APPENDIX H
TO AMENDMENT 16-3
TO THE PACIFIC COAST GROUNDFISH FISHERY MANAGEMENT PLAN

YELLOWEYE ROCKFISH
(*SEBASTES RUBERIMUS*)
DRAFT REBUILDING PLAN

ADOPTED APRIL 2004

PACIFIC FISHERY MANAGEMENT COUNCIL

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1.0 Introduction

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended in 1996 by the Sustainable Fisheries Act (SFA), states: "For a fishery that is overfished, any fishery management plan, amendment, or proposed regulations... for such fishery shall... specify a time period for ending overfishing and rebuilding the fishery..." (Sec. 304(e)(4)). The MSA also states this time period "shall be as short as possible," and usually may not exceed 10 years. However, in setting a time period for rebuilding the stock, fishery managers may take into account various mitigating factors, such as the biology of the stock and the needs of fishing communities, such that the time period may exceed 10 years. Rebuilding plans must also take into account variations and contingencies in ecological and environmental conditions that cause maximum sustainable yield (MSY) biomass to vary over time, which affects the practicable time period for rebuilding the stock.

Further detail on stock rebuilding is provided in National Standards Guidelines (published in the Code of Federal Regulations, Chapter 50, Part 600). They specify how rebuilding should occur and, in particular, establish constraints on Council action (50 CFR 600.310(e)). Rebuilding should bring stocks back to a population size that can support MSY (B_{MSY}). A rebuilding plan must specify a target year (T_{TARGET}) based on the time required for the stock to reach B_{MSY}. This target is bounded by a lower limit (T_{MIN}) defined as the time needed for rebuilding in the absence of fishing (i.e., fishing mortality rate [F] = 0). Rebuilding plans for stocks with a T_{MIN} less than 10 years must have a target less than or equal to 10 years. If, as is the case with most of the groundfish stocks, the biology of a particular species dictates a T_{MIN} of 10 years or greater, then the maximum allowable rebuilding time, T_{MAX}, is the rebuilding time in the absence of fishing (T_{MIN}) plus "one mean generation time." Mean generation time is a measure of the time required for a female to produce a reproductively-active female offspring (Pielou 1977; Restrepo, *et al.* 1998 and especially) calculated as the mean age of the net maternity function (product of survivorship and fecundity at age). The MSA states that although the rebuilding time should be as short as possible, the needs of fishing communities are a mitigating factor (Sec. 304(e)(A)(i)). In order to balance the need to rapidly rebuild overfished stocks with resulting socioeconomic impacts to fishing communities, the Council has chosen the target years for overfished stocks which are greater than the minimum rebuilding time (T_{MIN}).

Because of the uncertainty surrounding stock assessments and future population trends (due, for example, to variable recruitment), the rebuilding period limits and the target need to be expressed probabilistically. At the outset of the rebuilding period T_{TARGET} should be set so there is at least a 50% probability of achieving B_{MSY} within the T_{MAX}.[1/] For a given fishing mortality rate, rebuilding analyses also provide an estimate of the probability the stock will rebuild by T_{MAX}; this statistic is denoted P_{MAX}.

The Council developed Amendment 12 to the Pacific Coast Groundfish Fishery Management Plan (FMP) to specify an effective process for implementing rebuilding plans. This amendment was approved by the Council in April 2000 and approved by National Marine Fisheries Service (NMFS) on December 7, 2000. However, in January 2001, the Natural Resources Defense Council (NRDC), along with other conservation organizations, challenged the adequacy of Amendment 12 (*Natural Resources Defense Council, Inc. et al., v. Donald Evans, Secretary of Commerce, et al.,* 168 F. Supp. 2d 1149 (N.D. Cal 2001)) in Federal District Court. They claimed rebuilding plans submitted pursuant to Amendment 12 were inadequate for two reasons. First, they did not take the form of FMPs, plan amendments, or regulations as required by the MSA. Second, rebuilding plans could allow overfishing under the "mixed-stock exception." The NRDC argued that the overfished species provisions in the SFA demonstrate Congress's intent to eliminate this exception, so

1/ The use of a low bound 50% probability is not specified in regulations; it is the result of litigation (*Natural Resources Defense Council* v. *Daley, April 25, 2000, U.S. Court of Appeals for the District of Columbia Circuit*).

rebuilding plans should not entertain this exception. The Plaintiffs also argued that the environmental assessment (EA) accompanying Amendment 12 failed to consider a reasonable range of alternatives as required by the National Environmental Policy Act (NEPA). The Court found for the Plaintiffs on the claim that rebuilding measures must conform to the MSA-mandated format of a plan, plan amendment, or regulation and the NEPA-related claim of an inadequate range of alternatives. The Court decided the second MSA-related claim, on the validity of the mixed-stock exception, was not ripe for judicial review because the exception had not yet been applied to Pacific groundfish management. In response to its findings, the Court ordered NMFS to revise Amendment 12, so rebuilding plans accord with MSA and NEPA requirements.

