

1.0 INTRODUCTION

1.1 How This Amendment is Organized

This document provides background information about and analysis of changes to the Pacific Coast Groundfish Fishery Management Plan incorporated as Amendment 16-2. The actual changes, or amended parts of the plan, appear in Appendix E. The Pacific Fishery Management Council prepared this document. The Council is one of eight regional Fishery Management Councils providing management recommendations to NMFS, which then implements these regulations through federal regulations as appropriate. The Pacific Fishery Management Council is responsible for fisheries occurring in federal waters off the U.S. West Coast (Figure 1.1-1). Each Council draws its membership from constituent states; in addition to Washington, Oregon, and California, Idaho is also a member of the Pacific Council because salmon, managed by the Council under a different fishery management plan, return to rivers in Idaho to spawn.

This document is the second in a series of amendments numbered Amendments 16-1, 16-2, 16-3, and so forth. Amendment 16-1 establishes a framework for the adoption of rebuilding plans for overfished species. This amendment, Amendment 16-2, adopts four rebuilding plans: darkblotched rockfish, Pacific ocean perch (POP), lingcod, and canary rockfish. Adopted plans are implemented through the framework contained in Amendment 16-1. Subsequent amendments will adopt rebuilding plans for the remaining five overfished species. (Additional amendments to adopt rebuilding plans will continue this numbering system.)

FMPs, and any amendments to them, must conform to the MSA, the principal legislation governing fishery management within the Exclusive Economic Zone (EEZ), which extends from the outer boundary of the territorial sea to a distance of 200 nautical miles from shore. In addition to addressing MSA mandates, this document is an EIS, pursuant to the NEPA of 1969, as amended. According to NEPA (Sec. 102(2)(C)), any "major federal action significantly affecting the quality of the human environment" must be evaluated in an EIS. Based on a preliminary determination by Council and NMFS staff, adopting these four rebuilding plans is likely to have significant impacts. Therefore, rather than preparing an environmental assessment (EA), which provides "sufficient evidence and analysis for determining whether to prepare an environmental impact statement," NMFS and the Council have decided to proceed directly to preparation of an EIS. The document also contains information and analyses relevant to the RFA and EO 12866 (Regulatory Impact Review or RIR). These mandates require agencies to evaluate the economic impact of regulatory actions, especially on small entities.

Federal regulations (40 CFR 1502.9) require agencies to prepare and circulate a draft EIS (DEIS), which "must fulfill and satisfy to the fullest extent possible the requirements established for final statements in Section 102(2)(C) of the Act" (i.e., NEPA). Agency guidelines (NOAA Administrative Order [NAO] 216-6.5.01.b.1(i)) stipulate a minimum 45-day public comment period on the DEIS). At the end of this period a final EIS (FEIS) is prepared, responding to comments and revising the document accordingly. After the EIS is completed, a 30-day "cooling off" period ensues—with another opportunity for public comment—before the responsible official may sign a record of decision (ROD) and implement the proposed action. In addition to these two statutorily-defined opportunities for public comment, "preliminary drafts" of this document are circulated as part of the Council process and in advance of completing the DEIS. A preliminary draft was made available in advance of the Council's April 2003 meeting. A complete preliminary draft was made available in advance of the Council's June 2003 meeting. At this meeting the Council selected its preferred alternative among those identified in Chapter 2. The 45-day public comment period on the DEIS was announced in the Federal Register on September 24, 2003, and ended on November 3, 2003. The FEIS was prepared at the conclusion of this period with the signing of the ROD scheduled for late January 2004. Concurrent with this, the Secretary of Commerce, through NMFS, will render a decision approving or disapproving the FMP amendment. Pursuant regulations will also be promulgated at this time.

The information and analysis in this document are organized in 11 chapters:

- The rest of this chapter, Chapter 1, discusses the reasons for changing the FMP. This description of purpose and need defines the scope of the subsequent analysis.
- Chapter 2 outlines different alternatives that have been considered to address the purpose and need. One of these alternatives is the Council's preferred alternative, which is recommended to NMFS for adoption as a plan amendment.

- Chapter 3 describes the affected environment. This description of current conditions, or the environmental baseline, provides the basis for the analysis contained in Chapter 4.
- Chapter 4 assesses the direct and indirect impacts to the human environment of each alternative described in Chapter 2.
- Chapter 5 evaluates the cumulative impacts of the proposed action. Cumulative effects are the result of “the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions,” including those of other agencies, organizations, and individuals (40 CFR 1508.7). They are the total effect, or combination of direct and indirect impacts with external, factors affecting components of the human environment.
- Chapter 6 addresses additional requirements of NEPA and implementing regulations, including the identification of any measures that will be implemented to mitigate significant impacts of the proposed action.
- Chapter 7 details how this amendment meets 10 National Standards set forth in the Magnuson-Stevens Act (§301(a)) and groundfish FMP goals and objectives.
- Chapter 8 provides information on those laws and Executive Orders, in addition to the Magnuson-Stevens Act and NEPA, that an amendment must be consistent with, and how this amendment has satisfied those mandates.
- Chapters 9, 10, and 11 include required supporting information: the list of preparers, who received copies of the document, and the bibliography.

Rebuilding analyses, which provide background information used to structure the alternatives, and the amendatory language are appended to the document.

