6.0 DESCRIPTION OF THE FISHERIES MANAGEMENT REGIME

6.1 Management Systems

This chapter addresses policy, science, and management entities directly affected by changes to the current management regime, but does not include participants in the fishery or the fishing communities of the West Coast (see Chapter 7 for a description of the socioeconomic environment). The management regime is an important issue because it generates direct and indirect impacts. The regime is also itself affected by changes in law and policy, which can cumulatively affect the environment. This section is not intended to be a comprehensive description of the entire West Coast groundfish management regime. Rather the chapter provides a general overview of the management regime and focuses on management regime components such as stock assessments, catch accounting, observer programs, enforcement, and research fisheries. These components are all crucial to the process of determining sustainable fishery yields and many have been substantially modified by NMFS and the Council in recent years. Additionally the chapter briefly discusses enforcement issues affecting the efficacy of prescribed management measures with an emphasis on vessel monitoring systems. Impacts, considered in terms of public sector costs, are evaluated in Chapter 7.

In November 2002, the Council approved Amendment 17 to the groundfish FMP which implemented a biennial management cycle. The complexity of the previous annual cycle left little time for fishery managers to work on other initiatives to improve the management regime. Starting in 2005 and 2006, harvest specifications (ABCs and OYs) and management measures are established for two years. This new cycle extends Council decision-making over three meetings. At its November meeting, 14 months before the start of the biennium, the Council identifies preliminary ABCs and OYs. At the following April and/or March meeting, the Council finalizes these harvest specifications and identifies a preliminary range of management measures. The Council makes its final decisions on these management measures at the June meeting preceding the next biennium. This schedule allows enough time for NMFS to publish a proposed rule in the *Federal Register* and take public comment before its final decision on whether to approve the Council recommendations. More time is also available to meet the procedural and documentary requirements of NEPA. Finally, this cycle accommodates an "off-year" during which the Council and NMFS would be less occupied with ongoing management of the groundfish fishery and could spend more time on long-term initiatives such as developing better assessment models and surveys. More information on the management cycle and Council decision-making may be found in Appendix A, Section 1.1.2 of the 2005–06 groundfish harvest specifications FEIS (PFMC 2004b). More information Council priorities for preventing overfishing and achieving OY, for specification and apportionment of harvest levels, and for setting both short-term management measures and long-term management programs may be found in Chapters 4–6 of the FMP (PFMC 2006a).

Uncertainty in fishery management and constraining OYs combine to create a potentially intensive inseason management burden on the management regime. This section focuses on data systems and mechanisms for inseason management. Ongoing research, existing observer programs, and revised fishery sampling programs could provide improved information during the 2006–07 management cycle. Entities and documents including the Pacific Coast Groundfish FMP, the Council, and NEPA all provide rules and guidance on inseason use of new information.

6.1.1 Catch Monitoring and Accounting

Various state, Federal, and tribal catch monitoring systems are used in West Coast groundfish management. These are coordinated through the Pacific States Marine Fisheries Commission (PSMFC).

PacFIN is the commercial catch monitoring database, and RecFIN is the database for recreational fishery catch monitoring. There are two components to total catch: (1) catch landed in port, and (2) catch discarded at sea. Discards occur for regulatory reasons (i.e., catch in excess of trip and/or landing limits) and market reasons (i.e., catch of unmarketable species or size). A description of the relevant data systems used to monitor total catch and discards in commercial, recreational, and research fisheries follows. A description of how these data sources are used in modeling fishery impacts is in Section 4.5.

6.1.1.1 Monitoring Commercial Landings

Sorting requirements are now in place for all species with trip limits, HGs, or OYs, including all depleted species. This provides accounting for the weight of landed depleted species when catches are hailed at sea or landed. Limited entry groundfish trawl fishermen are also required to maintain state logbooks to record the start and haul locations, time, and duration of trawl tows, as well as the total catch by species market category (i.e., those species and complexes with sorting requirements). Landings are recorded on state fish receiving tickets. Fish tickets are designed by the individual states, PSMFC coordinates record-keeping requirements between state and Federal managers. Poundage by sorted species category, area of catch, vessel identification number, and other data elements are required on fish tickets. Landings are also sampled in port by state personnel to collect species composition data, otoliths for ageing, lengths, and other biological data. Federal observer sample rates vary between fishery and state, but the WCGOP attempts to sample about 20% of the landed catch. A suspension of at-sea sorting requirements coupled with full retention of catch is allowed in the whiting fishery (by FMP Amendment 10 and an annual EFP in the Shoreside Whiting sector). The at-sea whiting fishery has 100% on-board observer coverage, while the shoreside whiting sector brings most of their catch to port for sampling. Landings, logbook data, and state port sampling data are reported inseason to the PacFIN database managed by PSMFC (www.psmfc.org/pacfin/index.html). The GMT and PSMFC manage the Quota Species Monitoring (QSM) dataset reported in PacFIN. All landings of groundfish stocks of concern (depleted stocks and stocks below B_{MSY}) and target stocks and stock complexes in West Coast fisheries are tracked in QSM reports of landed catch. The GMT recommends prescribed landing limits and other inseason management measures to the Council to attain, but not exceed, total catch OYs of QSM species. Stock and complex landing limits are modified inseason to control total fishing-related mortality; QSM reports and landed catch forecasts are used to control the landed catch component.

