

**FINAL
ENVIRONMENTAL ASSESSMENT/
REGULATORY IMPACT REVIEW
FOR
AMENDMENT 11**

to

**THE PACIFIC COAST GROUND FISH
FISHERY MANAGEMENT PLAN**

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1.0 INTRODUCTION

The groundfish fisheries in the Exclusive Economic Zone (EEZ) offshore of Washington, Oregon, and California are managed by the Pacific coast groundfish fishery management plan (FMP). The FMP was prepared by the Pacific Fishery Management Council (Council) under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), and actions taken to amend the FMP or implement other regulations governing the groundfish fisheries must meet the requirements of Federal laws and regulations. In addition to the Magnuson-Stevens Act, the most important of these are the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), Executive Order (EO) 12866, and the Regulatory Flexibility Act (RFA). NEPA, EO 12866 and the RFA require a description of the purpose and need for the proposed action as well as a description of alternative actions which may address the problem.

1.1 Background

The Magnuson-Stevens Act, as revised in 1996, contains a number of provisions pertaining to the content of FMPs and a requirement that all FMPs be updated so as to be consistent with those provisions by October 11, 1998. In early 1997, the Council reviewed the current FMP and determined revisions are necessary to bring it back into compliance with new requirements. The Council also held a public scoping session to determine the scope of the amendment, identifying ten general issues to be addressed. In the course of the review and scoping sessions, potential inconsistencies with the following sections of the Magnuson-Stevens Act were identified.

Sec. 303. CONTENTS OF FISHERY MANAGEMENT PLANS

(a) Required Provisions - Any fishery management plan which is prepared by any Council, or by the Secretary, with respect to any fishery, shall--

(2) contain a description of the fishery, including, but not limited to, the number of vessels involved, the type and quantity of fishing gear used, the species of fish involved and their location, the cost likely to be incurred in management, actual and potential revenues from the fishery, any recreational interest in the fishery, and the nature and extent of foreign fishing and Indian treaty fishing rights, if any;

(3) assess and specify the present and probable future condition of, and the maximum sustainable yield and optimum yield from, the fishery, and include a summary of the information utilized in making such specification;

(5) specify the pertinent data which shall be submitted to the Secretary with respect to commercial, recreational, and charter fishing in the fishery, including, but not limited to, information regarding the type and quantity of fishing gear used, catch by species in numbers of fish or weight thereof, areas in which fishing was engaged in, time of fishing, number of hauls, and the estimated processing capacity of, and the actual processing capacity utilized by, United States fish processors;

(7) describe and identify essential fish habitat for the fishery based on the guidelines established by the Secretary under section 305(b)(1)(A), minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat;

(10) specify objective and measurable criteria for identifying when the fishery to which the plan applies is overfished (with an analysis of how the criteria were determined and the relationship of the criteria to the reproductive potential of stocks of fish in that fishery) and, in the case of a fishery which the Council or the Secretary has determined is approaching an overfished condition or is overfished, contain conservation and management measures to prevent overfishing or end overfishing and rebuild the fishery;

(11) establish a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery, and include conservation and management measures that, to the extent practicable and in the following priority--

- (A) minimize bycatch; and
- (B) minimize the mortality of bycatch which cannot be avoided;

(13) include a description of the commercial, recreational, and charter fishing sectors which participate in the fishery and, to the extent practicable, quantify trends in landings of the managed fishery resource by the commercial, recreational, and charter fishing sectors; and

In addition, new National Standards were established and several definitions were revised; the definitions of optimum yield, overfished and overfishing are particularly significant.

The Magnuson-Stevens Act requires the Secretary of Commerce to establish advisory guidelines, based on the Magnuson-Stevens Act's "National Standards," to assist in this process. The final rule revising the national standard guidelines was published on May 1, 1998.

This document considers each issue separately, including a discussion of the purpose and need for each action and expected environmental consequences of the alternative solutions. In several cases the status quo, although listed as an alternative, is not viable if the FMP is to comply with the Magnuson-Stevens Act.

1.2 Issues Addressed in this Amendment and Environmental Assessment

- Issue 1. Individual and Multispecies Optimum Yields (OYs).
- Issue 2. Definition and Specification of Maximum Sustainable Yield (MSY), Acceptable Biological Catch (ABC), OY and Overfishing Control Rules, and Rebuilding Programs.
- Issue 3. Definition, Description and Identification of EFH.
- Issue 4. Bycatch Provisions.
- Issue 5. Fishing Communities.
- Issue 6. Clarify and Expand Council Authority to Require Groundfish Use Permits.
- Issue 7. Scientific Research, and Utilization of Fish to Pay for Research.
- Issue 8. Update Industry Descriptions and Other Sections.
- Issue 9. FMP Objectives and Definitions.
- Issue 10. General Editorial Cleanup.
- Issue 11. Remove jack mackerel (*Trachurus symmetricus*) from the fishery management unit and include it in the Coastal Pelagic Species FMP.

