

**APPENDIX G
TO AMENDMENT 16-3
TO THE PACIFIC COAST GROUND FISH FISHERY
MANAGEMENT PLAN**

**WIDOW ROCKFISH (*SEBASTES ENTOMELAS*)
DRAFT REBUILDING PLAN
PURSUANT TO THE PACIFIC COAST GROUND FISH FISHERY
MANAGEMENT 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; especially Restrepo, *et al.* 1998) 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

Widow rockfish (*Sebastes entomelas*) range from Albatross Bank off Kodiak Island to Todos Santos Bay, Baja California, Mexico (Eschmeyer, *et al.* 1983; Miller and Lea 1972; NOAA 1990). They occur over hard bottoms along the continental shelf (NOAA 1990) and prefer rocky banks, seamounts, ridges near canyons, headlands, and muddy bottoms near rocks. Large widow rockfish concentrations occur off headlands such

as Cape Blanco, Cape Mendocino, Point Reyes, and Point Sur. Adults form dense, irregular, midwater, and semi-demersal schools deeper than 100 m at night and disperse during the day (Eschmeyer, *et al.* 1983; NOAA 1990; Wilkins 1986). All life stages are pelagic, but older juveniles and adults are often associated with the bottom (NOAA 1990). All life stages are fairly common from Washington to California (NOAA 1990). Pelagic larvae and juveniles co-occur with yellowtail rockfish, chilipepper, shortbelly rockfish, and bocaccio larvae and juveniles off Central California (Reilly, *et al.* 1992).

Widow rockfish are ovoviviparous, have internal fertilization, and brood their eggs until released as larvae (NOAA 1990; Ralston, *et al.* 1996; Reilly, *et al.* 1992). Mating occurs from late fall-early winter. Larval release occurs from December through February off California, and from February through March off Oregon. Juveniles are 21 mm to 31 mm at metamorphosis, and they grow to 25 cm to 26 cm over three years. Age and size at sexual maturity varies by region and sex, generally increasing northward and at older ages and larger sizes for females. Some mature in three years (25 cm to 26 cm), 50% are mature by four years to five years (25 cm to 35 cm), and most are mature in eight years (39 cm to 40 cm) (NOAA 1990). The maximum age of widow rockfish is 28 years, but rarely over 20 years for females and 15 years for males (NOAA 1990). The largest size is 53 cm and about 2.1 kg (Eschmeyer, *et al.* 1983; NOAA 1990).

Widow rockfish are carnivorous. Adults feed on small pelagic crustaceans, midwater fishes (such as age-one or younger Pacific whiting), salps, caridean shrimp, and small squids (Adams 1987; NOAA 1990). During spring, the most important prey item is salps, during the fall fish are more important, and during the winter widow rockfish primarily eat sergestid shrimp (Adams 1987). Feeding is most intense in the spring after spawning (NOAA 1990). Pelagic juveniles are opportunistic feeders, and their prey consists of various life stages of calanoid copepods, and euphausiids (Reilly, *et al.* 1992).

2.2 Current Stock Status and Management History

Widow rockfish are an important commercial species from British Columbia to Central California, particularly since 1979, when Oregon trawl fisherman demonstrated the ability to make large catches at night using midwater trawl gear. Since that time, many more participants entered the fishery, and landings of widow rockfish increased rapidly (Love, *et al.* 2002). Widow rockfish are a minor component of the recreational groundfish fisheries.

Williams (2000) assessed the widow rockfish in 2000. The spawning output level (8,223 mt), based on that assessment and a revised rebuilding analysis (Punt and MacCall 2002) adopted by the Council in June 2001, was at 23.6% of the unfished level (33,490 mt) in 1999. This result was computed using the average recruitment from 1968 to 1979 multiplied by the spawning output-per-recruit at $F = 0$. The analysis concluded the rebuilding period in the absence of fishing is 22 years, and with a mean generation time of 16 years, the maximum allowable time to rebuild (T_{MAX}) is 38 years. Widow rockfish were declared overfished in 2001 based on these analyses.

The most recent assessment (He, *et al.* 2003b) concluded that the widow rockfish stock size is 22.4% of the unfished biomass, but indicates that stock productivity is considerably lower than previously thought. Data sparseness was a significant problem in this widow rockfish assessment (Conser, *et al.* 2003; He, *et al.* 2003b). Limited logbook data prior to 1990 is available from bottom trawl fisheries, a questionable data source for a midwater species. The NMFS laboratory at Santa Cruz conducts a midwater trawl survey from which a juvenile index is derived. This index has been highly variable in its ability to predict recruitment, in part, due to the survey's limited geographical area relative to the overall distribution of widow rockfish. The widow rockfish rebuilding analysis considered a wide range of model formulations that investigated different hypothesis on natural mortality, stock-recruitment variability, and the use of a power coefficient to reduce variability of the Santa Cruz midwater juvenile survey. The SSC recommended model formulations

that pre-specify the recruitment for 2003-2005, do not use a stock-recruitment relationship (recruits per spawner ratios were used instead to project future recruitment), and vary the power coefficient between two and four in the Santa Cruz midwater juvenile survey. The SSC did not recommend a power coefficient higher than four because the relationship between the Santa Cruz midwater survey recruitment index and other recruitment indices changed dramatically with higher powers. The previous rebuilding analysis (Punt and MacCall 2002) had used a power coefficient of 10 that dampened the estimate of recruitment variability and suggested much higher stock productivity.