6.1.1.2 Monitoring Recreational Catch

Recreational catch is monitored by the states as it is landed in port. These data are compiled by the PSMFC in the RecFIN database. The types of data compiled in RecFIN include sampled biological data, estimates of landed catch plus discards, and economic data. Descriptions of the RecFIN program, state recreational fishery sampling programs in Oregon and Washington, and the most recent data available to managers, assessment scientists, and the general public, can be found on the PSMFC web site at www.psmfc.org/recfin.

The MRFSS has been an integral part of the RecFIN program. Traditionally, there have been two primary components of the survey; field intercept surveys (administered under supervision of PSMFC) and a random phone survey of coastal populations (administered by a third party contracted by NMFS). The field intercept surveys have been used to estimate catch, and the phone survey has been used to estimate effort. The results of these two efforts are combined in the RecFIN data system maintained by PSMFC, and estimates of total effort and fishing mortality are produced along with other data potentially useful for management and stock assessments. However, MRFSS was not designed to estimate catch and effort at the level of precision needed for management or assessment; it was designed

to provide a broad picture look of national fisheries. Comparison with independent and more precise estimation procedures has shown wide variance in catch estimates. Inseason management of recreational fisheries using MRFSS has been compromised by inseason variance of catch estimates.

In recent years, efforts have been made to improve MRFSS for use in inseason management. Observing a growing concern with the use of MRFSS program data on the West Coast, California and policy representatives from the West Coast recommended the development of a new program to replace MRFSS. In response, staff from the CDFG and the PSMFC designed the CRFS, a new program for sampling California's recreational fisheries which incorporated both the comprehensive coverage of the MRFSS program and the high frequency on-site sampling of CDFG's Ocean Salmon Project. Additionally, in 2001 PSMFC, with support from NMFS, began a new survey to estimate CPFV fishing effort in California.

Washington and Oregon use the MRFSS system as a supplement to the extensive port sampling programs they use to derive most of their recreational catch estimates are derived. The Washington Ocean Sampling Program and the Oregon Boat Survey both operate annually from approximately April through October and focus on recreational finfish (including salmon, groundfish, halibut, and tuna) from private and charter fishing vessels.

A primary goal of West Coast recreational survey programs is to produce timely marine recreational, fishery-based data needed for sustainable management of marine recreational fishery resources. Continuing improvements to West Coast recreational fishery surveys should reduce uncertainty in recreational harvest estimates and improve preseason and inseason management processes, two important components of coastwide groundfish fishery management under constraining OYs.

6.1.1.3 Management Response to Catch Monitoring

Management measures are normally imposed, adjusted, or removed at the beginning of the biennial fishing period, but may, if the Council determines it necessary, be imposed, adjusted, or removed at any time during the period. As described in Section 6.2 of the Groundfish FMP, four different categories of management actions are authorized, ranging from automatic actions initiated by NMFS to full rulemaking actions requiring a minimum of two Council meetings. Inseason adjustments typically fall under the category of notice actions that are routine (as defined by the FMP) in nature and usually require one Council meeting and one *Federal Register* notice. Federal and/or state responses to management goals varies according to the specification of the harvest targets and are largely governed by the definitions in the FMP and Federal Regulations as follows:

> *Acceptable Biological Catch is a biologically based estimate of the amount of fish that may be harvested from the fishery each year without jeopardizing the resource. It is a seasonally determined catch that may differ from MSY for biological reasons. It may be lower or higher than MSY in some years for species with fluctuating recruitment. The ABC may be modified to incorporate biological safety factors and risk assessment due to uncertainty. Lacking other biological justification, the ABC is defined as the MSY exploitation rate multiplied by the exploitable biomass for the relevant time period.*
>
> *Optimum yield 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 maximum sustainable yield 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 maximum sustainable yield in such fishery (Federal regulations adds final sentence: OY may be expressed numerically (as a HG, quota, or other specification) or non-numerically).

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 (the second sentence is not included in Federal Regulations).

Harvest guideline is a specified numerical harvest objective which is not a quota. Attainment of a harvest guideline does not require closure of a fishery. (Identical language in Federal Regulations 50 CFR Part 660, Subpart G).