This FMP is designed as a framework that provides the authority, goals, and procedures for the Council to recommend and the Secretary of Commerce (Secretary) to implement management measures for the Pacific Coast groundfish fishery. This amendment primarily addresses those goals and procedures. It also clarifies the Council's responsibilities under federal law. The primary intent is to bring the FMP into conformity with the Magnuson-Stevens Act as amended in 1996.

1.3 Council Decision Process and Public Hearings

At its June 1997 meeting, the Council conducted a session to determine the scope of the proposed FMP amendment and provided an extended opportunity for public advice on the issues that should be included in the amendment. The first draft of the amendment package was presented to the Council and its advisory entities at the November 1997. In March and April 1998, the Council's Groundfish Management Team, Groundfish Advisory Subpanel (GAP) and Scientific and Statistical Committee met jointly to review progress on the material, gain a better understanding of the issues, alternatives and implications, and to prepare recommendations to the Council. At the June 1998 meeting, the Council released the amendment package for public comment and scheduled public hearings in several locations: Seattle, Washington; Astoria, Oregon; Newport, Oregon; and Eureka, Monterey, and Long Beach, California. The Council took additional public comment at its September 1998 meeting prior to taking final action on the amendment package.

2.0 INDIVIDUAL AND MULTISPECIES OPTIMUM YIELDS

2.1 Purpose and Need for Action

Each year, the Council recommends groundfish harvest specifications (ABCs, harvest guidelines and allocations), but current annual specifications do not include OYs. Under the 1996 provisions of the Magnuson-Stevens Act, the OY for a management unit may not exceed its MSY. The current specification of OY makes such a comparison difficult or impossible, and the Council is considering changes that make it easier to compare them.

The original groundfish FMP established numerical OYs for five species¹ and a single non-numerical OY for the remainder of groundfish complex, which was defined as "all the fish that can be taken under the regulations, specifications, and management measures authorized by the FMP and promulgated by the Secretary." Originally, OY was for landed catch only, and discards were largely ignored. Amendment 4 expanded the single non-numerical OY to include the entire groundfish complex, eliminating individual species OYs and instead designating harvest guidelines and quotas as the numerical harvest specifications. Under this definition, OY is not a predetermined numerical value, but rather the harvest that results from regulations, specifications and management measures as they are changed in response to changes in the resource and the fishery. This definition may not meet the requirements of the Magnuson-Stevens Act and national standard guidelines. Specifically, the national standard guidelines state that "The amount of fish that constitutes OY should be expressed in terms of numbers or weight of fish. However, OY may be expressed as a formula that converts periodic stock assessments into target harvest levels; ... or as an amount of fish taken only in certain areas, in certain seasons, with particular gear, or by a specified amount of fishing effort." Also, "the annual harvest level obtained under an OY control rule must always be less than or equal to the harvest level that would be obtained under the MSY control rule." "In a mixed-stock fishery, specification of a fishery-wide OY may be accompanied by management measures establishing separate annual target harvest levels for the individual stocks. In such cases, the sum of the individual target levels should not exceed OY." Under the current non-numerical OY, it is difficult to relate the amount of fish that constitutes OY to MSY either quantitatively or qualitatively. However, it is possible to relate individual ABCs and harvest guidelines to the corresponding MSY values. In order to maintain the single OY, a single MSY value would have to be determined. To simplify and clarify harvest rules, the Council is considering establishing OYs for various stock units which may include either a single species or a group of species.

2.2 Alternatives Including Proposed Action

Status quo (no action). Maintain the single non-numerical OY for the entire groundfish fishery, with harvest guidelines for individual species and species groups.

Alternative 1 (multiple OYs). (ADOPTED BY THE COUNCIL) Amend the FMP to establish numerical OYs for individual species and species groups, and clarify that the Council will decide on a case-by-case basis whether to establish OYs for individual species and species groups. A non-numerical OY may be retained for some species. Minor technical revisions to the regulations will be required to replace the term "harvest guideline" by the term "optimum yield" in reference to the annual harvest specifications. (See the proposed FMP text, Chapter 4.)

Alternative 2 (minimal change). Maintain the single non-numerical OY but amend the FMP to clarify the use of harvest guidelines and "control rules to ensure harvest guidelines do not exceed ABCs." In addition, a single MSY would likely have to be identified. No new regulations or regulatory changes would be required.

¹This was increased to six species when jack mackerel was added to the fishery management unit.

