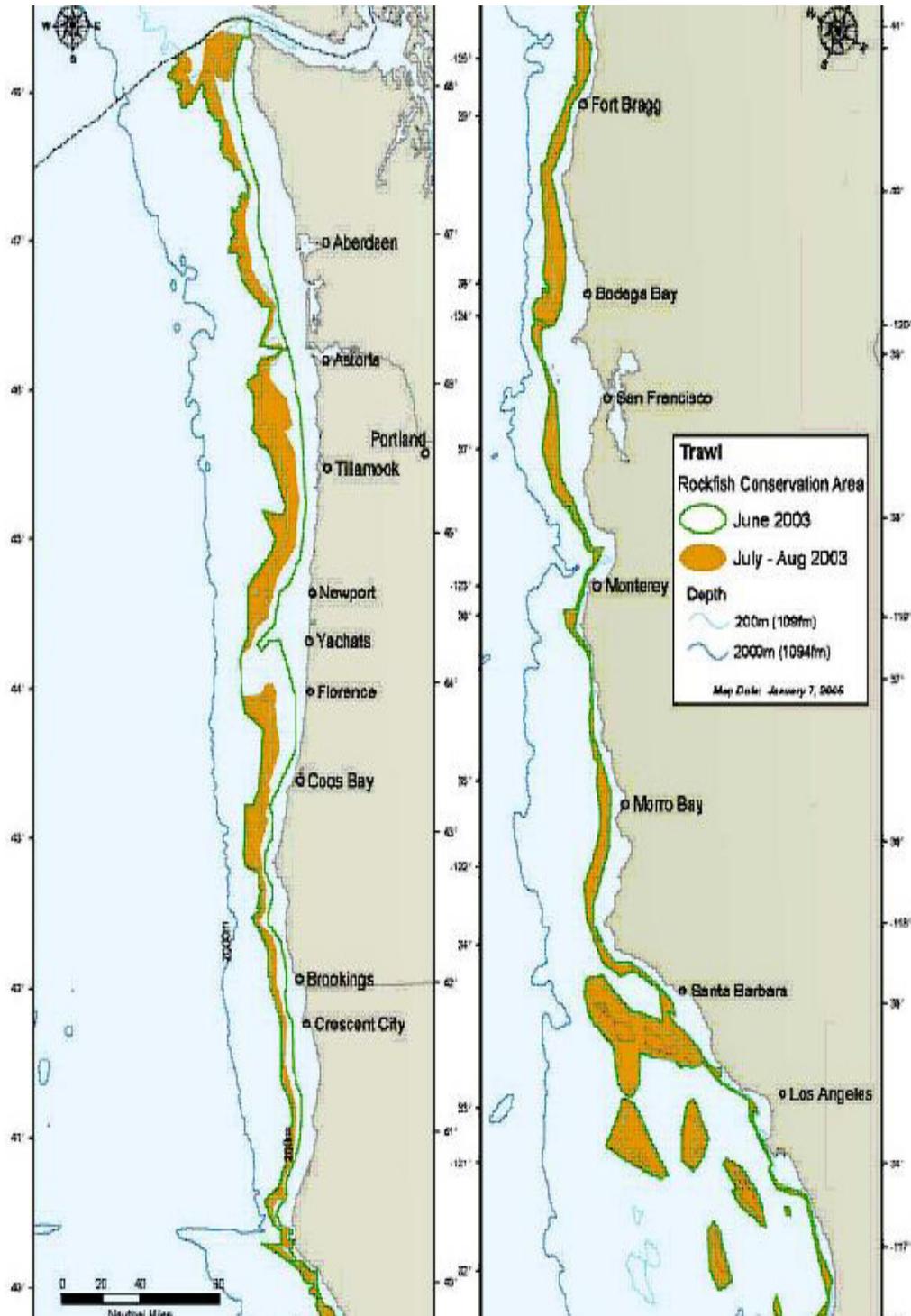


Figure 1-4: Rockfish Conservation Area

- The PFMC mandated the use of the selective flatfish trawl net (OR Set-back Flatfish net) shoreward of the RCA and North of 40° 10'. (2005)
- Congress reauthorizes the MSFCMA. Key provisions in the reauthorization include: (2006)
 - Mandates that every FMP contain an annual catch limit at a level such that overfishing does not occur in the fishery.
 - Directs the Fisheries Management Councils to follow the recommendations of the Scientific and Statistical Committee's (SSC's) in setting catch limits and increases the overall role of SSC's in management decisions. SSC's are expected to advise the Councils on stock status and health, acceptable biological catch, preventing overfishing, bycatch, achieving rebuilding targets, habitat status, social and economic impacts, and sustainability of fishing practices.
 - Requires that FMP's include measures to ensure accountability for the overages of harvest levels.
 - Establishes national guidelines for Limited Access Privilege Programs (LAPP's) for the harvesting of fish, including Individual Fishing Quotas (IFQ's).
 - Authorizes a national cooperative research and management program.
 - Establishes a regionally-based program dedicated to the development of technologies and methods to improve the ability of fishery participants to reduce bycatch and associated mortality.
- WCGOP biological information used in stock assessments. (2007)
- The PFMC adopted a system of individual fishing quotas, or IFQ's, for the shoreside trawl fishery. IFQ's are a federal permit to harvest a quantity of fish, usually a percentage of the total allowable catch in the fishery.



The system is not expected to be in place before January 1, 2011. (2008)

- The first Catch Shares observer went to sea on January 11, 2011. All LE Trawl vessel are covered 100% by the Catch Share observers.