2.3 Fisheries Affected by the Rebuilding Plan

Because widow rockfish are commonly distributed in the mesopelagic (midwater) zone they are most commonly caught in with midwater trawl gear, which sweeps this zone (in contrast to bottom trawl gear used to target most groundfish species). Historically, widow rockfish were a major target species. Landings peaked at 12,473 mt in 1989, and as recently as 2000 stood at 3,866 mt (PFMC 2002). Target fisheries were eliminated after widow rockfish were declared overfished in 2001. Currently, the Pacific whiting fishery accounts for about three-quarters of widow rockfish catches; a small directed fishery for yellowtail rockfish, prosecuted by Washington treaty Indian tribes and the limited entry fixed gear sector account for almost all of the remaining incidental catches. Most catches occur in the U.S./Vancouver, Columbia, and Eureka management areas, which stretch from the Canadian border to Cape Mendocino, California.

Table 1 shows the distribution of widow rockfish landings by major fishery sector.

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

Sector	Postseason Catch Estimates for 2003
Recreational ^{a/}	0.84
Fixed Gear Limited Entry	0.33
Open Access	0.92
Tribal	11.19
Research	0.97
Trawl (Shoreside)	16.61
Trawl (At Sea)	10.21
Total Postseason Catch Estimate^{b/}	41.07
2004 Estimated Total Mortality ^{c/}	270
2004 Total Catch OY ^{c/}	284
1998 Total Catch OY	4,960

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 (He, *et al.* 2003a) uses the methods outlined in the SSC Terms of Reference (SSC 2001) for stock rebuilding and is based on the most recent stock assessment (He, *et al.* 2003b). 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 rebuilding analysis (He, *et al.* 2003a), using the base model (model 8) in the stock assessment (He, *et al.* 2003b). They are as follows:

Year stock declared overfished:	2001
Year rebuilding plan adopted:	2004
B_0 :	43,580 M eggs
B_{MSY} :	17,432 M eggs
$B_{CURRENT}$ (% of B_0):	22.4% in 2002
T_{MIN} :	2026
T_{MAX} :	2042
P_{MAX} :	60%
T_{TARGET} :	2038
Harvest control rule:	$F = 0.0093$

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 the OY computed based on the model 8 in the stock assessment (He, *et al.* 2003b) was 284 mt.

Rebuilding parameter values are likely to change over time as stock size and structure changes. 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 Widow Rockfish*

Other than the types of management measures implemented through the biennial management cycle, no additional measures are adopted as part of this rebuilding plan. To provide information about the types of management measures implemented through the periodic management, harvest specifications and management measures applying to widow 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 widow 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. All of the widow rockfish OY is projected to be taken in 2004, so this overfished species will act as a key constraining stock in the Pacific whiting fishery. The Council pursues a policy of "holding harmless" fisheries other than the Pacific whiting fishery for unavoidable widow rockfish bycatch. This means that catch-reducing management measures are applied to the Pacific whiting fishery, which accounts for most widow rockfish catch, before these type of measures are applied to other fishery sectors. There is no set allocation to the Washington treaty tribes; they manage their fisheries separately, based on an avoidance strategy. Catch projections and catch monitoring in both tribal and non-tribal fisheries allow tailoring of management measures to keep total fishing mortality within the 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. North of 40°10' N latitude retention by limited entry trawl vessels is prohibited outside of the Pacific whiting fishery. South of 40°10' N latitude retention is prohibited in deepwater (large footrope) limited entry trawl fisheries. Widow rockfish are counted towards a 300 pound per month trip limit for minor shelf rockfish if small footrope gear is used. In the whiting fishery both a per-tow and cumulative limit apply. Minor shelf rockfish trip limits, which include widow rockfish, vary by area and cumulative limit period for limited entry fixed gear and open access vessels.

Seasons: No seasons are established explicitly to control widow rockfish catch, except that the Pacific whiting fishery is managed by quota and season. The fishery has an April 1 start date and runs until the whiting quota is caught, which usually occurs in September or October. Since widow rockfish are mainly caught in this fishery and retention is largely prohibited for limited entry trawl vessels outside of this fishery, the whiting season structure has an indirect effect on widow rockfish catches. Recreational fisheries account for a very small share of total widow rockfish catch (projected to be one percent of the OY in 2004). Recreational seasons thus have a very limited effect on overall widow rockfish fishing mortality.

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.

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. Since only small amounts of widow rockfish are caught in bottom trawls, these measures have little effect on the catch. Exempted fishing permits (EFPs) have been authorized to test new gear that reduces the incidental catch rate of overfished species. EFPs are currently being used to test bycatch-reducing bottom trawl gear. This will have limited effect on widow bycatch.

Size limits: No size limits apply to widow rockfish.

Bag limits: These measures are used for recreational fisheries. Overall bag limits for groundfish, imposed by the states, likely have a modest effect on the relatively small proportion of the widow rockfish catch taken by recreational fisheries.

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 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.

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

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.

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 widow 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: 1% for the limited entry non-whiting trawl sector, 11% for limited entry fixed gear fisheries, 71% for the whiting fishery, less than 1% for open access fisheries, 14% for tribal fisheries, 1% for recreational fisheries, 1% for research fisheries, and 3% for EFP fisheries. According to these projections, all of the OY is predicted to be caught.

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