California

California has three possible courses of regulatory action for recreational fisheries when a harvest limit is reached.

1. Closure of recreational fisheries for any Federal groundfish, greenlings (of the genus *Hexagrammos*), California sheephead, and ocean whitefish when a Federal annual harvest limit for lingcod, rockfish, cabezon, or a subgroup of rockfish, and/or California scorpionfish has been exceeded or is projected to be exceeded (Section 27.82 of Title 14, California Code of Regulations).

   The CFGC has given CDFG the authority to close the following recreational fisheries when an annual harvest limit (OY or HG) established in regulation by NMFS for lingcod, rockfish, cabezon, or a subgroup of rockfish, and/or California scorpionfish has been exceeded or is projected to be exceeded: lingcod, rockfish, a subgroup of rockfish, California scorpionfish, cabezon, greenlings (of the genus *Hexagrammos*), California sheephead, ocean whitefish, and any Federal groundfish. Closures may encompass all state waters or specific areas, and may be for all or part of the calendar year. The CDFG must provide the public with a notice of the closure (via press release) at least 10 days before the closure is to take effect.

2. Closure of recreational fisheries for California sheephead, cabezon, or greenlings (of the genus *Hexagrammos*) when a state-established TAC or allocation is reached or is projected to be reached (Section 52.10 of Title 14, California Code of Regulations).

   Statewide TACs are established in regulation for California sheephead, cabezon, or greenlings (of the genus *Hexagrammos*). The regulation sets allocations for recreational and commercial fisheries. CFGC has given the CDFG the authority to close the recreational and commercial fisheries for these species when an allocation or TAC is reached or is projected to be reached prior to the end of the calendar year. For the closure of a recreational fishery, CDFG is required to provide the public with at least 10 days notice (via press release) prior to the closure.

3. Emergency action by CFGC (Section 240 of the Fish and Game Code).

The California State Legislature has authorized CFGC to adopt or repeal regulations on an emergency basis, provided the action is necessary for (1) the immediate conservation, preservation, or protection of birds, mammals, reptiles, or fish, including, but not limited to, any nests or eggs thereof, or (2) the immediate preservation of the public peace, health and safety, or general welfare. CFGC may adopt emergency regulations for recreational fisheries and for those commercial fisheries the Legislature has given CFGC the authority to regulate.

The law requires CFGC hold at least one hearing before taking emergency action, and the action is subject to the review of the Office of Administrative Law (OAL). Once CFGC takes action and submits the rulemaking file to OAL, OAL has 10 days to review the file and approve or disapprove the regulation. If OAL approves the regulation, then it is filed with the Secretary of State and is in effect for 120 days (unless the regulation specifies a shorter time period).

Emergency regulation lapses by operation of law unless CFGC files a completed rulemaking for a permanent regulation with OAL or OAL approves a re-adoption of the emergency regulation. The rulemaking for the permanent regulation must follow the normal rulemaking provisions of the Administrative Procedures Act. This includes a 45-day public notice.

Oregon

The Oregon State Legislature granted the Oregon Fish and Wildlife Commission (OFWC) the authority to adopt regulations under the Oregon Administrative Rules (OAR). The OFWC delegates the authority to adopt temporary rules to the Director of ODFW (Director). Temporary rules may be considered for various reasons, including the achievement of quotas, OYs, harvest limits or HGs, and to conform to Federal regulations. Temporary regulations can be adopted, filed and in effect within a single business day, but in practice, 72 hours public notice is usually provided. A temporary rule approved by the Director is ratified by the OFWC at its next meeting, usually within 30 days.

Once filed, copies of the temporary rule are distributed to all marine related ODFW and Oregon State Police offices. The ODFW information and education program creates and distributes a general public news release. Additionally, specific industry notices are developed and distributed throughout local fishing communities.

Once adopted, temporary regulations are in effect for 180 days. If the regulations need to remain in place for a longer duration, ODFW can adopt a permanent rule through the full OFWC process. This two-meeting process includes public notice of the intent for rulemaking, an economic analysis, and adequate public review.

Washington

The Washington State Legislature has granted the Washington Fish and Wildlife Commission (WFWC) the authority to adopt emergency regulations under the Revised Code of Washington (RCW) 77.04.090. WFWC has delegated the authority to adopt emergency regulations to the Director of WDFW. Emergency regulations may be considered for various reasons, including the achievement of quotas, OYs, harvest limits or HGs, and to conform with Federal regulations. The parameters for approving emergency regulations are not specified in the authority language. Emergency regulations can be adopted, filed, and in effect within 24 hours of being drafted.