Because of the litigation described above, in late 2001 work began on a new FMP amendment for the rebuilding plan adoption process that would be consistent with the Court's findings. The Council and NMFS published a Notice of Intent (NOI) to prepare an EIS on April 16, 2002 (67 FR 18576). According to this NOI, the EIS would evaluate two sets of alternatives: one set addressing the framework for rebuilding plan adoption (or the "process and standards") and a second set evaluating different rebuilding strategies that could be adopted as rebuilding plans for overfished species. (These strategies are described in terms of targets and limits, such as T_{TARGET}, T_{MIN}, T_{MAX}, harvest control rules satisfying a given target, and potential management measures to constrain fishing mortality to levels determined by the harvest control rule.) Based on internal discussion, Council staff decided in late 2002 that the process and standards alternatives should be analyzed in a separate environmental document and adopted as Amendment 16-1. Amendment 16-1 establishes a legally-compliant framework for the adoption and implementation of rebuilding plans. Once rebuilding plans are adopted and approved, two strategic rebuilding parameters, the target rebuilding year (T_{TARGET}) and the harvest control rule (expressed as a fishing mortality rate), are published in federal regulations at 50 CFR 660.370.

Evaluated in an EA, Amendment 16-1 was approved by NMFS in November 2003, and the final rule was published on February 26, 2004 (69 FR 8861) with an effective date of March 29, 2004. Amendment 16-2 adopted rebuilding plans for canary rockfish, darkblotched rockfish, lingcod, and Pacific ocean perch. The Council adopted these rebuilding plans at their June 2003 meeting. NMFS approved the amendment on January 30, 2004, and the final rule for this action was published on April 13, 2004 (69 FR 19347) with an effective date of May 13, 2004. The Council adopted rebuilding plans addressed by Amendment 16-3, covering bocaccio, cowcod, widow rockfish, and yelloweye rockfish, at their April 2004 meeting.

Section 4.5.3.2 of the Pacific Coast Groundfish FMP, as amended, states that rebuilding plans as a whole will be published in the next annual Stock Assessment and Fishery Evaluation (SAFE) document after their approval. It also specifies the contents of rebuilding plans. The remainder of this rebuilding plan addresses the topics as enumerated in the FMP, except for the last two topics. Topic eight, a discussion of how the rebuilding plan will reflect traditional participation in the fishery by U.S. fishermen for fisheries managed under international agreement is not relevant to this rebuilding plan. Topic nine simply states that any additional information useful to the rebuilding plan's goals and objectives be included. Such information is included under the first six topics, enumerated below, as appropriate.

2.0 The Biology and Current Status of the Stock and Fisheries Affected by Stock Rebuilding Measures

2.1 Life History Characteristics

Yelloweye rockfish (*Sebastes ruberrimus*) range from the Aleutian Islands, Alaska, to northern Baja California, Mexico, and are common from Central California northward to the Gulf of Alaska (Eschmeyer, *et al.* 1983; Hart 1988; Love 1991; Miller and Lea 1972; O'Connell and Funk 1986). Yelloweye rockfish occur in water 25 m to 550 m deep with 95% of survey catches occurring from 50 m to 400 m (Allen and

Smith 1988). Yelloweye rockfish are bottom dwelling, generally solitary, rocky reef fish, found either on or just over reefs (Eschmeyer, *et al.* 1983; Love 1991; Miller and Lea 1972; O'Connell and Funk 1986). Boulder areas in deep water (>180 m) are the most densely populated habitat type, and juveniles prefer shallow-zone broken-rock habitat (O'Connell and Carlile 1993). They also reportedly occur around steep cliffs and offshore pinnacles (Rosenthal, *et al.* 1982). The presence of refuge spaces is an important factor affecting their occurrence (O'Connell and Carlile 1993).