2.3 Discussion of Alternatives

The Council has a long-established goal of managing by species assemblages in cases where several species are caught together during typical fishing operations. When the Pacific Coast Groundfish FMP was first developed and approved, all but five species were included in a single OY; those excluded were species that could be harvested selectively or that required special management attention: sablefish, Pacific whiting, Pacific ocean perch, shortbelly rockfish, and widow rockfish (jack mackerel was added shortly thereafter). The Council originally considered three major options for OY: 40 subunits/OYs, 18 subunits/OYs, and 7 OYs.

In a multispecies fishery, even the best applied fishing technology and regulatory procedures sometimes fail to control the species composition of the catch well enough to avoid serious under-harvest of some species as catches of others approach their ABC. Accordingly, it was necessary to specify a single OY for several species groupings. Also, in some cases it was beneficial to include one OY for two or more areas to establish realistic management subunits. The intent of broad groupings has been to minimize disruption of existing fishing practices, to maximize total sustainable production of grouped species which often are caught together in the multi-species fisheries, and to allow in-season fishing and management flexibility. Within the broadest grouping concept, management of each species within the group is important only if there are obvious impacts on the general productivity of the species complex. Under the FMP as it currently exists, care is taken to insure the health and conservation aspects of the resources by monitoring for established points of concern. Under this approach, catches of some species are expected to vary above and below the estimated ABC. This management regime has been flexible, but relies heavily on an effective system of monitoring for points of concern and responding to any conservation problems that arise. The system relies on mechanisms to adjust management measures both between seasons (on the basis of new assessments or new information) and within season (based on harvest projections and comparisons with previous years' data). Amendment 4 to the FMP eliminated the individual OY management approach, replacing it with harvest guidelines for species or species groups (i.e., management units) the Council finds need individual management attention. At that time, the Council considered using the term "OY" but had concerns it would imply mandatory closure of a fishery if OY were attained prior to the end of the fishing year. In addition, the public had grown accustomed to the distinction between the term "harvest guideline," which is defined as a flexible management target, and "quota," which is defined as an absolute limit.

The Council has been generally satisfied with its multispecies OY management approach. However, the 1996 amendments to the Magnuson-Stevens Act restrict the relationship between OY and MSY. The Council is concerned its current terminology may now be viewed as inconsistent with the Magnuson-Stevens Act. The Council's intention is to maintain the current management approach to the extent possible and make any necessary changes to terminology, while avoiding public confusion over the meaning and usage of terms. Thus, the alternatives under consideration are mainly semantic in nature.

Under Alternative 1, which the Council adopted as its final decision, the FMP will authorize establishment of numerical OYs for stock management units (individual species and species groups). The Council will decide on a case-by-case basis the species composition of stock management units. The Council will decide which stock management units would be managed with numerical OYs, with the understanding a non-numerical OY may be retained for some management units. It is likely in the short term the Council will recommend numerical OYs for each stock currently managed with a harvest guideline. In accordance with the national standard guidelines, OY would not exceed the ABC (or the sum of ABCs for a complex) unless the Council demonstrates the exception criteria stated in the national standard guidelines are met (see Issue 2, below). Under this alternative, it will be relatively easy to demonstrate the relationship between OY and MSY.

Under Alternative 2, the FMP would maintain the single non-numerical OY but would be amended to clarify the use of harvest guidelines and "control rules to ensure harvest guidelines do not exceed ABCs." Under this alternative, the Council would continue to establish harvest guidelines for various stocks as in the past,

and harvest guidelines would be the functional equivalents of numerical OYs. Because there would technically still be a single non-numerical OY, the Council would have to develop a way to demonstrate that OY does not exceed MSY. This would likely require identification of a single MSY or establishment of equivalent definitions of the terms "ABC" and "MSY," and for "harvest guideline" and "OY" for stock management units.

Under the national standard guidelines, MSY is to be specified for each stock in a mixed-stock fishery, and if this is not possible, then "MSY may be specified on the basis of one or more species as an indicator for the mixed stock as a whole or for the fishery as a whole."

Because productivity (growth, recruitment and mortality) of each species in a stock complex is likely to be different, there will be no single value of the fishing mortality rate that produces MSY (i.e., F_{msy}) that is appropriate for all species within the assemblage. Likewise, catchability (vulnerability) of each co-occurring species by fishing gear is likely to be different. Thus, fishing rates for co-occurring species are not going to be reduced by equal amounts if effort within the fishery is reduced. Consequently, it will be difficult if not impossible to obtain F_{msy} and the biomass that produces MSY (i.e., B_{msy}) for several species simultaneously. Depending on which stock (or stocks) within the mixed-stock complex serve as indicators for the complex as a whole, remaining stocks within the complex may be variously over- or under-exploited with respect to their individual MSY levels. If the indicator stock is more productive than other species within the mixed-stock complex, some stocks within the complex may not be able to withstand the same level of fishing effort associated with the MSY control rule for the indicator species, and a precautionary approach becomes warranted in the face of uncertainty about productivity of non-indicator stocks. Those stocks could be potentially at risk for protection under the Endangered Species Act (ESA) if the fishery continues to overfish those stocks, while maintaining productive indicator stocks at MSY levels.