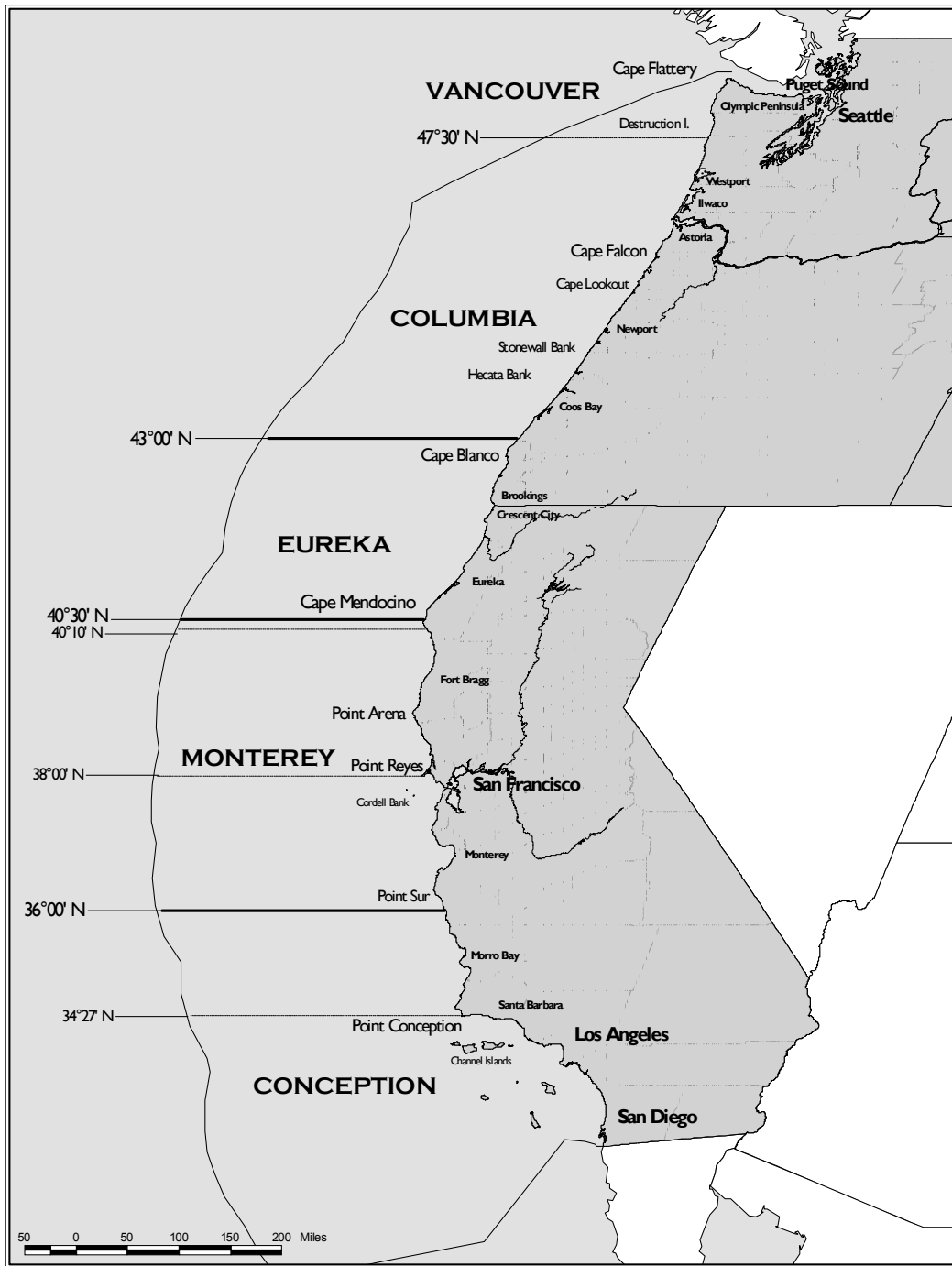


FIGURE 1.1-1. The Pacific Fishery Management Council management area (EEZ of the West Coast of the United States) and INPFC management areas.

1.2 Purpose of and Need for the Proposed Action

1.2.1 The Proposed Action

The proposed action is to implement legally-compliant rebuilding plans, consistent with the framework established in Amendment 16-1, that will set strategic rebuilding parameters to guide stock rebuilding for canary rockfish (*Sebastes pinniger*), darkblotched rockfish (*S. crameri*), lingcod (*Ophiodon elongatus*), and Pacific ocean perch (*S. alutus*). These rebuilding parameters stem from the Magnuson-Stevens Act and National Standard 1 guidelines (50 CFR 600.310). The most important strategic rebuilding parameters are the stock's size, or target biomass, capable of supporting MSY and a time period within which the stock must be rebuilt to this size. Amendment 16-1, addressing the process and standards for rebuilding plan adoption, states that new management measures intended to achieve these targets may be added to the FMP as part of rebuilding plans. However, no new management measures are proposed in Amendment 16-2 (evaluated in this EIS); instead, existing management measures implemented through the biennial management process will be used to constrain fishing to the targets identified in the rebuilding plans. Rebuilding plans for the remaining five overfished groundfish species will be implemented in subsequent amendments, as updated stock assessments and rebuilding analyses become available.

1.2.2 Need (Problems for Resolution)

As of February 2002 the Secretary had declared nine groundfish stocks overfished. These are: bocaccio (*Sebastes paucispinis*), canary rockfish (*S. pinniger*), cowcod (*S. levis*), darkblotched rockfish (*S. crameri*), lingcod (*Ophiodon elongatus*), Pacific ocean perch (*S. alutus*), widow rockfish (*S. entomelas*), yelloweye rockfish (*S. ruberrimus*), and Pacific whiting (*Merluccius productus*). These declarations, stemming from Magnuson-Stevens Act requirements, are based on overfishing criteria adopted by the Council under Amendment 11 to the Pacific Coast Groundfish FMP. The Magnuson-Stevens Act (§304(e)(3)) also requires councils to "prepare a fishery management plan, plan amendment, or proposed regulations" in order to prevent overfishing and implement a plan to rebuild the overfished stocks. The Council developed Amendment 12 to specify an effective process for implementing rebuilding plans. This amendment was approved by the Council in April 2000 and approved by NMFS on December 7, 2000. However, in Federal District Court the Natural Resources Defense Council challenged the legality of the provisions in Amendment 12 related to rebuilding plans,^{1/} based on the Magnuson-Stevens Act and the NEPA. The Court found that the rebuilding plans created in accordance with Amendment 12 did not comply with the Magnuson-Stevens Act because the plans did not take the form of an FMP, FMP amendment, or regulation. Therefore, the Council must specify rebuilding plans as an FMP or regulatory amendment. (Development of a new FMP covering overfished groundfish species is not considered.) Amendment 16-1 establishes a legally-compliant framework for the adoption and implementation of rebuilding plans. This amendment adopts rebuilding plans for four overfished groundfish species, consistent with the framework.

Rebuilding plans are mandated when the size of a stock or stock complex falls below a level described in the FMP as the minimum stock size threshold, or MSST, which is 25% of unfished biomass ($B_{25\%}$) for stocks managed under the groundfish FMP. Diminished stock size may be caused or exacerbated by fishing. Regardless of the cause of the decline, fishing mortality needs to be controlled to prevent further deterioration in the condition of the stock, and if the stock has been overfished, to allow it to rebuild.^{2/} Amendment 11 to the groundfish FMP established the "status determination criteria" (including MSST) that are used to determine whether overfishing is occurring and whether a stock has reached an overfished state. Rebuilding plans specify how an overfished stock will be rebuilt.