Yelloweye rockfish are ovoviviparous and give birth to live young in June off Washington (Hart 1988). The age of first maturity is estimated at six years and all are estimated to be mature by eight years (Wyllie Echeverria 1987). They can grow to 91 cm (Eschmeyer, *et al.* 1983; Hart 1988) and males and females probably grow at the same rates (Love 1991; O'Connell and Funk 1986). The growth rate levels off at approximately 30 years of age (O'Connell and Funk 1986), but they can live to be 114 years old (Love 1991; O'Connell and Funk 1986). Yelloweye rockfish are a large predatory reef fish that usually feeds close to the bottom (Rosenthal, *et al.* 1982). They have a widely varied diet, including fish, crabs, shrimps and snails, rockfish, cods, sand lances, and herring (Love 1991). Yelloweye rockfish have been observed underwater capturing smaller rockfish with rapid bursts of speed and agility. Off Oregon the major food items of the yelloweye rockfish include cancroid crabs, cottids, righteye flounders, adult rockfishes, and pandalid shrimps (Steiner 1978). Quillback and yelloweye rockfish have many trophic features in common (Rosenthal, *et al.* 1982).

2.2 Current Stock Status and Management History

The first ever yelloweye rockfish stock assessment was conducted in 2001 (Wallace 2002). This assessment incorporated two area assessments: one from Northern California using catch per unit effort (CPUE) indices constructed from Marine Recreational Fisheries Statistical Survey (MRFSS) sample data and CDFG data collected on board commercial passenger fishing vessels (CPFV), and the other from Oregon using Oregon Department of Fish and Wildlife (ODFW) sampling data. The assessment concluded current yelloweye rockfish stock biomass is about 7% of unexploited biomass in Northern California and 13% of unexploited biomass in Oregon. The assessment revealed a thirty-year declining biomass trend in both areas with the last above average recruitment occurring in the late 1980s. The assessment's conclusion that yelloweye rockfish biomass was well below the 25% of unexploited biomass threshold for overfished stocks led to this stock being separated from the rockfish complexes in which it was previously listed. Until 2002, when yelloweye rockfish were declared overfished, they were listed in the "remaining rockfish" complex on the shelf in the Vancouver, Columbia, and Eureka International North Pacific Fishery Commission (INPFC) areas and the "other rockfish" complex on the shelf in the Monterey and Conception areas. As with the other overfished stocks, yelloweye rockfish harvest is now tracked separately.

In June 2002 the SSC recommended that managers should conduct a new assessment incorporating Washington catch and age data. This recommendation was based on evidence that the biomass distribution of yelloweye rockfish on the West Coast was centered in waters off Washington and that useable data from Washington were available. Based on that testimony, the Council recommended completing a new assessment in the summer of 2002, before a final decision was made on 2003 management measures. Methot *et al.* (2002) did the assessment, which was reviewed by a Stock Assessment Review (STAR) Panel in August 2002. The assessment result was much more optimistic than the one prepared by Wallace (2002), largely due to the incorporation of Washington fishery data. While the overfished status of the stock was confirmed (24% of unfished biomass), Methot, *et al.* (2002) provided evidence of higher stock productivity than originally assumed. The assessment also treated the stock as a coastwide assemblage. This assessment was reviewed and approved by the SSC and the Council at the September 2002 Council meeting.

2.3 Fisheries Affected by the Rebuilding Plan

Because yelloweye rockfish prefer rocky reef habitat on the continental shelf, they are most vulnerable to recreational and commercial fixed gear fisheries. In the past, the groundfish trawl sector has accounted for a large proportion of the catch: from 1990 to 1997 trawlers took an average of 46% of the catch coastwide (although most catches occur in Washington and Oregon waters). (This discussion is based on data in the table on page 3 of Methot, *et al.* 2003.) Trip limit reductions after 1997 and the imposition of restrictions on large footrope trawl gear in 2000 has substantially diminished the amount of yelloweye rockfish caught by the trawl sector. (Large footrope gear made it possible for trawlers to access the rocky habitat where yelloweye live.) Trawl vessels accounted for only 14% of the catch on average from 1998 to 2001. Commercial fixed gear catches have also taken a significant share of the catch, 38% in the years 1990-1997. However, the implementation of the nontrawl Rockfish Conservation Area (RCA), which encloses much yelloweye habitat, has resulted in their share falling also. Limited entry fixed gear vessels are projected to take only 100 kg of yelloweye rockfish in 2004. Open access fisheries are projected to take 9% of the total projected yelloweye catch in 2004, with directed groundfish fisheries and the Pacific halibut longline fleet accounting for the bulk of those catches. Recreational catches have become more significant with the reduction in commercial catches. Comparing the 1990-1997 and 1998-2001 periods, their share of the total coastwide catch almost doubled to 30%, although actual average catches declined slightly. In 2004 they are projected to take half of the total catch, mostly in Washington State waters.