The national standard guidelines allow exceptions to the requirement to prevent overfishing in the case of a mixed-stock complex. If one species in the complex is harvested at OY, overfishing of other components in the complex may occur if (1) long-term net benefits to the Nation will be obtained and (2) similar long-term net benefits cannot be obtained by modification of fleet behavior or gear characteristics or other operational characteristics to prevent overfishing and (3) the resulting fishing mortality rate will not cause any stock or ecologically significant unit to require protection under the ESA.

2.3 Environmental Consequences

2.3.1 Socioeconomic Impacts

No economic impacts are anticipated under any of the alternatives. However, there may be more or less confusion about the terminology under the various alternatives. It may be clearest to use the terminology used in the national standard guidelines. Any social impacts would likely be limited to any confusion related to inconsistent terminology. The Council intends to take appropriate action to revise the FMP so that it is consistent with the law and federal guidelines while minimizing confusion of management officials, fishers, and the general public. While any change in the definition or use of common terms can be disruptive in the short term, in the long term clear, consistent language generally contributes to better communication and understanding.

2.3.2 Biological Impacts

The alternatives under consideration, including the status quo, have no regulatory effect and are only descriptive in nature. There is no impact on groundfish populations, the ecosystem or the marine environment. The Council would likely set similar or identical harvest limits under all the alternatives, including the status quo.

3.0 DEFINITION AND SPECIFICATION OF MSY, ABC, OY AND OVERFISHING CONTROL RULES, AND REBUILDING PROGRAMS

3.1 Purpose and Need for Action

The Magnuson-Stevens Act and proposed national standard guidelines require the Groundfish FMP to (1) prevent overfishing, which is defined to mean preventing the fishing mortality rate (F) from exceeding the MSY fishing mortality rate (i.e., F_{msy}); (2) rebuild overfished stocks, defined to mean stocks whose abundance has fallen below the overfished threshold; and (3) adopt a precautionary approach. The national standard guidelines describe three features of a precautionary approach. First, "... OY should be set safely below limit reference points (note: 'limit reference point' refers to MSY or other established limit below MSY)." Second, a stock or stock complex that is below the size that would produce MSY should be harvested at a lower rate or level of fishing mortality than if the stock or stock complex were above the size that would produce MSY (i.e., B_{msy})." Third, "criteria used to set target catch levels should be explicitly risk averse, so that greater uncertainty regarding the status or productive capacity of a stock or stock complex corresponds to greater caution in setting target catch levels."

Currently, the FMP's definition of overfishing is inconsistent with (1) above; overfishing is defined as the fishing mortality rate that would reduce spawning potential to 20% of the unfished level (abbreviated as $F_{20\%}$), but MSY is typically based on the $F_{35\%}$ or $F_{40\%}$ level, which are both lower exploitation rates. The FMP is also inconsistent with (3) above because MSY is treated as a target, reduced harvest rates are not required for stocks below their MSY size, and a risk averse policy is not defined. Rather, the Council has taken an ad hoc approach to risk aversion.

3.2 Alternatives Including Proposed Action

Status quo (no change) Maintain the current definition of OY and provisions relating to overfishing, rebuilding. MSY is a target but not necessarily a limit (i.e. harvest guidelines are based on applying $F_{35\%}$ to current biomass but may be adjusted up or down). OY is non-numerical, defined as "all the fish caught in accordance with current regulations." Overfishing defined as $F_{20\%}$, and no overfished threshold identified.

Alternative 1. Under this alternative, MSY is a constant fishing mortality rate (F_{msy}) that is a limit but may also serve as a target. In other words, it is a fixed exploitation rate, where a constant fraction of the stock may be harvested each year. The default rate is $F_{40\%}$ for rockfish and $F_{35\%}$ for other species, both of which may be superseded based on better scientific information. The overfished threshold is set at 50% B_{msy} or 25% $B_{unfished}$ (or, if larger, the minimum biomass level that, if $F_{35\%}$ applied for ten years, would allow stock to return to B_{msy} or 40% of $B_{unfished}$).

OY may be equal to or less than MSY, based on the Council's best judgement. Precautionary and uncertainty adjustments may be made on a case-by-case basis. If a stock falls below the overfished threshold, a rebuilding plan will be developed.