Once adopted, emergency regulations are in effect for 120 days. During this time, if the regulation needs to remain in place for a longer duration, WDFW may consider adopting a permanent rule. Depending on the nature of the rule, it may have to go through the WFWC approval process. Once the

permanent rule process has been initiated, a second emergency regulation may be filed to extend the time period. For example, an emergency regulation filed on March 1 that must remain in effect for the calendar year would expire on June 28. Provided a permanent rule process has been initiated, a subsequent emergency regulation can be filed on June 29, that would remain in effect through October 26, in order to accommodate the time needed for the permanent rule process to be finalized.

Washington Administrative Code (WAC) 220-28-010 strengthens state's the ability to enforce emergency regulations, by stating, "It shall be unlawful to take, fish for or possess food fish or shellfish taken contrary to the provisions of any special season or emergency closed period prescribed in this chapter." A note at the end of the rule language also clarifies, "The department of fish and wildlife frequently adopts emergency rules of limited duration that relate to seasons, closures, gear, and other special matters concerning the industry...."

Once filed, copies of the emergency regulation are faxed to all WDFW regional offices and enforcement staff. WDFW also uses its Outreach and Education Program to inform the public of emergency regulations. Typically, a Fishing Rule Change Notice is distributed to local media and WDFWs sportfishing hotlines are updated within 24 hours of the rule adoption.

6.1.2 Standardized Bycatch Reporting Methodologies

Establishing a standardized bycatch reporting methodology and limiting bycatch to the extent practicable are MSA mandates. Effective bycatch accounting and control mechanisms are also critical for staying within target total catch OYs. The first element in limiting bycatch is accurately measuring bycatch rates by time, area, depth, gear type, and fishing strategy. This section describes West Coast programs designed to achieve these goals.

At its November 2005 meeting, the Council approved Amendment 18 to the Groundfish FMP. The Council recommendation addresses National Standard 9 and Section 303(a)(11) of the MSA, which require practicable means to minimize bycatch and bycatch mortality a standardized bycatch reporting methodology. The purpose of FMP Amendment 18 is to clearly and comprehensively describe measures that address these requirements, which have been established through long-term regulations and the biennial management process. The amendment also describes new measures that could be implemented by future regulatory or amendment actions. For additional information on Amendment 18 see the Council web page (www.pcouncil.org/groundfish/gffmp/gfa18.html).

6.1.2.1 West Coast Groundfish Observer Program

The WCGOP includes the Observer Team and collaborators from the PSMFC that direct the program, train new observers, and manage and analyze the bycatch data. On May 24, 2001, NMFS established the WCGOP to implement the *Pacific Coast Groundfish Fishery Management Plan* (50 CFR Part 660). This regulation requires all vessels that participate in commercial groundfish fisheries to carry an observer when notified to do so by NMFS or its designated agent. These observers monitor and record catch data, including species composition of retained and discarded catch. Observers also collect critical biological data such as fish length, sex, and weight. The program currently deploys observers coastwide on the permitted trawl and fixed-gear groundfish fleet, as well as on some vessels that are part of the open-access groundfish fleet.

The WCGOP is designed to provide estimates of fleet-wide discards in commercial fisheries; fish tickets are the mandated landings accounting mechanism. Logbook data need to be available to fully use observer data because observers initially record hail weights and logbook data for retained catch, and

these values need to be adjusted by fish ticket information to achieve total catch estimates. One difficulty is the need for a statistically significant number of observations of discard across all strata to determine representative bycatch rates for these strata.

NMFS first implemented the WCGOP in August 2001 to make direct observations of commercial groundfish discards. Given the skewed distribution of bycatch in West Coast groundfish fisheries, many observations in each sampling strata (i.e., target effort by gear type by area) are needed to estimate representative bycatch rates of depleted groundfish species. The seasonality of bycatch is an important management consideration. Target opportunities for healthy flatfish and DTS species vary seasonally and geographically. It is reasonable to expect bycatch rates of depleted groundfish species to vary in accordance with the co-occurrence of target species and depleted species.

The WCGOP has annually released annual reports since 2003 which describe the analysis of observer data for various fishery sectors and species collected under the program. These reports and background materials on the WCGOP are available on the Northwest Fisheries Science Center website at: www.nwfsc.noaa.gov/research/divisions/fram/observer/datareport/index.cfm.

NMFS continually reviews the program and has gradually expanded the programs coverage since its inception. Additionally, the NWFSC has worked closely with the Council and NMFS NWR to coordinate the availability of WCGOP results into the management regime. New WCGOP results are now incorporated into the fishery models and management regime in the fall, prior to the November through June management cycle. A description of how data from the WCGOP is being used in the modeling of commercial fishery impacts can be found in Section 4.5.