Table 1 shows the distribution of yelloweye rockfish landings by major fishery sector in 2003.

TABLE 1. 2003 base landed catch by fishery for yelloweye rockfish (mt).

Sector	Postseason Catch Estimates for 2003
Recreational[a/]	11.91
Fixed Gear Limited Entry	0.14
Open Access	0.04
Tribal	0.27
Research	0.96
Trawl (Shoreside)	0.86
Trawl (At Sea)	0
Total Postseason Catch Estimate[b/]	14.18
2004 Estimated Total Mortality[c/]	16.2
2004 Total Catch OY[c/]	22
1998 Total Catch OY	n/a

a/ Preliminary.
b/ Federal permits only; does not include Oregon and California state-issued scientific fishing permits.
c/ From Table 5-12 Amendment 16-3 Rebuilding Plans EIS. Projected annual estimated mortality as of March 15, 2004. Category totals include landings made on exempted fishing permits (EFPs).

3.0 Methods Used to Calculate Stock Rebuilding Parameters

The rebuilding analysis (Methot and Piner 2002) uses the methods outlined in the SSC Terms of Reference (SSC 2001) for stock rebuilding. Section 4.5.2 of the Pacific Coast Groundfish FMP explains this methodology in general terms.

4.0 Estimates of Rebuilding Parameter Values at the Time of Rebuilding Plan Adoption

Amendment 16-3 incorporates rebuilding parameter values into Section 4.5.4.1 of the Pacific Coast Groundfish FMP. These values are derived from the stock assessment (Methot, *et al.* 2003) and rebuilding analysis (Methot and Piner 2002). They are as follows:

Year stock declared overfished:	2002
Year rebuilding plan adopted:	2004
B_0:	3,875 mt
B_{MSY}:	1,550 mt
$B_{CURRENT}$ (% of B_0)	24% in 2002
T_{MIN}:	2027
T_{MAX}:	2071
P_{MAX}:	80%
T_{TARGET}:	2058
Harvest control rule:	F = 0.0153

For the harvest control rule, the fishing mortality rate is applied to the exploitable biomass estimate to determine the optimum yield (OY) for a given fishing period. In 2004 this resulted in an OY of 22 mt.

Rebuilding parameter values are likely to change over time as stock size and structure changes, as revealed by new stock assessments. While most of these parameters reflect the biology of the stock or national policy described in National Standard Guidelines, the interrelated values of the target year and the harvest control rule may be changed by the Council. For example, changes in stock productivity may necessitate revision of the harvest control rule in order to rebuild the stock by the identified target year with the same rebuilding probability (P_{MAX}). The values of these two parameters are published in federal regulations (50 CFR 660.370), and any such change is subject to notice-and-comment rulemaking.

5.0 Process and Standards For Reviewing the Rebuilding Plan

The MSA states that the Secretary of Commerce shall review rebuilding plans routinely, and at least every two years, to determine if adequate progress is being made in stock rebuilding (§304(e)(7)). Section 4.5.3.1 of the Pacific Coast Groundfish FMP describes a range of review processes and standards that may be used by the Council to conduct such a review. For all adopted rebuilding plans the Council chose the following standard:

> The Council, in consultation with the Scientific and Statistical Committee (SSC) and Groundfish Management Team (GMT), will determine on a case-by-case basis whether there has been a significant change in a parameter such that the chosen management target must be revised.

As part of their statement at the April 2004 Council meeting (Exhibit C.12.b, Supplemental SSC Report), the SSC discussed the development of criteria to be used in the case-by-case review process adopted by the Council for rebuilding plan reviews:

> The SSC notes that each rebuilding plan needs to include standards for evaluating the progress of rebuilding. These standards need to be developed for use in the assessments that will be conducted during 2005. As directed by the Council, the SSC Groundfish Subcommittee will develop standards and include them in its Terms of Reference for Rebuilding Analyses. This may require a meeting of the SSC Groundfish Subcommittee, particularly if a draft set of standards are to be provided to the Council for revision in September 2004 and final adoption in November 2004. The standards are likely to include a comparison of current stock status relative to that expected under the current rebuilding plan.