The proposed action is needed, because the four groundfish species addressed by this amendment (canary rockfish, darkblotched rockfish, POP, and lingcod) are overfished. National Standard 1 in the Magnuson-Stevens Act requires conservation and management measures that prevent overfishing. Preventing

1/ The amendment also removed FMP provisions that allowed foreign fishing on groundfish stocks. This part of the amendment was not challenged, and these provisions of the FMP stand.

2/ But when environmental changes affect the long-term productive capacity of the stock, one or more components of the status determination criteria may be respecified and the need for a reduction in fishing mortality reevaluated (50 CFR Section 600.310).

overfishing also means returning stocks to a size capable of achieving MSY, or to a stock size less than this if such stock size results in long-term net benefit to the nation. In order to satisfy this mandate, legally compliant rebuilding plans must be adopted for stocks that have been declared overfished by the Secretary of Commerce.

1.2.3 Purpose of the Proposed Action

The purpose of the *Proposed Action* is to rebuild canary rockfish, darkblotched rockfish, lingcod, and POP stocks managed under the Pacific Coast Groundfish FMP to a size capable of supporting MSY, or to a stock size less than this if such stock size results in long-term net benefit to the nation, and according to the requirements of the MSA. The MSA 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 that 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 MSY biomass to vary over time, which affects the practicable time period for rebuilding the stock. (Further details on stock rebuilding requirements may be found in Section 1.3.1 of this EIS.)

1.3 Background

1.3.1 Requirements for Rebuilding Plans

National Standards Guidelines specify how rebuilding should occur and, in particular, establish constraints on Council action (50 CFR600.310(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 considered in this amendment, 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; and especially Restrepo *et al.* 1998) calculated as the mean age of the net maternity function (product of survivorship and fecundity at age). The Magnuson-Stevens Act states the rebuilding time should be as short as possible, taking into account the status and biology of the overfished stocks and the needs of fishing communities (Sec. 304(e)(A)(i)). In most cases, because of the biology of the stocks and the needs of fishing communities, the rebuilding time, or the target year, will be 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} .^{3/} (The nature of probabilities associated with T_{MIN} , T_{TARGET} , and T_{MAX} are discussed in Amendment 16-1, Section 3.1.2.2.)

National Standards Guidelines identify a “mixed-stock complex” exception to the definition of overfishing (50 CFR 600.310(d)(6)), which is applicable to some overfished groundfish species. Different fish assemblages—some with healthy stocks and some with overfished stocks—can co-occur in a mixed-stock complex, and thus, both can be caught simultaneously. An OY harvest for the healthy stock can result in overfishing the depleted stock. The guidelines allow councils to authorize this type of overfishing if three conditions are met (50 CFR 600.315(d)(6)). First, an FMP (or plan amendment) must assess the overall benefits of such a policy in comparison to other measures, such as reducing the OY for the healthy stock. Second, councils must consider mitigating measures that reduce overfishing by, for example, modifying fishing

3/ 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*).

strategy or gear configuration. The benefits of mitigation must be compared to those determined in the preceding assessment; the measures would only be implemented if they will result in greater benefits. Finally, permitted overfishing cannot result in eventual listing of the species (or evolutionarily significant unit, thereof) under the ESA. This mixed-stock exception may be considered in formulating rebuilding plans and could allow some modification in the recovery trajectory of overfished stocks.

National Standard Guidelines also distinguish the activity of “overfishing” from the status of a stock characterized as “overfished.” Overfishing is defined by the maximum fishing mortality threshold (MFMT); harvest mortality above this limit constitutes overfishing. A stock is considered overfished when its biomass falls below the MSST, which for stocks managed under the groundfish FMP, is defined as $B_{25\%}$ (25% of the unfished biomass). Thus, the MFMT refers to a fishing rate while the MSST refers to a stock size. Although sometimes causing confusion, this distinction is an important one. It can be seen that any combination of these two features may apply to a stock. For example a stock above the MSST may experience overfishing (because the MFMT is being exceeded). Conversely, an overfished stock (biomass below the MSST) may not be experiencing overfishing. In fact, stock rebuilding characterizes this second condition where historical overfishing has caused the stock to become overfished. Although overfishing is no longer occurring, and the stock is rebuilding, the stock is considered overfished until it returns to the target biomass.

1.3.2 Stock Status of the Four Species Considered in this Amendment

The West Coast canary rockfish stock was declared overfished in January 2000 after stock assessments found that both the northern and southern portions of the stock were overfished (Crone *et al.* 1999, for Columbia and U.S./Vancouver International North Pacific Fishery Commission (INPFC) areas; Williams *et al.* 1999, for Conception, Monterey, and Eureka INPFC areas). The darkblotched rockfish stock was declared overfished in January 2001, after the 1999 biomass was estimated at 22% of unfished biomass (Rogers *et al.* 2000). (Table 1.3-1 summarizes the stock status of the four species considered in this amendment along with the rebuilding parameters proposed under the *Council Preferred* alternative.) This is below $B_{25\%}$, the MSST. The lingcod stock was declared overfished in March 1999. The northern lingcod stock (Columbia and U.S./Vancouver INPFC areas) was estimated to be at 8.8% of its unfished spawning potential in 1997 (Jagiello *et al.* 1997), and the coastwide biomass was estimated to be at 15% of its unfished biomass in 2000 (Jagiello *et al.* 2000).

The POP and darkblotched rockfish stocks in the northeast Pacific were the target of intense fishing pressure between 1965 and 1977, mostly by Soviet and Japanese trawlers. In 1981 the Council adopted a 20-year rebuilding plan for POP in response to significant declines in catch and abundance. Rebuilding under the original plan was largely influenced by a cohort analysis of 1966-1976 catch and age composition data (Gunderson 1979), updated with 1977-1980 data (Gunderson 1981), and an evaluation of trip limits as a management tool (Tagart *et al.* 1980). Management under the original rebuilding strategy served to halt further declines in stock biomass, but the stock has not recovered to an abundance that supports MSY. Ianelli and Zimmerman (1998) estimated the 1998 abundance of the POP stock in U.S. waters to be at 13% of its unfished biomass. Under new guidelines in the MSA, as amended by the Sustainable Fisheries Act of 1996 (P.L. 104-297), the Secretary declared the stock overfished in March 1999. The earlier rebuilding plan for POP did not meet these requirements, and a new rebuilding plan was developed and subsequently adopted by the Council in November 1999. However, the Secretary disapproved this POP rebuilding plan (along with plans submitted for bocaccio and lingcod) in 2000 at the same time Amendment 12 was approved. This necessitated the development of revised rebuilding plans for POP, bocaccio, and lingcod. (The new lingcod rebuilding plan is adopted as part of this amendment. The bocaccio rebuilding plan will be adopted in a subsequent amendment.)