- The Non-Catch Share observers continues to observe 6 other West Coast Fisheries. Limited Entry Sablefish Endorsed, Limited Entry Non-Sa bel fish Endorsed, Open Access Nearshore Rockfish (OR & CA), Open Access Fix Fixed Gear (WA. OR & CA), Open Access California Halibut (CA) and Open Access Pink Shrimp (WA, OR & CA).



Summary of WCGOP Data Reports

All reports can be found at: <http://www.nwfsc.noaa.gov/research/divisions/fram/observer/datareport/index.cfm>

Trawl Reports:

- Limited Entry Groundfish Trawl
 - January 2003
 - January 2004
 - January 2005
 - September 2005
 - September 2006
 - September 2007
 - October 2008
 - October 2009
 - October 2010
- California Halibut Trawl
 - August 2005
 - November 2008
 - October 2009
 - October 2010

- Pink Shrimp Trawl
 - November 2008
 - October 2009
 - October 2010

Fixed-Gear Reports:

- Non-Nearshore Fixed Gear Fisheries
 - February 2004 (LE Sablefish only)
 - February 2005 (LE Sablefish and Non-Sablefish)
 - September/October 2006 (LE Sablefish and Non-Sablefish)
 - September 2007 (LE Sablefish and Non-Sablefish)
 - October 2008 (LE Sablefish, LE Non-Sablefish, and Open Access Fixed Gear)
 - October 2009 (LE Sablefish, LE Non-Sablefish, and Open Access Fixed Gear)
 - October 2010
- Nearshore Fixed Gear Fisheries
 - May 2005
 - February 2007
 - November 2007
 - October 2008
 - October 2009
 - October 2010

Other Reports:

- Total Mortality
 - September 2006
 - December 2006
 - December 2007
 - December 2008
 - March 2009
- Pacific Halibut
 - October 2006
 - September 2007

- September 2008
- September 2009
- November 2009
- October 2010

- Marine Mammals, Seabirds, and Sea Turtles
 - July 2008
 - February 2010

- Salmon
 - February 2010

- Green Sturgeon
 - February 2010

- Discard and Total Catch of Selected Groundfish Species
 - March 2010
 - October 2010

CHAPTER 1
Introduction to the West Coast Fishery