6.0 Management Measures Used to Rebuild the Stock

6.1 Management Measures Incorporated into the FMP Specifically to Rebuild Yelloweye Rockfish

Given the particular life history characteristics of yelloweye rockfish, the Council will continue to use the Yelloweye Rockfish Conservation Area (YRCA), a species-specific area closure, to protect yelloweye rockfish. As new information becomes available on yelloweye rockfish behavior and fisheries interactions with yelloweye rockfish, the boundaries or related regulations concerning the current YRCA may change, and additional YRCAs may be established by regulation. Other types of management measures are implemented through the biennial management cycle. To provide information about the types of management measures implemented through the periodic management cycle, harvest specifications and management measures applying to yelloweye rockfish in 2004 are discussed below.

6.2 Management Measures Used in 2004 to Rebuild the Stock

The Pacific Coast Groundfish FMP establishes a framework for the periodic application of harvest specifications and management measures. Harvest specifications consist of "optimum yield" (OY) values (a total allowable catch) applicable to a calendar year. OYs are established individual stocks, stock complexes, and species groups, and represent a total fishing mortality (landed catch plus bycatch) threshold. All fully assessed stocks, and therefore all overfished species, have individual OYs. A variety of management measures are applied to constrain total fishing mortality to a level at or below the OY. With the adoption of the FMP Amendment 17 the Council transitioned to a two-year management cycle. OYs still apply to a calendar year, but the process of establishing them and identifying necessary management measures occurs every two years. With implementation, 2004 is the last year in the annual cycle; the first biennial cycle applies to 2005-2006.

Groundfish fisheries are multi-species; several target species and a range of incidentally-caught species may be caught in a single haul. For this reason, there are few management measures intended solely for a single overfished stock. Instead, a variety of measures are applied to a given fishery sector to constrain fishing mortality of the full range of target and incidentally-caught species. The current management regime, therefore, induces regulatory discards, which for overfished species can be an important component of total fishing mortality. Bycatch has, therefore, become a crucial issue in effective groundfish management. This has necessitated the development of more accurate estimates of bycatch in order to track total fishing

mortality. The measures in effect in 2004 and their effect on constraining yelloweye rockfish catches are summarized below. This list generally follows the discussion of management measures that may be implemented as part of the framework described in Section 6.2 of the Pacific Coast Groundfish FMP. A more detailed discussion of many of these measures may be found in the Final EIS for the 2004 groundfish harvest specifications and management measures (PFMC 2004b).

Harvest limits (harvest guidelines or quotas): As described above, the Council sets OYs for each overfished stock (among other managed species). For overfished species these OYs are calculated based on information from the most recent stock assessment and rebuilding analysis with the value determined by the strategic parameters (T_{TARGET}, $P_{MAX,}$ and harvest control rule) identified in the rebuilding plan. Although resulting OYs are considered harvest guidelines, the Council has treated them as hard limits on total fishing mortality for overfished species. For example, they have closed fisheries late in the year if an overfished species' OY is projected to be exceeded. Projected landings of yelloweye rockfish in 2004 were estimated at 15.4 mt, or 70% of the 22 mt 2004 OY when management measures were adopted. Total catch is below the OY both because of management measures put in place to constrain the catch of other overfished species, such as canary rockfish, and measures directed specifically at yelloweye rockfish. Inseason actions on updated impact analysis may utilize all or a fraction of the available OY.

Permits, licenses, and endorsements: Participation in the Washington, Oregon, and California groundfish fishery was partially limited beginning in 1994 when the federal vessel license limitation program was implemented (Amendment 6). Subsequently, Amendment 9 further limited participation in the fixed-gear sablefish fishery by establishing a sablefish endorsement. There is currently no federal permit requirement for other commercial participants (fishers or processors) or recreational participants (private recreational or charter). A buyback of vessels in the limited entry trawl fishery, and associated permits, was completed in 2003. This reduced participation in this sector by roughly one-third.