1.3.3 Summary of the Current Management Regime

Draft rebuilding plans and rebuilding analyses have been used since 2000 to guide the Council in deciding annual management measures for overfished groundfish stocks. Provisions in Amendments 11 and 12 of the FMP established a framework for their development and implementation, in a way thought to be consistent with the Sustainable Fisheries Act (or SFA, which re-authorized the Magnuson-Stevens Act and added new provisions). As specified in these draft rebuilding plans, rebuilding management measures would be adopted through the Council’s annual process of setting harvest specifications for the groundfish fishery. In addition to the draft rebuilding plans, rebuilding analyses (which are written by the stock assessment authors) and the EA or EIS for each year’s harvest specifications (used in the Council/NMFS decision making process) take

into account the scientific and legal constraints on harvests imposed by the need to rebuild overfished groundfish fisheries. Although the Council has respected these constraints in its decisions to date, NMFS has the authority to reject these decisions because, in the regulatory context, they only represent recommendations to the Secretary of Commerce.

The Council has typically chosen a risk-averse strategy when deciding on harvest levels for overfished stocks based on recommendations contained in rebuilding analyses and given by the Council's advisory bodies (Table 1.3-1). Total mortality has been controlled by reducing trip and landing limits for co-occurring species in select target fisheries, gear restrictions (e.g., the small footrope specification for landing shelf rockfish), seasonal closures (e.g., the recreational groundfish fishery seasons adopted in California), and area closures (e.g., Rockfish Conservation Areas).

The actual discard rate (or bycatch) of fish species that are overfished, which may differ among the various groundfish fishery sectors, is a critical uncertainty that must be addressed if effective measures to control total mortality, and thus, achieve rebuilding objectives, are to be adopted. Limited data have been available on which to base these estimates. Therefore, bycatch and discard rate assumptions have been contentious and the focus of some recent legal challenges. However, NMFS implemented an observer program in August 2001, which allows direct observation of commercial bycatch and discard. Data from this program will promote more informed management decisions and allow managers to more effectively control total mortality of overfished groundfish stocks.

1.3.4 Summary of Litigation over Amendment 12

In January 2000, the Natural Resources Defense Council (NRDC), along with other conservation organizations, challenged the adequacy of Amendment 12 (*Natural Resources Defense Council v. Evans*) in Federal District Court. They claimed that rebuilding plans submitted pursuant to Amendment 12 were inadequate for two reasons. First, they did not take the form of fishery management plans, plan amendments, or regulations as required by the Magnuson-Stevens Act. 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 rebuilding plans should not entertain this exception. The Plaintiffs also argued that the EA accompanying Amendment 12 failed to consider a reasonable range of alternatives as required by 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 that the second Magnuson-Stevens Act-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 Magnuson-Stevens Act and NEPA requirements.

1.3.5 Development of Rebuilding Plan Adoption Strategy

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. Evaluated in an EA, Amendment 16-1 was approved by NMFS in November 2003, in advance of completion of the Amendment 16-2 FEIS. This will ensure adopted rebuilding plans can be prepared in a manner that conforms to the already-adopted framework. Because of this change of strategy, NMFS and the Council published a second NOI on March 18, 2003 (68 FR 12888), and identified an additional public scoping opportunity. Public comments raised during this scoping meeting are summarized in the next section.

1.3.6 Relationship Between the Contents of Rebuilding Plans and the Contents of This EIS

FMP language, adopted as part of Amendment 16-1, specifies the contents of rebuilding plans. Although these components are part of this EIS, they are not presented as separate, concise documents. Rebuilding plans as such will appear in the first annual Stock Assessment and Fishery Evaluation (SAFE) document published after rebuilding plan adoption and approval by the Secretary. The components identified in the draft FMP language, and corresponding sections in this EIS, are summarize below.

1. A description of the biology and status of the overfished stock and fisheries affected by stock rebuilding measures.

Section 3.2.1 describes the biology and status of the stocks. Section 3.4.2 describes the fisheries affected by stock rebuilding measures.

2. A description of how rebuilding parameters for the overfished stock were determined (including any calculations that demonstrate the scientific validity of parameters).

Appendices A through D contain the rebuilding analyses for the four overfished species. These analyses describe the derivation of rebuilding parameters.

3. Estimates of rebuilding parameters (B_0 , B_{MSY} , T_{MIN} , T_{MAX} , and the probability of reaching target biomass by this date [P_{MAX}], and T_{TARGET}) at the time of rebuilding plan adoption.

All these parameters are listed in Table 1.3-1 for the Council Preferred Alternative. The values for the probability of reaching target biomass by this date (P_{MAX}), T_{TARGET} , and the harvest control rule (F) under the different alternatives are given in Table 2.0-1. (T_{MIN} , T_{MAX} , B_0 , and B_{MSY} do not vary among the alternatives.)

4. The process, and any applicable standards, that will be used during periodic review to evaluate progress in rebuilding the stock to the target biomass.

FMP Section 4.5.3.5 lists three types of review standards. For the four rebuilding plans considered here the following review standard will be adopted as part of each rebuilding plan: "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."

5. Any management measures the Council may wish to specifically describe in the FMP that facilitate stock rebuilding in the specified period. (These measures would be in addition to any existing measures typically implemented through annual or biennial management.)

As discussed in sections 1.2.1 and 2.0, no new management measures will be adopted as part of these four rebuilding plans.

6. Any goals and objectives in addition to, or different from, those listed in the FMP.

No additional goals and objectives are included in these rebuilding plans.

7. Potential or likely allocations among sectors.

Section 4.4.2 discusses potential allocation among sectors.