6.1.2.2 At-Sea Pacific Whiting Observer Program

To increase the utilization of bycatch otherwise discarded as a result of trip limits, Amendment 13 to the Groundfish FMP implemented an increased utilization program on June 1, 2001, which allows catcher/processors and motherships in the whiting fishery to exceed groundfish trip limits without penalty, providing specific conditions are met. These conditions include provisions for 100% observer coverage, non-retention of prohibited species, and either donation of retained catch in excess of cumulative trip limits to a bona fide hunger relief agency or processing of retained catch into mince, meal, or oil products.

Vessels participating in the at-sea Pacific whiting fisheries have been carrying observers voluntarily since 1991. NMFS made observer coverage mandatory for at-sea processors in July 2004 (65 FR 31751). These provisions have not only given fishery managers the tools necessary to allow the At-Sea Pacific Whiting Program to operate efficiently while meeting management goals, but have also provided scientists, through the observer coverage, an extensive amount of information on bycatch species. This dataset has both provided valuable information in the management of Pacific whiting, but has been used as a stock assessment data source.

6.1.2.3 Shore-based Pacific Whiting Observation Program

The Shoreside Hake Observation Program (SHOP) was established in 1992 to provide information for evaluating bycatch in the directed Pacific whiting fishery and for evaluating conservation measures adopted to limit the catch of salmon, other groundfish, and prohibited species. Though instituted as an experimental monitoring program, it has been continued annually to account for all catch in targeted whiting trip landings, enumerate potential discards, and accommodate the landing and disposal of non-sorted catch from these trips. Initially, the SHOP included at-sea samplers aboard shore-based whiting

vessels. However, when an ODFW analysis of bycatch determined no apparent difference between vessels with and without samplers, sampler coverage was reduced to shoreside processing plants. In 1995, the SHOP's emphasis changed from a high observation rate (50% of landings), to a lower rate (10% of landings), and increased emphasis on collection of biological information (e.g., otoliths, length, weight, sex, and maturity) from Pacific whiting and selected bycatch species (yellowtail rockfish, widow rockfish, sablefish, chub (Pacific) mackerel (*Scomber japonicus*), and jack mackerel (*Trachurus symmetricus*). The required observation rate was decreased as studies indicated that fish tickets were a good representation of what was actually landed. Focus shifted again due to 1997 changes in the allocation of yellowtail rockfish and increases in yellowtail bycatch rates. Since then, yellowtail and widow bycatch in the shoreside whiting fishery has been dramatically reduced because of increased awareness by fishermen of the bycatch and allocation issues involved in the SHOP program.

The SHOP is a cooperative effort between the fishing industry and state and Federal management agencies to sample and collect information on directed Pacific whiting landings at shoreside processing plants. Participating vessels apply for and carry an EFP issued by NMFS. Permit terms require vessels to retain all catch and land unsorted catch at designated shoreside processing plants. Permitted vessels are not penalized for landing prohibited species (e.g., Pacific salmon, Pacific halibut, Dungeness crab), nor are they held liable for overages of groundfish trip limits. For additional information and complete reports go to: www.dfw.state.or.us/MRP/hake/.

Since inception, an EFP has been adopted annually to allow suspension of at-sea sorting requirements in the shore-based whiting fishery enabling full retention and subsequent port sampling of the entire catch. However, EFPs are intended to provide for limited testing of a fishing strategy, gear type, or monitoring program that may eventually be implemented on a larger fleet-wide scale and are not a permanent solution to the monitoring needs of the shore-based Pacific whiting fishery.

The Council and NMFS are currently working to adopt a monitoring program to provide a full retention opportunity without the use of the EFP process and the Council adopted a preliminary range of alternatives for public review in June 2004. However, a number of issues on how a monitoring program would operate to meet analytical requirements under the MSA and ESA remain to be resolved and NMFS is working with the states and industry to prepare a revised range of alternatives for Council consideration. Council action is now scheduled for September and November 2006. If the Council takes final action according to this schedule NMFS will then develop the regulations needed to implement the program in 2007 and beyond.

6.1.2.4 Central California Marine Sport Fish Project

The CDFG has been collecting angler catch data from the CPFV industry intermittently for several decades in order to assess the status of the nearshore California recreational fishery. The project has focused primarily on rockfish and lingcod angling and has not sampled salmon trips. Reports and analyses from these projects document trends by port area in species composition, angler effort, catch, and, for selected species, CPUE, mean length, and length frequency. In addition, total catch and effort estimates are made based on adjustments of logbook data by sampling information.

Before 1987, catch information was primarily obtained on a general port basis from dockside sampling of CPFVs, also called party boats. This did not allow documentation of specific areas of importance to recreational anglers and was not sufficient to assess the status of rockfish populations at specific locations.