Trip landing and frequency limits: Cumulative trip limits have been a key fixture of groundfish management for many years. Currently, these limits set for stocks, stock complexes, and species groups dictate the total amount of fish that may be landed during a two-month period. Separate limits are established for the limited entry trawl, limited entry fixed gear, and open access sectors. Landing limits on target species may be adjusted in order to limit coincident catch of overfished species. For limited entry trawl vessels, yelloweye rockfish landings are managed under the minor shelf rockfish cumulative limits. These limits differ for large and small footrope gear. North of 40º10' N latitude retention is prohibited if large footrope gear is used; for small footrope gear the cumulative limits are 300 lbs per month for all minor shelf rockfish species or 1,000 pounds per month for all minor shelf rockfish species with a sub-limit of 200 pounds per month for yelloweye rockfish, depending on season. South of 40º10' N latitude a 300 pound per month cumulative limit applies for all minor shelf rockfish. Retention is prohibited in the limited entry fixed gear and open access sectors.

Seasons: California manages its recreational fisheries according to four sub-areas defined by latitudinal boundaries. Different closed seasons have been applied, and modified inseason, primarily to limit canary rockfish catches, the most constraining of the overfished species. But these actions also serve to limit recreational catches of yelloweye rockfish.

Area closures: Beginning in 2002, an RCA came into use as a way of decreasing bycatch of overfished species. It encloses the depth ranges where bycatch of overfished species is most likely to occur, based on information retrieved from log books and the at-sea observer program, and fishing by designated groundfish fishery sectors is prohibited within its boundaries. The boundaries vary by season and fishery sector and may be modified in response to new information about the geographic and seasonal distribution of bycatch. The nontrawl RCA in Washington State waters extends from the shoreline to 100 fm, encompassing important yelloweye rockfish habitat. In Oregon and Northern California waters (to 40º10' N latitude, a line near Cape

Mendocino, California) the shoreward boundary is 30 fm. Few yelloweye rockfish are caught south of the 40º10' N latitude line, so the RCA along that part of the coast does not directly meaningfully affect yelloweye rockfish catches. As noted above, the YRCA has also been established (see Figure 1). This is an area where yelloweye rockfish are known to be abundant and is closed to recreational groundfish and Pacific halibut harvest. Recreational groundfish fisheries in Oregon are closed in depths greater than 40 fm from June through September to reduce canary rockfish catches. Washington and Oregon also have mechanisms in place to implement additional closed areas if the canary rockfish catches approach the harvest guideline for that species. These measures, intended primarily to limit canary rockfish catches, also act to constrain recreational bycatch of yelloweye rockfish.

Gear restrictions: Definitions of legal gear types and restrictions on mesh size in trawl gear have been part of the FMP since its inception. More recently, restrictions have been put on the use of trawl nets equipped with large footropes. By using large footropes with heavy roller gear, bottom trawlers can access rocky habitat on the continental shelf. In areas shoreward of the RCA large footrope gear is prohibited, preventing trawlers from assessing rocky habitat in these shallower depths, prime habitat for yelloweye rockfish. In areas seaward of the RCA, either small or large footrope gear may be used, although large footrope gear is the preferred type in these depths. In addition, cumulative trip limits are structured to encourage vessels to fish exclusively in deep water where some overfished species, including yelloweye rockfish, are less likely to be encountered. Vessels are allowed to use all gear configurations during any given cumulative limit period. However, trawl vessels which use the small footrope configuration are restricted to lower cumulative trip limits for target species in comparison to vessels using large footrope configurations. As noted above, there are gear-related differential limits for the minor shelf rockfish complex, which yelloweye rockfish are managed under. The retention prohibition for large footrope gear and small cumulative limits for small footrope gear (north of 40º10' N latitude) discourage targeting on these species.

Exempted fishing permits (EFPs) have been authorized to test new gear that reduces the incidental catch rate of overfished species. A trawl net design with a cut back headrope has been extensively tested in Oregon and Washington waters and is being tested in California waters. Tests show substantial reduction in catches of some rockfish species while maintaining catch rates for target flatfish species. Sufficient testing has occurred in Oregon waters to transition this modified gear configuration into the regulatory regime for fisheries north of 40º10' N latitude as a replacement for small footrope trawl gear shoreward of the RCA. This is likely to occur as part of the management measures implemented for the 2005-2006 biennium.

Size limits: There is no size limit for yelloweye rockfish.

Bag limits: These measures are used for recreational fisheries. Yelloweye rockfish may not be retained by recreational fishermen.