8. For fisheries managed under international agreement, a discussion of how the rebuilding plan will reflect traditional participation in the fishery, relative to other nations, by fishermen of the United States.

None of the fisheries catching the overfished stocks considered in this amendment are currently managed under international agreement.

9. Any other information that may be useful to achieve the rebuilding plan's goals and objectives.

Chapter 3 describes baseline conditions. This information may be used, as appropriate, when drafting rebuilding plans.

TABLE 1.3-1. Current parameter/target estimates specified for rebuilding darkblotched rockfish, POP, canary rockfish, and lingcod under the *Council Preferred* alternative. (Page 1 of 1)

Rebuilding Parameter/Target	Estimate or Proxy			
	Darkblotched	POP	Canary	Lingcod
T_0 (year declared overfished)	2000	1999	2000	1999
T_{MIN} (minimum time to achieve B_{MSY} = mean time to rebuild at $F = 0$)	2014	2012	2057	2007
Mean generation time	33 years	30 years	19 years	NA
T_{MAX} (maximum time to achieve $B_{MSY} = T_{MIN} + 1$ mean generation time)	2047	2042	2076	2009
P_{MAX} (P to achieve B_{MSY} by T_{MAX}) ^{a/}	80%	70%	60%	60%
Most recent stock assessment	Rogers <i>et al.</i> 2000	Ianelli <i>et al.</i> 2000	Methot and Piner 2002	Jagiello <i>et al.</i> 2000
Most recent rebuilding analysis	Methot and Rogers 2001	Punt and Ianelli 2001	Methot and Piner 2002	Jagiello and Hastie 2001
B_0 (estimated unfished biomass)	29,044 mt	60,212 units of spawning output	31,550 mt	22,882 mt N; 20,971 mt S
$B_{CURRENT}$ (current estimated biomass)	4,067 mt in 2002	13,066 units of spawning output in 1998	2,524 mt in 2002	3,527 mt N; 3,220 mt S in 2000
% Unfished Biomass	14% in 2002	21.7% in 1998	8% in 2002	15% N & S in 2000
MSST (minimum stock size threshold = 25% of B_0)	7,261 mt	15,053 units of spawning output	7,888 mt	5,720 mt N; 5,243 mt S
B_{MSY} (rebuilding biomass target = 40% of B_0)	11,618 mt	24,084 units of spawning output	12,620 mt	9,153 mt N; 8,389 mt S
MFMT (maximum fishing mortality threshold = F_{MSY})	$F_{50\%}$	$F_{50\%}$	$F_{73\%}$	$F_{45\%}$; $F = 0.12$ N; $F = 0.14$ S
Harvest Control ^{a/}	$F = 0.027$	$F = 0.0082$	$F = 0.022$	$F = 0.0531$ N; $F = 0.061$ S
T_{TARGET} ^{a/}	2030	2027	2074	2009

a/ Under the *Council Preferred* alternative.

1.4 Scoping Summary

1.4.1 Background to Scoping

The National Environmental Policy Act requires the public and other agencies be involved in the decision-making process. "Scoping" is an important part of this process. Scoping is designed to provide interested citizens, government officials, and tribes an opportunity to help define the range of issues and alternatives that should be evaluated in the EIS. NEPA regulations stress that agencies should provide public notice of NEPA-related proceedings and hold public hearings whenever appropriate during EIS development (40 CFR 1506.6).

The scoping process is designed to ensure all significant issues are properly identified and fully addressed during the course of the EIS process. The main objectives of the scoping process are to provide stakeholders with a basic understanding of the proposed action, explain where to find additional information about the project, provide a framework for the public to ask questions, raise concerns, identify issues, recommend options other than those being considered by the agency conducting the scoping, and ensure those concerns are included within the scope of the EIS review process.

On April 16, 2002, NMFS and the Council published an NOI in the *Federal Register* announcing their intent to prepare an EIS in accordance with NEPA for Amendment 16 to the groundfish FMP. The FMP would be amended to establish procedures for periodic review and revision of rebuilding plans and incorporate rebuilding plans for overfished groundfish species.

As discussed above, NMFS and the Council subsequently decided to prepare two (or more) separate analyses for these actions. These are Amendment 16-1, establishing the rebuilding plan adoption and review process, and subsequent amendments (including this one) adopting rebuilding plans. Therefore, on March 18, 2003, NMFS and the Council published a second NOI (68 FR 12888). This NOI :

- presented a schedule for a renewed scoping process, based on the change in approach;
- described a scoping meeting to be held on April 6, 2003;
- identified where additional information about the proposed project could be obtained;
- explained the roles of NMFS and the Council in the EIS and authorization processes;
- described the EIS process after scoping and presented a tentative EIS schedule;
- presented a brief summary of the history of rebuilding plans; and,
- described the alternatives being considered to date by NMFS and the Council for inclusion in the EIS.

Publication of the NOI announced the public and agency scoping comment period, which ended on May 30, 2003.

1.4.2 Council Scoping and Agency NEPA Scoping

The Council process, which is based on stakeholder involvement, encourages public participation and public comment on fishery management proposals during Council, subcommittee, and advisory body meetings. The advisory bodies involved in groundfish management include the GMT, with representation from state, federal, and tribal fishery scientists; and the Groundfish Advisory Subpanel (GAP), whose members are drawn from the commercial and recreational fishery, processing, and conservation sectors. The Ad Hoc Allocation Committee, a subpanel of the Council, provides advice on allocating harvest opportunity among the various fishery sectors. These opportunities all constitute the broadly defined Council scoping process, not all of which focuses on the scope and content of NEPA analysis. The Council and its advisory bodies considered rebuilding plans, and took public comment on them, at seven different meetings held in March, April, June, September, and November 2002; and April and June 2003.

In addition, NMFS and the Council hosted a public scoping meeting on April 6, 2003 at the Red Lion Hotel in Vancouver, Washington specifically for the purpose of getting comments on the scope of the NEPA analyses for rebuilding plan related actions. Approximately 28 people attended. The meeting served two purposes: to listen to and record the public's comments about the proposed action and to respond to requests for background information. NMFS and Council staff were available to answer questions and offer explanations. All comments were documented as part of the administrative record.