CPFV operators are required by law to record total catch and location for all fishing trips in logbooks provided by the CDFG. However, the required information is too general for use in assessing the status of the multi species rockfish complex on a reef by reef basis. Rockfish catch data are not reported by species and information on location is only requested by block number (a block is an area of 100 square miles). Many rockfishes tend to be residential, underscoring the need for site specific data. Thus, there is a strong need to collect catch information on board CPFVs at sea. However, locations of specific fishing sites are often not revealed for reasons of confidentiality.

In May 1987, the Central California Marine Sport Fish Project began on board sampling of the CPFV fleet. Data collection continued until June 1990, when state budgetary constraints temporarily precluded further sampling, resumed in August 1991, and continued through 1994. The program depends on the voluntary cooperation of CPFV owners and operators. Angler catches on board central and northern California CPFVs were sampled from fourteen ports, ranging from Crescent City in the north to Port San Luis (Avila Beach) in the south. For additional information on this program, see the PSMFC website at: (www.psmfc.org/recfin/ccmsp.htm).

6.1.2.5 Oregon Marine Recreational Observation Program

In response to depleted species declarations and increasing concerns about fishery interactions with these species, ODFW started this program to improve understanding of recreational impacts. There were three objectives to this program: (1) document the magnitude of canary rockfish discard in the Oregon recreational fishery; (2) improve the biological database for several rockfish and groundfish species; and (3) gather reef location information for future habitat mapping. A seasonal sampler was stationed in each of the ports of Garibaldi, Newport, and Charleston to ride recreational groundfish charter vessels coastwide in Oregon from July through September, 2001. The Garibaldi sampler covered boats out of Garibaldi, the Newport sampler covered both Newport and Depoe Bay, and the Charleston sampler covered Charleston, Bandon, and Brookings charter vessels. During a typical day the sampler would ride a five to eight hour recreational groundfish charter trip and spend the remainder of the day gathering biological and genetic data dockside from several rockfish and groundfish species for which little is known mostly due to their infrequency in the catch. When allowed by the captain, the sampler also obtained Global Positioning System (GPS) locations of fishing sites for future use by the Habitat Mapping Project of the ODFW Marine Resources Program. Results from this program have been incorporated into recreational fishery modeling by ODFW. This program has continued and expanded to document the magnitude of discard of all groundfish species, not just canary rockfish. For more information on this program as well as other fishery research and survey programs see the ODFW Marine Program website at: www.dfw.state.or.us/MRP/.

6.1.2.6 WDFW Groundfish At-Sea Data Collection Program

The WDFW At-Sea Data Collection Program was initiated in 2001 to allow fishery participants access to healthier groundfish stocks while meeting the rebuilding targets of depleted stocks and to collect bycatch data through an at-sea sampler program. The data collected in these programs could assist with future fishery management by producing valuable and accurate data on the amount, location, and species composition of the bycatch of rockfish associated with these fisheries, rather than using calculated bycatch assumptions. These data could also allow the Council to establish trip limits in the future that maximize fishing opportunities on healthy stocks while meeting conservation goals for depleted stocks.

In recent years, WDFW has implemented its At-Sea Data Collection Program through the use of Federal EFPs. In 2001, 2002, 2003, and 2004, WDFW sponsored and administered a trawl EFP for arrowtooth

flounder and petrale sole, and in 2002, WDFW also sponsored a midwater trawl EFP for yellowtail rockfish. The primary objective for these experimental fisheries was to measure bycatch rates for depleted rockfish species associated with these trawl fisheries. Fishery participants were provided access to healthier groundfish stocks and were constrained by individual vessel bycatch caps. State-sponsored samplers were used to collect data on the amount of rockfish bycatch caught on a per tow basis and to ensure the vessel complied with the bycatch cap; therefore, vessels participating in the EFP were required to have 100% sampler coverage. In 2003 and 2004, WDFW sponsored a longline EFP for spiny dogfish that also required 100% sampler coverage to measure the bycatch rate of depleted rockfish species associated with directed dogfish fishing.

6.1.2.7. WDFW Ocean Sampling Program

In addition to the At-Sea Data Collection Program, WDFW collects at-sea data through the Ocean Sampling Program. The at-sea portion is not intended to be an observer program for the purposes of enumerating the bycatch alone, but is coupled with shore-based sampling of anglers to calculate an estimated discard weight. At-sea samplers record biological information from discarded species. Shore-based creel surveys of anglers provide the estimate of total number of discards. Combining these two data sources yields estimates of the weight of total fishery discard by species.