Fishery monitoring and bycatch estimation: All groundfish landings are monitored through a fishticket system requiring reporting by buyers and processors. As noted, bycatch has become a crucial component of total fishing mortality for overfished species. NMFS has developed a "trawl bycatch model" (Hastie 2001; Hastie 2003a), which is used to project total fishing mortality in the limited entry groundfish trawl fishery for key species, based on a given set of management measures.[2/] This model includes a depth component and is used to determine the depth ranges enclosed by the RCA. NMFS implemented the West Coast Groundfish Observer Program in August 2001, and these data were first used to estimate total fishing mortality beginning in mid-2003. The trawl bycatch model has been continually updated, both to evaluate the effect of different

2/ A large proportion of total groundfish landings is attributable to this sector. Accurately predicting total catch mortality in this sector is, therefore, crucial in determining how well a given set of management measures will constrain fishing to OYs.

closed area configurations on total fishing mortality and to incorporate new bycatch rates based on observer data (Hastie 2003b). In 2004 bycatch modeling was expanded to the primary sablefish fishery prosecuted by limited entry fixed gear vessels (Hastie 2004). As more observer data from different fishery sectors become available, further model extensions will be developed to more accurately estimate bycatch of overfished species in these sectors.

In recent years, efforts have been made to improve recreational fishery sampling in California. For instance, in 2001 the Pacific States Marine Fisheries Commission (PSMFC), with support from NMFS, began a new survey to estimate party/charter boat (CPFV) fishing effort in California. This survey differed from the traditional Marine Recreational Fisheries Statistical Survey (MRFSS) telephone survey of anglers to determine CPFV trips by two-month period. The survey sampled 10% of the active CPFV fleet each week to determine the number of trips taken and the anglers carried on each trip. This 10% sample was then expanded to make estimates of total angler trips for Southern California and Northern California. However, the requisite precision for managing for the low OYs of overfished species like canary rockfish and bocaccio was still lacking. Fishery scientists from CDFG and the PSMFC designed a new program for sampling California's recreational fisheries, incorporating both the comprehensive coverage of the MRFSS program and the high quality sampling of CDFG's Ocean Salmon Project. The goal of this new program, the California Recreational Fisheries Survey (CRFS), is to produce in a timely manner marine recreational, fishery-based data needed to sustainably manage California's marine recreational fishery resources. The changes proposed in this program should increase the timeliness and accuracy of recreational fisheries data so that they can be more effectively used for inseason monitoring, estimating take for species of concern, developing harvest guidelines, producing stock assessments, and providing other information critical to management decisions. The PSMFC and CDFG fully implemented the CRFS plan in January 2004.

7.0 Goals and Objectives of the Rebuilding Plan

The Pacific Coast Groundfish FMP identifies the following goals and objectives of rebuilding plans:

> The overall goals of rebuilding programs are to (1) achieve the population size and structure that will support the MSY within the specified time period; (2) minimize, to the extent practicable, the adverse social and economic impacts associated with rebuilding, including adverse impacts on fishing communities; (3) fairly and equitably distribute both the conservation burdens (overfishing restrictions) and recovery benefits among commercial, recreational, and charter fishing sectors; (4) protect the quantity and quality of habitat necessary to support the stock at healthy levels in the future; and (5) promote widespread public awareness, understanding, and support for the rebuilding program. More specific goals and objectives may be developed in the rebuilding plan for each overfished species.
>
> To achieve the rebuilding goals, the Council will strive to (1) explain the status of the overfished stock, pointing out where lack of information and uncertainty may require that conservative assumptions be made in order to maintain a risk-averse management approach; (2) identify present and historical harvesters of the stock; (3) where adequate harvest sharing plans are not already in place, develop harvest sharing plans for the rebuilding period and for when rebuilding is completed; (4) set harvest levels that will achieve the specified rebuilding schedule; (5) implement any necessary measures to allocate the resource in accordance with harvest sharing plans; (6) promote innovative methods to reduce bycatch and bycatch mortality of the overfished stock; (7) monitor fishing mortality and use available stock assessment information to evaluate the condition of the stock; (8) identify any critical or important habitat areas and implement measures to ensure their protection; and (9) promote public education regarding these goals, objectives, and the measures intended to achieve them.

No additional goals and objectives are identified for the yelloweye rockfish rebuilding plan.