Alternative 2. (ADOPTED BY THE COUNCIL) Under this alternative, MSY is constant fishing mortality rate that is a limit. In other words, it is a fixed exploitation rate, where a constant fraction of the stock may be harvested each year. The default rate is $F_{40\%}$ for rockfish and $F_{35\%}$ for other species, both of which may be superseded based on better scientific information. ABC is defined as the appropriate F times the current biomass estimate. The default overfished/rebuilding threshold is 25% $B_{unfished}$.

For stocks with biomass larger than the MSY biomass, OY may be equal to or less than ABC. A precautionary threshold will be established that is equivalent to the MSY biomass size or productivity; when B_{msy} is not known, the proxy will be 40% of estimated level unless scientific data and analysis support a different value. When a stock is believed to be below its MSY size or precautionary threshold, the default OY will be below ABC according to a default formula. The default OY may be reduced to account for uncertainty in stock status or abundance. Other adjustments (social, economic, etc.) to the default OY may be made, including subtraction of anticipated bycatch and any fish taken as

compensation for private vessels conducting scientific resource surveys. For stocks below their overfished/rebuilding threshold, a default interim rebuilding adjustment to OY will take effect until a formal rebuilding plan is developed. The Council may recommend an OY above the default OY or ABC in accordance with the national standard guidelines. (See proposed FMP text, Section 5)

Alternative 3. Under this alternative, MSY is constant fishing mortality rate that is a limit. In other words, it is a fixed exploitation rate, where a constant fraction of the stock may be harvested each year. The default rate is $F_{40\%}$ for rockfish and $F_{35\%}$ for other species, both of which may be superseded based on better scientific information. ABC is defined as the appropriate F times the current biomass estimate. The default overfished/rebuilding threshold is 25% of the estimated unfished stock biomass..

For stocks with biomass larger than the MSY biomass, OY may be equal to or less than ABC. A precautionary threshold will be established that is equivalent to the MSY biomass size or productivity; when B_{msy} is not known, the proxy will be 40% of estimated level unless scientific data and analysis support a different value. When a stock is believed to be below its MSY size or precautionary threshold, the default OY will be below ABC according to a default formula. The default OY will be further reduced to account for uncertainty in stock status or abundance by applying a reduced exploitation rate equivalent to three percent or five percent SPR (that means $F_{43\%}$ or $F_{45\%}$ for rockfish and $F_{38\%}$ or $F_{40\%}$ for other species, unless the default F has been superceded). Other adjustments (social, economic, etc.) to the default OY may be made, including subtraction of anticipated bycatch and any fish taken as compensation for private vessels conducting scientific resource surveys. For stocks below their overfished/rebuilding threshold, a default interim rebuilding adjustment to OY will take effect until a formal rebuilding plan is developed. The Council may recommend an OY above the default OY or ABC in accordance with the national standard guidelines.

Alternatives 2 and 3 have the following suboptions that would further define the OY rule.

Suboption A would reduce OY below ABC along a straight line between the "MSY" catch (i.e., applying $F_{35\%}$ at $B_{40\%}$) and zero catch at 5 percent of the unfished biomass (i.e., $B_{5\%}$). This same line would be used as the interim rebuilding plan if a stock falls below its overfished/rebuilding threshold ($B_{25\%}$). The point at which the line intersects the horizontal axis does not necessarily imply zero catch would be allowed, but rather is for determining the slope of the line. The abbreviated name for this is the "40-5" option.

Suboption B (ADOPTED BY THE COUNCIL) is more conservative, drawing a line between the "MSY" catch and zero catch at $B_{10\%}$. The greater amount of catch reduction applied below $B_{40\%}$ would foster quicker return to the MSY level. If a stock falls below its overfished/rebuilding threshold, this line would be used as the interim rebuilding plan until the Council develops a formal rebuilding plan. As in Suboption A, the point at which the line intersects the horizontal axis does not necessarily imply zero catch would be allowed, but rather is for determining the slope of the line. The abbreviated name for this is the "40-10" option.

Suboption C is a combination of Suboptions A and B. When a stock is in its "precautionary zone," OY will fall along the 40-5 line; if the stock drops below its $B_{25\%}$ level, the interim rebuilding plan would set catch along the line between $B_{25\%}$ and $B_{10\%}$. As in Suboptions A and B, the point at which the line intersects the horizontal axis does not necessarily imply zero catch would be allowed, but rather is for determining the slope of the line. The abbreviated name for this is the "40-5-10" option.

Figure 3.1 illustrates the three suboptions.