1.4.3 Summary of Scoping Comments Received by the Council

Written and oral comments were received from 18 different sources during both Council scoping and during the public scoping meeting held on April 6, 2003. Comments were categorized in themes (such as communities, the mixed stock exception, science, and data). Comments were reworded for clarity. A scoping summary report listing each comment is available from the Council office or the NMFS Northwest Region NEPA coordinator. A summary of commenters is provided below.

Comment Source	Number
Agency	1
Commercial fishing sector	9
Conservation organizations	4
Municipal government	1
Processing sector	2
Tribes	1
TOTAL	18

The number of times an issue is raised during the scoping process provides an indication of the issues that commenters are most concerned about. Scoping also helps agencies eliminate from detailed study issues that are not significant (40 CFR 1501.4(g)).

1.4.3.1 Identification of Issues

Analysis of the comments received during the scoping process is an important step in identifying key concerns about the proposed action. The comments received during the scoping process were individually analyzed and can be separated loosely into four groups.

- Observations and opinions. These comments were not recommendations, but general observations and opinions about the management process, scientific validity, and other topics related to rebuilding plans.
- Issues outside the scope of these analyses in the EA and EIS.
- Recommendations relevant to the Amendment 16-1 EA.
- Recommendations relevant to the Amendment 16-2 EIS.

Using these categories comments were screened to determine which recommendations were relevant to the analysis. They were brought forward and used to determine what types of environmental impacts would be evaluated.

1.4.3.2 Recommendations Brought Forward As Part of the Analysis

This section lists the recommendations used in structuring the environmental impact analysis and notes how they were incorporated into this document. Although the comments summarized below are enclosed in quotes to set them off from the rest of the text, they are not taken verbatim from the written and oral comments received by the Council. Most have been reworded for clarity or brevity. Original written comments, and transcripts of oral comments, are available from the Council upon request.

Science and Data

- "If information is lacking, identify essential data collection elements and methods for collecting those elements, such as for more accurately assessing effort, bycatch, fishing locations, and habitat. Include current efforts, as well as increased observer coverage, use of permits/licenses to estimate effort, vessel monitoring system (VMS), etc."
- "The more you restrict fishermen, the less data you have to assess fish stocks."
- "There's not enough information available to create effective rebuilding plans."

Managers recognize that fishery-dependant data (e.g., logbooks and landings receipts) are a valuable source of information about stock status and the effectiveness of management measures. Chapters 3

and 4 discuss issues related to the management regime, including catch monitoring and stock assessment. Uncertainty, in part due to the lack of information, is also considered in the development of rebuilding strategies, which include an estimate of the likely success of rebuilding based on variability in stock productivity. Chapters 3 and 4 discuss the implications of uncertainty for rebuilding stocks.

NEPA Requirements

- “Consult the Council on Environmental Quality (CEQ) documents *Incorporating Biodiversity Considerations into Environmental Impact Analysis Under the National Environmental Policy Act* and *Considering Cumulative Effects when preparing EISs*.”
- “Analyze the cumulative effects on the environment (including past, present, and reasonably foreseeable future activities).”
- “The current management regime should serve as the ‘no action’ or ‘status quo’ alternative.
- “Include as many overfished groundfish species as possible in the EIS.”
- “Analyze all issues relevant to species’ current overfished condition and rebuilding strategies.”

The document authors appreciate and use CEQ guidance. Both the Amendment 16-1 EA and Amendment 16-2 EIS consider cumulative effects. Both documents also identify the current management regime as the No Action alternative. However, in the case of Amendment 16-2, no action is defined as management under the default harvest policy identified in the Groundfish FMP rather than interim rebuilding measures. However, an alternative incorporating the interim strategic rebuilding parameters is also analyzed. The choice of rebuilding plans to adopt through Amendment 16-2 represents a tradeoff between the need to adopt plans as soon as possible and the availability of updated stock assessments and rebuilding analyses. Although adopting all rebuilding plans as part of a single amendment would have been desirable, it would have further delayed the amendment. The range of issues analyzed in the EIS is based on scoping, including public comment.

Range of Alternatives

- “Include a range of alternatives covering management measures necessary to achieve rebuilding targets, not just a target year and rebuilding strategy.”
- “Include full, species-specific analysis of bycatch and evaluate as alternatives and consider for adoption all potentially practicable bycatch reduction measures.”
- “Evaluate a range of alternatives for rebuilding Pacific groundfish stocks and use an ecologically conservative approach due to the overexploitation of many harvested species.”
- “Make a commitment to ensure OYs are not exceeded.”

Alternatives considered in the EIS are based on different rebuilding strategies, which determine the level of fishing mortality that will be allowed to rebuild an overfished stock within a specified time period and with a given probability. The framework for rebuilding plans proposed in Amendment 16-1 allows rebuilding plans to contain rebuilding-specific management measures, although they are not required. However, additional, rebuilding-plan-specific management measures have not been included in the alternatives. Instead, fishing mortality is constrained through management measures that are implemented through the harvest specification process, which has occurred annually, but will shift to a biennial cycle in 2005-2006. Harvest specifications are expressed as an OY for a species or species group. (The biennial cycle will continue to establish annual OYs; they will be set every other year, however.) Management measures are then developed to constrain total fishing mortality (which includes bycatch mortality) at or below this level. The environmental impacts of these harvest specifications and management measures are evaluated under NEPA; an EA or EIS is prepared as part of the process. Bycatch monitoring and reduction measures have become an important consideration in the harvest specification process. NMFS also is preparing a programmatic EIS (PEIS) focusing on bycatch-related issues. It will set the stage of adoption of additional bycatch-related management measures. Focusing

rebuilding plan alternatives at the strategic level, and relying on the periodic specification of harvest levels and management measures based on the strategy chosen, is considered more adaptive. It allows management measures to be adjusted on an ongoing basis in response to new information about the status of the stock.

Mixed Stock Exception

- “Many conditions need to be satisfied in order to use the mixed stock exception; consider them.”
- “Clarify the difference between the mixed stock exception and the sustainability analysis for bocaccio (regarding biomass size and rebuilding trajectories).”
- “Do not use the mixed stock exception for any of the species.”
- “If the mixed stock exception is going to be considered, study the socioeconomic impacts.”
- “It’s impossible to rebuild all the stocks at the same time, because some are predators, some are prey, and they are in competition and fluctuate normally.”