8.0 Potential or Likely Allocations Among Sectors

In any given year, the Council will recommend to NMFS harvest regulations that indirectly allocate available harvest among uses in what the Council believes is an optimal fashion. (The FEIS for Amendment 16-3 contains information on past allocations among different fishing strategies, based on an analysis of landings data (PFMC 2004a, Appendix B).) The Council will likely vary the allocation between different fisheries over the period of the rebuilding plan, based on new information about bycatch rates and the marginal economic value of overfished species catches. As stocks recover at different rates the overfished species that shape fishery management will also change. Within a given sector or region the species with the lowest OY relative to target species strongly influences the types of management measures that must be imposed, depending on the bycatch rate for a particular gear type. In determining an optimal allocation, the Council is likely to take into account equity, geographic allocation, and other social factors in addition to economic efficiency.

Given this indirect form of allocation, projected total catch by sector, reported in the 2004 harvest specifications FEIS (PFMC 2004b), provide a good indicator of this de facto allocation. Table 2.2.5-1 in that document reports these estimates for 2004, which proportionately by broad sector are: 2% for the limited entry non-whiting trawl sector, less than 1% for limited entry fixed gear fisheries, no catches by the whiting fishery, 6% for open access fisheries, 10% for tribal fisheries, 35% for recreational fisheries, 5% for research fisheries, and 10% for EFP fisheries. According to these projections, the remaining 30% of the OY was not predicted to be caught. Updated fishery impacts and inseason management actions in 2004 will likely change these projections.

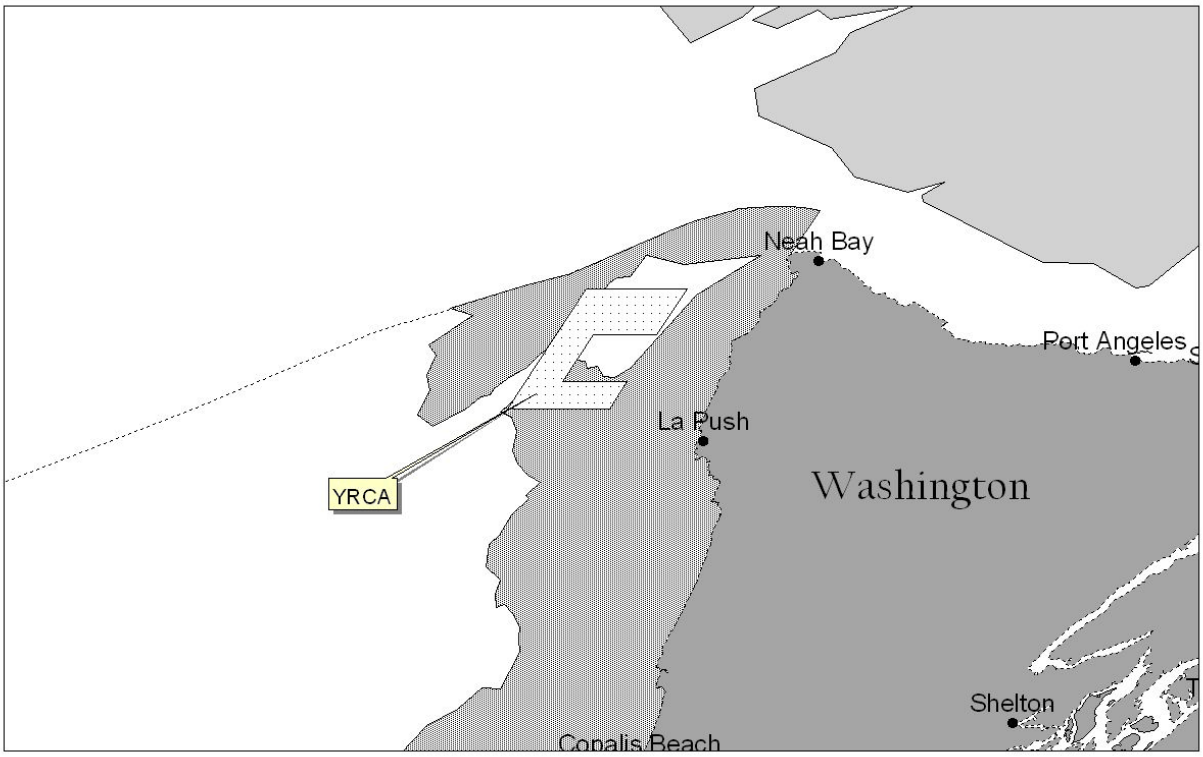

FIGURE 1. Yelloweye Rockfish Conservation Area and nontrawl RCA in 2004.

9.0 References

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