3.3 Environmental Consequences

3.3.1 Overview of Alternatives

Alternatives 1, 2, and 3 would revise the framework for establishing OY. They would replace the $F_{20\%}$ definition of overfishing with the MSY control rule appropriate to each stock; define overfishing as exceeding ABC or F_{msy} (B) as defined by this control rule. Alternatives 2 and 3 would establish $B_{40\%}$ as the default

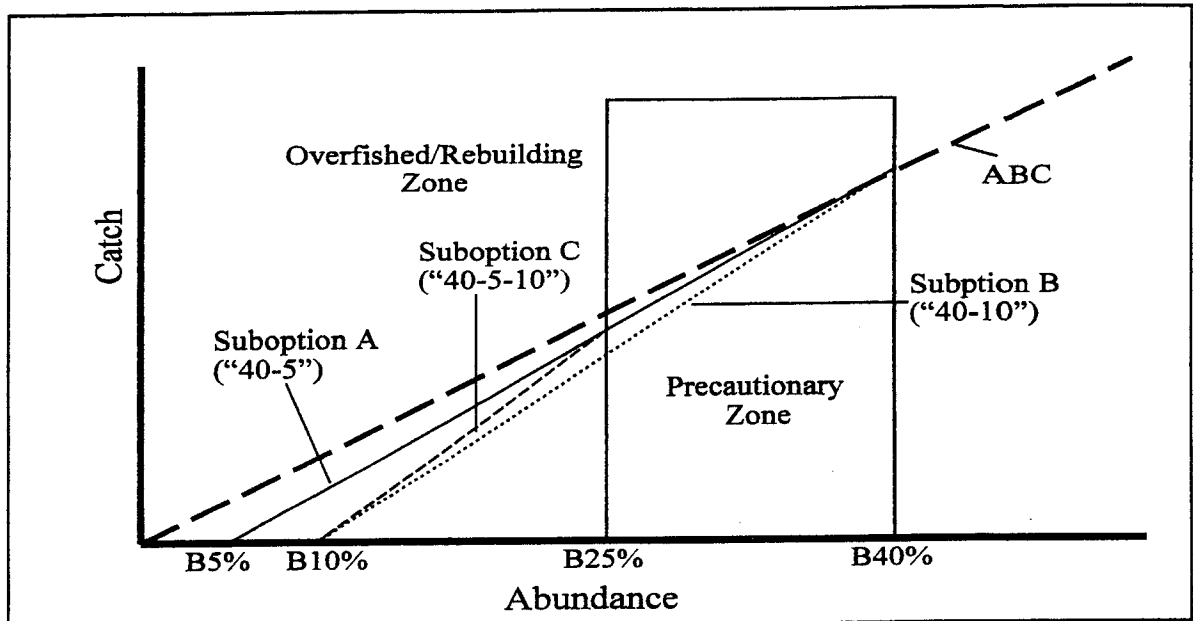


Figure 3-1. Illustration of default OY rule options compared to ABC, including interim rebuilding rule.

proxy value of B_{msy} (the precautionary threshold) and $B_{25\%}$ as the default overfished/rebuilding threshold. All default proxies may be superseded based on new scientific information that becomes available. Under Alternatives 2 and 3, when the stock is below the precautionary threshold, a default OY rule would set the harvest below ABC. This OY rule may be superseded or its results may be modified in cases where uncertainty concerning the stock assessment warrants more caution. Under Alternative 2, uncertainty adjustments will be considered case by case; under Alternative 3, uncertainty adjustments will be set by formula. Further adjustments to OY (up or down) are authorized if justified.

3.3.2 Overview of Physical and Biological Impacts

The environmental impacts generally associated with fishery management actions are effects resulting from (1) harvest of fish stocks which may result in changes in food availability to predators and scavengers, changes in the population structure of target fish stocks, and changes in the marine ecosystem community structure; (2) changes in the physical and biological structure of the marine environment as a result of fishing practices, e.g., effects of gear use and fish processing discards; and (3) entanglement/entrapment of non-target organisms in active or inactive fishing gear.

The alternatives considered here would establish policies for setting MSY, ABC, OY and overfishing levels in each future year based on estimates of stock size and other information available at the time. It is difficult to evaluate the long-term impacts of these alternatives quantitatively, especially for poorly understood stocks. This assessment focuses on short-term impacts, which were evaluated by considering how overfished classifications, ABC, and OYs would likely have changed in 1998 had a particular suboption been in place at the end of 1997.

3.3.3 Discussion of MSY Control Rule and Status Determination Criteria

The national standard guidelines state that an MSY control rule gives
"...fishing mortality rate as a continuous function of stock size, where the parameters of this function are constant and chosen so as to maximize the resulting long-term average yield."