6.1.2.8 Tribal Observer Program

Tribal directed groundfish fisheries are subject to full rockfish retention. For some rockfish species where the tribes do not have formal allocations, trip limits proposed by the tribes are adopted by the Council to accommodate incidental catch in directed fisheries (i.e., Pacific halibut, sablefish, and yellowtail rockfish). These trip limits are intended to constrain direct catches while allowing for small incidental catches. Incidental catch and discard of depleted species is minimized through the use of full rockfish retention, shore based sampling, observer coverage, and shared information throughout the fleets regarding areas of known interactions with species of concern. Makah trawl vessels often participate in paired tows in close proximity where one vessel has observer coverage. If landings on the observed vessel indicate higher than anticipated catches of depleted species, the vessels relocate and inform the rest of the fleet of the results (Steve Joner, Makah Fisheries Management, pers. comm., February, 2004). Fleet communication in order to avoid depleted species is practiced by all tribal fleets.

6.1.3 Exempted Fishing Permits

An EFP is a NMFS-issued Federal permit that authorizes a vessel to engage in an activity that is otherwise prohibited by the MSA or other fishery regulations for the purpose of collecting limited experimental data. EFPs can be issued to Federal or state agencies, marine fish commissions, or other entities, including individuals.

The specific objectives of a proposed exempted fishery may vary. The groundfish FMP provides for EFPs to promote increased utilization of underutilized species, realize the expansion potential of the domestic groundfish fishery, and increase the harvest efficiency of the fishery consistent with the MSA and the management goals of the FMP. However, EFPs are commonly used to explore ways to reduce effort on depressed stocks, encourage innovation and efficiency in the fisheries, provide access to constrained stocks while directly measuring the bycatch associated with those fishing strategies, and to evaluate current and proposed management measures.

Proposed EFPs are considered by the Council at the June meeting of the management year to allow the Council the opportunity to set-aside OY for EFPs it has tentatively approved. Final approval of EFPs for any given year occurs at the November Council meeting. For additional information on EFP protocols, visit the Council web site and review Council Operating Procedure 19 (www.pcouncil.org/operations/cops.html).

6.1.4 Research Fisheries

The reduction in directed fisheries and overall landings has resulted in less information available to fishery managers compromising efforts to assess stock abundance and recovery. There is an increasing reliance on fishery-independent sources of information such as research fisheries and surveys. This is particularly true for depleted species such as widow rockfish, yelloweye rockfish, cowcod, bocaccio, and canary rockfish since fisheries are designed to avoid areas inhabited by these species. There is a relatively sparse amount of data available for widow rockfish because widow rockfish directed fisheries have been eliminated and the Pacific whiting sectors have modified their behavior to avoid encounters with widow rockfish. Assessment scientists will continue to rely on research fisheries as landings, age composition, and logbook catch rate data from many fishery sources decreases. A summary of long-term research fisheries and resource surveys can be found in Appendix A, Section 1.1.1.3. of the 2005–06 groundfish harvest specifications FEIS (PFMC 2004b).

6.1.5 The Stock Assessment Process

The Council process for setting groundfish harvest levels and other specifications depends on periodic assessments of the status of groundfish stocks, rebuilding analyses of those stocks that are depleted and managed under rebuilding constraints, and a report from an established assessment review body or a STAR Panel. As appropriate, the SSC recommends the best available science for groundfish management decision-making in the Council process. The SSC reviews new assessments, rebuilding analyses, and STAR Panel reports and recommends the data and analyses that should be used to set groundfish harvest levels and other specifications for the following biennial management period.

NMFS is currently planning the next round of stock assessments for completion and review in 2007 for use in developing management measures and harvest specifications for the 2009–10 biennial management cycle. Rebuilding plans and stock assessments for depleted species are subject to review every two years. NMFS will also hold a series of workshops in 2006 focusing on data needs and available data sources for the list of stock assessments being considered for 2007. More information on the stock assessment process can be found in Appendix A, Section 1.1.1.1 of the 2005–06 groundfish harvest specifications FEIS (PFMC 2004b).

In 2004 and 2005 the Council reviewed its policy in regard to inseason management response to stock assessment results that become available during a biennial management cycle. The Council considered mechanisms for both liberalizing and constraining fisheries during a management cycle (mid-term) and took no action regarding adoption of a policy for mid-term adjustments in OY as a result of new stock assessment information. The Council remains in favor of existing language in Section 5.5.1 of the groundfish FMP which provides for adjustments only in the downward direction and only for depleted species.

6.1.6 Rebuilding Analyses

In the case of depleted species, stock assessment results form the basis of a rebuilding analysis, which in turn is used to develop rebuilding policies and choose the rebuilding target identified in each rebuilding plan. The elements of rebuilding analyses are described in the SSC Terms of Reference for Rebuilding Analyses (SSC 2005). This guidance has been incorporated into a computer program for conducting rebuilding analyses developed by Dr. Andre Punt and the Marine Population Assessment & Management Group (MPAM) at the School of Aquatic & Fishery Sciences, University of Washington. Copies of the computer software and documentation can be found at the MPAM web page at: fish.washington.edu/research/MPAM/Rebuild.htm.