The EIS includes a Mixed Stock Exception alternative, described in Chapter 2. The mixed stock exception is identified in the guidelines for rebuilding (National Standard Guidelines) and may be used in limited circumstances. Because it is identified in the guidelines, the mixed stock exception falls within the range of reasonable alternatives and should be evaluated for its impacts on the human environment. However, the guidelines require more careful analysis to determine if the mixed stock exception is warranted, and the EIS includes this mandated level of analysis in Chapters 4 and 5. Evaluation of a Mixed Stock Exception alternative is also one way to address the concern that not all stocks can be rebuilt simultaneously. In relation to the last comment, even without invoking the mixed stock exception, it may be possible to rebuild stocks above the overfished threshold (the MSST) even if not all stocks are simultaneously at a biomass level capable of supporting maximum sustainable yield.

Overfishing, Exceeding OYs

- “Analyze the extent to which current management systems and strategies have contributed to the overfished status of each species; consider all alternative management systems and strategies that might help rebuild each species faster or more effectively.”

Chapters 3 and 4 evaluate past and current management measures and their effects on the status of overfished stocks.

Harvest Rates

- “Include the fact that there are closed areas when setting harvest rates or figuring the harvest control rule (count the fish not being harvested).”

Harvest rates, which, generally speaking, define a harvest control rule, will be identified for the different alternatives. These harvest rates are usually calculated for the stock as a whole or major segments of the stock. Differences in the harvest rate for different segments of the stock inside and outside closed areas, for example, are thus accounted for in determining the stock-wide harvest rate.

Stock Rebuilding

“Explore a full range of rebuilding time periods (rebuilding should be as short as possible considering a number of factors).”

“Analyze management measures that ensure rebuilding targets are met (limiting fishing effort via capacity reduction, time and area closures, marine protected areas, trip and bag limits, mortality caps, etc.).”

“Analyze management measures that rebuild depleted populations by limiting total mortality to levels consistent with proposed rebuilding targets.”

Amendment 16-1 describes how the range of possible rebuilding time periods is determined and the translation of this information into a rebuilding strategy. Amendment 16-2 considers the full range of rebuilding time periods in its range of alternatives. An alternative based on the minimum possible time period, under which all groundfish fisheries would have to be shut down, represents one end of the possible range. Another alternative would establish targets based on the highest catches that would be allowed under the rebuilding framework without using the mixed stock exception (discussed above). As noted, a Mixed Stock Exception alternative is also considered. Finally, the Council Preferred alternative represents the adoption of targets currently in use. As discussed above, the alternatives would use the range of management measures implemented through the harvest specification process. For the purpose of analysis these management measures are used to project total harvest mortality under the different alternatives.

Bycatch

“Analyze management measures that reduce bycatch of species and their prey.”

“Analyze measures that minimize incidental catch of a depleted species' prey species.”

“Use all reasonably available technologies to avoid non-target species and age classes.”

Bycatch reduction is not considered directly since the range of alternatives focuses on management targets. Current bycatch assessment methods and implications for rebuilding are considered in Sections 3.3 and 4.3 of the EIS. In addition, NMFS is preparing a separate EIS that considers different bycatch reduction measures.

Habitat and Marine Reserves

“Analyze measures that reduce impacts of fishing gear on the marine environment, including past, present and future impacts of fishing and nonfishing operations on habitats used by depleted species.”

“Avoid impairing the habitats of target and non-target species.”

“Evaluate and consider the advantages of avoiding impacts to marine habitats as a component of rebuilding, including the possible inclusion of marine reserves into alternatives.”

“Fully analyze habitat needs and existing impacts on habitat for each overfished species; consider the full range of alternatives for protecting and enhancing habitat for each species being rebuilt.”

“In the rebuilding plans, note the conformity to the bycatch and habitat provisions in the analysis, even though they are part of the groundfish FMP.”

“Specifically address options for, and effectiveness of, habitat protection as an integral component of the rebuilding plan.”

“Explore value of ‘big, old, fat’ (more fecund) female spawners and their contribution to recruitment; see whether they are protected, where they are, etc. Have the SSC look into recent data on this.”

“Good that participants in the Pacific groundfish fleet have volunteered to change fishing methods to avoid habitat destruction; address how these efforts might be furthered through the rebuilding plan.”

The effect of different rebuilding strategies on habitat is considered in Chapter 4, evaluation of direct and indirect impacts, and Chapter 5, the cumulative effects analysis. As discussed above, the alternatives are based on strategic rebuilding parameters that define a rebuilding strategy, and no additional management measures are considered outside of those that are already part of the Groundfish FMP framework. (See the discussion above, under “Range of Alternatives.”) However, NMFS is preparing a separate EIS to identify essential fish habitat (EFH) and evaluate different management measures to protect habitat.

Protected Species

“Consider the effect of marine mammals on fish populations.”

Mortality of overfished species from sources other than fishing is called natural mortality by fishery biologists. Natural mortality can have many different causes, including predation by marine mammals, but as long as natural mortality is accurately estimated in a stock assessment, accounting for all the different components (such as natural mortality due to old age or toxic chemicals in the water) would not improve the analysis. Given an estimate of natural mortality from all sources, fishery managers can estimate the amount of fishing mortality that can occur and still allow the population to sustain itself at a healthy level. Although reducing the number of marine mammals may reduce natural mortality, these species are federally protected, so such measures would conflict with the protective measures of the ESA and/or the Marine Mammal Protection Act (MMPA). Because of their protected status, the EIS does consider the effects of the proposed action on marine mammals, since groundfish are a food source for these animals in Chapters 4 and 5. Chapter 8, reviewing cross-cutting mandates, discusses findings under the Endangered Species Act and Marine Mammal Protection Act.

Communities/Social and Economic Impacts

“Consider effects of decisions on fishing community infrastructure (cumulative from all rebuilding plans).”

“Consider socioeconomic impacts on coastal (not just fishing) communities.”

“Create and distribute a document describing individual and cumulative effects on communities.”

The Magnuson-Stevens Act requires the Council and NFMS to determine how the proposed action will affect fishing communities. Sections 3.4.8 and 4.4.8 in the EIS evaluate the effect of the alternatives on fishing communities. Chapter 5 in the EIS analyzes cumulative effects.

Tribal Issues

“Address the Quileute tribe’s treaty fishing rights whenever management activities occur in the tribe’s U and A fishing areas.”

“Ensure the Quileute tribe’s treaty fishing rights are not adversely affected by rebuilding parameters of non-treaty fisheries.”