According to the national standard guidelines, the MSY control rule serves two important purposes: (1) It constitutes the maximum fishing mortality threshold, above which overfishing is considered to be occurring;

and (2) it determines the minimum stock size threshold, below which the stock is considered overfished. The groundfish FMP effectively establishes the MSY control rule as application of a constant fishing mortality rate (F), typically $F_{35\%}$. In 1997, based on a review by the Council's GMT, the default was modified for *Sebastes* rockfish which are now managed by application of $F_{40\%}$. None of the alternatives under consideration would substantially revise this approach to MSY; however, each alternative clarifies that in a data-rich situation the Council would calculate and apply the true F_{msy} ; where less information is available, default proxies will be used until superseded based on improved scientific information. The groundfish FMP procedures call for applying the F_{msy} proxy to the current biomass best estimate to calculate the ABC. As the term is used here, this is the limit control rule for the current year, and exceeding ABC would constitute overfishing under each alternative except the status quo (unless the species is part of a mixed-stock complex, in which case the Council may choose to allow overfishing in accordance with the national standard guidelines).

This MSY does not achieve the maximum possible yield over the long term, but rather reflects a tradeoff between magnitude of yield and constancy of yield. According to Restrepo et. al,

In general, (constant F control rules) would be expected to result in a lower long-term average yield but a less variable yield than an MSY control rule in which fishing mortality was strongly related to stock size...

Stock assessments prepared for West Coast groundfish species generally provide most or all of the following information: current biomass estimate, F_{msy} or proxy, translated into exploitation rate, estimate of MSY biomass (B_{msy}), and/or unfished biomass (based on average recruitment), and/or precautionary threshold, and a precision estimate (confidence interval) for current biomass estimate. In general, the quality of information available for West Coast groundfish can be described as data-moderate at best and data-poor in general.

It is likely that MSY and ABCs established under Alternatives 1, 2 and 3, would be identical or at least very similar.

3.3.4 Multispecies Considerations in Implementing MSY

Under the national standard guidelines, MSY is to be specified for each stock in a mixed-stock fishery, and if this is not possible, then "MSY may be specified on the basis of one or more species as an indicator for the mixed stock as a whole or for the fishery as a whole."

Because productivity (growth, recruitment and mortality) of each species in a stock complex is likely to be different, there will be no single value of F_{msy} that is appropriate for all species within the assemblage. Likewise, catchability (vulnerability) of each co-occurring species by the gear is likely to be different. Thus, fishing rates for co-occurring species will not be reduced by equal amounts if effort within the fishery is reduced. Consequently, it will be difficult if not impossible to obtain F_{msy} and B_{msy} for several species simultaneously. Depending on which stock (or stocks) within the mixed-stock complex serve as indicators for the complex as a whole, remaining stocks within the complex may be variously over- or under-exploited with respect to their individual MSY levels. If the indicator stock is more productive than other species within the mixed-stock complex, some stocks within the complex may not be able to withstand the same level of fishing effort associated with the MSY control rule for the indicator species, and a precautionary approach becomes warranted in the face of uncertainty about productivity of non-indicator stocks. Those stocks could potentially be at risk for protection under the ESA if the fishery continues to overfish those stocks, while maintaining productive indicator stocks at MSY levels.

The national standard guidelines allow exceptions to the requirement to prevent overfishing in the case of a mixed-stock complex. If one species in the complex is harvested at OY, overfishing of other components in the complex may occur if (1) long-term net benefits to the Nation will be obtained, (2) similar long-term net benefits cannot be obtained by modification of fleet behavior or gear characteristics or other operational characteristics to prevent overfishing, and (3) the resulting fishing mortality rate will not cause any stock or ecologically significant unit to require protection under the ESA.

It is not clear if and how the Council might deviate from the multi-species management approach established when the FMP was first implemented in the early 1980s. There is little biological and/or management information available for many species (e.g., *Sebastes* rockfish) and it is likely most species will continue to be grouped into a single management unit, or perhaps into two or three units. Setting appropriate harvest levels will be the subject of ongoing Council and scientific discussions.

3.3.5 Comparison of OY alternatives

It is not possible to make a precise comparison among these three options and the current management policies because of the flexibility inherent in status quo management and, to a lesser extent, in the alternatives presented. Under the status quo the Council has been free to set the total catch harvest guideline above or below the ABC given by the designated F_{msy} proxy (MSY control rule), and has chosen to do so on a number of occasions. The shortspine thornyhead harvest guideline has been set above the ABC in recent years, and in the fall of 1997 the Council set the harvest guidelines for widow rockfish, yellowtail rockfish, and sablefish below their ABCs as a precautionary measure. Additional precautionary adjustments on either an ad hoc (in Alternative 2) or a formal (in Alternative 3) basis are also allowed under the alternatives presented. Species which are harvested incidentally as part of a larger complex may have an OY higher than ABC if it can be demonstrated that the species will not continue to decline and the higher OY will provide greater long-term benefits to the Nation.