In a rebuilding analysis the probability the depleted stock will reach the target biomass defining a rebuilt stock (B_{MSY} or $B_{40\%}$) is determined in the absence of fishing (T_{MIN}) and the maximum permissible rebuilding time under National Standard Guidelines (T_{MAX}). The target rebuilding year (T_{TARGET}) is determined based on these limits and the probability of achieving the target biomass by T_{MAX} (denoted P_{MAX}). Probability statements are an estimate that something may happen (in this case, that stocks will reach a given size in a specified time period) and thus also the level of risk associated with a given action. Additional information on rebuilding analysis and interpretation of results can be found in Section 3.2.2.2 of Amendment 16-1 to the Pacific Coast Groundfish FMP (PFMC 2003a).

The MSA mandates these rebuilding periods need to be the shortest time possible while taking into account the status and biology of the depleted stock, the needs of fishing communities, and the interaction of the depleted stock within the marine ecosystem. This mandate was underscored in an August 2005 ruling by the Ninth Circuit District Court on a challenge to the Council's darkblotched rockfish rebuilding plan. In accordance with that ruling, the Council decided to reconsider all adopted rebuilding plans to ensure they comply with the MSA as interpreted by the courts. In addition to the court ruling, Federal legislation has been introduced to reauthorize the MSA and NMFS is currently considering revisions to the National Standard Guidelines regarding the prevention of overfishing while achieving sustainable yield. Therefore, in the near future, the SSC is likely to review and revise the Terms of Reference for Rebuilding Analyses accordingly.

6.2 Enforcement

Enforcement of fishery regulations has become increasingly complex with the addition of large closed areas, smaller cumulative trip limits and bag limits, and depth-based closures for commercial and recreational fisheries. At the same time, decreased OYs and the need to rebuild depleted stocks has placed additional importance on controlling and monitoring fishery-related mortality. Enforcement agencies continue to use traditional methods to ensure compliance with groundfish fishery regulations including dockside sampling, at-sea patrols, and air surveillance. VMS dramatically enhances, rather than replaces, traditional enforcement techniques. Recent declines in enforcement agency budgets, combined with increased regulatory complexity, have stressed the ability to adequately monitor fisheries for regulatory compliance. In response, NMFS implemented a VMS monitoring program, which includes satellite tracking of vessel positions and a declaration system for those vessels legally fishing within an RCA. VMS was initially implemented on January 1, 2004, and is currently required on all vessels participating in the groundfish fishery with a limited entry permit. In November 2005, the Council recommended expansion of VMS requirements to all commercial vessels that take and retain, possess or land federally-managed groundfish species taken in Federal waters or in state waters prior to transiting Federal waters. Additionally, to enhance enforcement of closed areas for the protection of groundfish essential fish habitat, the Council recommends requiring VMS on all non-groundfish trawl vessels including those targeting pink shrimp, California halibut, sea cucumber, and ridgeback prawn.

Implementation of expanded VMS requirements is recommended to coincide with implementation of regulations for the protection of groundfish habitat but, no sooner than January 1, 2007.

Detailed descriptions of VMS and the analyses of VMS monitoring alternatives are contained in an EA prepared by NMFS and presented to the Council in support of decisions to first implement and later expand the VMS monitoring program (NMFS 2003). Additional information on VMS, including links to the supporting NEPA documentation, can be found on the Council web site at: www.pcouncil.org/groundfish/gfvms.html#info.

6.3 Education and Outreach

California, Oregon, and Washington have actively engaged in education and outreach programs to help recreational fisherman learn ways to minimize bycatch and fishery impacts on depleted species. Efforts include publication of fish identification guides and posters and identification of areas to be avoided due to relatively high abundance of depleted species. Additionally, research programs have been implemented to develop release techniques which reduce mortality and, once developed, educate fisherman in the application of these techniques. Education can be an effective way to reduce bycatch thereby reducing the need for intensive inseason management and frequent fishery closures due to the constraints of depleted species.

6.4 Managing with Risk and Uncertainty

Uncertainty in fishery management exists for many reasons including imperfect sources of data from the past, inaccurate or inadequate monitoring of current fisheries, and unknown future environmental conditions. All of these factors contribute to the risks associated with the assessment of stock status, the estimation of impacts to fish stocks due to fishery management measures, and the projections of future stock health under varying long-term management alternatives. Appendix A of the 2005–06 groundfish harvest specification FEIS includes discussions of risk in fishery management (PFMC 2004b); a detailed discussion of short-term costs versus long-term risk may be found in Section 1.2.1. For more information on the assessment of risk in long-term stock population projections see Section 1.1.1.2.