“Ensure the effects of fishing mortality management strategies aimed at non-treaty fisheries do not impact the Quileute tribe’s fisheries.”

Tribal interests are represented in Council decision-making through the tribal seat on the Council. The EIS describes tribal fisheries in Chapter 3 and considers the effect of the alternatives on Tribal fisheries in Chapter 4.

Enforcement

“Analyze measures that aid in enforcement of management measures.”

The EIS describes enforcement programs as part of the current management regime. As discussed above, the range of alternatives will use existing management measures and enforcement programs to constrain fishing mortality within targets established in the alternatives.

Process

“Be sure to clearly define terms (like F, harvest control rule, harvest rule).”

The EIS will contain a glossary and list of acronyms. In addition, Chapter 3 provides information on the management process.

1.4.4 Criteria Used to Evaluate the Impacts of the Amendment 16-2 Proposed Action

Implementation of the rebuilding plans for four overfished species will be evaluated based on projected impacts to the components of the human environment listed below. For each of these components the criteria used for measuring direct, indirect, and cumulative impacts are described. These criteria were developed by Council and NMFS staff, based on scoping comments and Council and advisory body discussions.

Habitat and Protected Species

The combined and cumulative effects of implementing multiple rebuilding plans are considered. Impacts to habitat and protected species would correlate with the level and type of fishing activity. Increased fishing activity, particularly bottom trawling, would result in greater impacts to habitat in comparison to a decrease in fishing. Different protected species are affected by a variety of gear types. For example, ESA-listed salmon stocks are caught in midwater trawl fisheries targeting Pacific whiting. Although there are no data for West Coast fisheries, elsewhere, longline fisheries hook seabirds during gear deployment. As with habitat, alternatives that allow more fishing effort would result in greater impacts to protected species in comparison to alternatives that result in less fishing effort.

Overfished Species Stocks

Rebuilding analyses provide three metrics that can be used to compare the effect of the alternatives on the four overfished species stocks considered in this EIS. The analyses identify the probability of rebuilding in the maximum permissible time period and the median rebuilding year (or target year) for different harvest levels. The harvest level represents the direct impact. The associated probability of rebuilding in the maximum time period is a measure of the long-term risk that a particular harvest level will not achieve rebuilding. The median rebuilding year is the most likely year by which the stock will be rebuilt and is an indication of the tradeoff between harvests and how quickly the stock will rebuild. Harvest levels are inversely correlated with the rebuilding time and probability. The alternatives will be evaluated based on these metrics. Alternatives that restrict harvests more have less environmental impacts than alternatives that allow a higher harvest rate.

Co-occurring Species

Co-occurring species include other overfished groundfish stocks whose rebuilding plans are not implemented through this amendment and stocks that are not overfished. Certain overfished species act as constraining stocks in that the level of harvest needed to rebuild them is so low that harvest limits for co-occurring species cannot be reached. Direct and indirect impacts of the alternatives can be compared by considering each of the four overfished species' rebuilding plans separately. Alternatives that require lower harvest limits for the species in question would also limit harvest of co-occurring species, thereby resulting in less environmental impact while higher harvest limits would result in greater environmental impacts. Because of the constraining effect of rebuilding measures for a given overfished species, combined and cumulative effects also have to be considered. An evaluation of these effects considers the interaction between rebuilding measures for different overfished species. However, the same metric—fishing mortality to co-occurring species—can be used.

The Management Regime

Although not part of the proposed action, management measures will be implemented to ensure total fishing mortality remains at levels necessary to achieve targets incorporated into rebuilding plans. Generally, the range of management measures implemented through the annual/biennial harvest specification process will be used, although new management measures could be identified in the FMP and implemented through future actions. The impacts of the alternatives are evaluated in terms of the types of management measures that may be used. More complicated, controversial, and difficult-to-enforce management measures would impose greater costs in comparison to less complex measures. Impacts to the management regime can also be evaluated in terms of the data needed to both support and evaluate potential management measures. Management measures that are more dependent on precise total catch monitoring will require a higher level of direct observation than is currently in place. Increasing observer coverage would entail more costs.

Commercial Fisheries

Commercial fishery impacts are compared in terms of changes in exvessel revenue. This is evaluated both in terms of the present value of exvessel revenue derived from catches of each overfished species, and in the short term, changes in exvessel revenue from landings of all co-occurring species. These socioeconomic impacts are inversely related to biological impacts. Alternatives that limit harvest more, and thereby reduce landings, also reduce exvessel revenue; while alternatives that allow higher harvest levels result in comparatively higher exvessel revenue.

Recreational Fisheries

Recreational fishery impacts are evaluated qualitatively based on the change in fishing opportunity as measured by the number of fishing trips that might occur under each alternative. These effects are compared for each overfished species in terms of the impact of rebuilding measures on recreational fishing. Because some species are not caught in recreational fisheries, rebuilding measures would have little effect. Other species, such as canary rockfish, are frequently caught, and rebuilding measures would have a greater impact.

Tribal Fisheries

Tribal fishery impacts are qualitatively evaluated based on the degree of change in groundfish landings compared to historical landings. Some treaty fisheries have specific allocations reserved to them, and rebuilding measures could affect the allocations. As with all socioeconomic impacts, alternatives with a lower harvest limit are more likely to affect tribal allocations than those that allow a higher harvest limit.

Buyers, Processors, and Markets

Impacts on buyers and processors correlate closely with changes in landings and associated exvessel revenue. (Exvessel revenue is derived from purchases by this sector.) Alternatives can, thereby, be qualitatively evaluated in a similar fashion. Lower harvest limits would reduce the amount of fish that could be purchased in relation to higher harvest limits. Impacts of the alternatives on markets, such as retail outlets and restaurants, can be qualitatively evaluated in terms of the substitutability of other fish products for those that might become unavailable (or become too expensive) as a result of harvest limits. Some groundfish products might be easily substituted, while others—such as live fish sales—may not be.

Fishing Communities

Fishing community impacts represent the aggregate of the socioeconomic impacts described above. Alternatives can be qualitatively evaluated by comparing the alternatives in terms of changes in personal income resulting from changes in groundfish landings. Given the range of these species and how vessels targeting them are distributed by port, there will be geographic differences in community impacts. This evaluation compares these differences, based on the different harvest limits set for different overfished groundfish species under alternative rebuilding plans.