Alternative 1. Alternative 1 would make minimal change to the FMP by dropping the $F_{40\%}$ overfishing definition and stating that OY may equal but will not exceed ABC, and would establish overfished thresholds. Precautionary and uncertainty reductions to OY may be made case by case. This alternative may provide little guidance to the Council and public with respect to how to achieve the federal fishery management mandates and guidelines. To the extent the Council would continue to heed the best scientific advice and set harvest levels accordingly, stocks would receive the necessary protection from overfishing and tend to produce the maximum sustainable yield. Rather than incorporating specific criteria and guidelines in the FMP, Alternative 1 would maintain a very general framework for setting OYs, and the Council would likely rely on informal reference to the national standard guidelines when it develops its OY recommendations. For stocks falling below their overfished/rebuilding thresholds, this alternative provides little guidance about interim rebuilding plans. For stocks above B_{msy} , OYs set under Alternative 1 are likely to be the same as under Alternative 2.

Alternative 2. (Adopted by the Council) Some feeling for how the adoption of each OY default suboption would affect fishery management may be gained by comparing the total harvest targets established for the 1998 fishery under the current FMP with the harvest targets which would have been set using each of the OY control rules, given the same stock status and dynamics the Council assumed in developing its recommendations for the 1998 annual specifications. This comparison is shown in Table 3.1 for six groundfish stocks for which the requisite information could be obtained from recent stock assessment documents. The column labeled "1998 Target Total Catch" is the total catch harvest guideline for each species in 1998. For four of the six species (widow rockfish, yellowtail rockfish, canary rockfish, and Dover sole) the OY default suboptions produce results which are fairly close to what the Council actually recommended for 1998. The Council's precautionary adjustments for widow and yellowtail rockfish were slightly more conservative than any of the three default suboptions, while there was virtually no difference for canary rockfish and Dover sole. The large differences occur for the two stocks which appeared to be below their overfished thresholds, namely lingcod and sablefish. Since these stocks would require a rebuilding program to be implemented within one year of determining that they are overfished, the default OYs for these stocks would only be in place for one year before being replaced by the OYs of the rebuilding programs.

TABLE 3.1. Comparison of harvest targets (in metric tons) adopted for 1998 with proposed OY default options, assuming the stock assessment conclusions which guided the Council's decisions in setting 1998 ABCs and harvest guidelines.

Species	1998 ABC	'98 Target Total Catch	Suboption A OY	Suboption B OY	Suboption C OY	% of Unfished Biomass
Widow Rockfish	5,750	4,960 ^{a/}	5,750	5,023	5,438	29 ^{b/}
Yellowtail Rockfish	3,465	3,118 ^{c/}	3,452	3,435	3,452	39
Canary Rockfish	1,045	1,045	995	929	995	30
Dover Sole	9,426	9,426	9,426	9,426	9,426	44
Lingcod ^{d/}	960	838 ^{e/}	437	0	0	9 ^{f/}

- a/ Total catch target is below the ABC, because the Council made a precautionary adjustment to $F_{45\%}$ for setting the harvest guideline.
- b/ Spawning output, rather than spawning biomass, is used due to increasing fecundity per body weight of larger female widow rockfish.
- c/ Total catch target is below ABC, because the Council set the harvest guideline at 90% of the U.S. portion of the ABC.
- d/ Uses pristine spawning stock to estimate unexploited spawning biomass.
- e/ Total catch target is below ABC, because the Council made a precautionary adjustment to $F_{40\%}$ for setting the harvest guideline.
- f/ Below rebuilding threshold.

TABLE 3.2. Change in expected landings for selected species from status quo for OY default options, given the Council's assumptions in setting 1998 ABCs and harvest guidelines.

Species	Suboption A		Suboption B		Suboption C	
	mt	%	mt	%	mt	%
Widow rockfish	411	9.6	50	1.2	411	9.6
Yellowtail rockfish	281	10.7	264	10.1	281	10.7
Canary rockfish	-4	0.5	-9	1.0	-4	0.5
Dover sole	0	0	0	0	0	0
Lingcod*	-487	41.9	-838	100	-838	100

* Current information indicates overfished stock, which will require development of a rebuilding program.

For stocks above B_{msy} (or $B_{40\%}$), default OYs set under Alternative 2 would likely be the same as under Alternative 1 and larger than under Alternative 3. Below $B_{40\%}$, Alternative 2 could result in lower default OYs than Alternative 1; OYs would be greater than or equal to OYs set under Alternative 3. Alternative 2 would likely result in quicker rebuilding than Alternative 1 for stocks falling below the overfished threshold due to the interim rebuilding adjustment in each of the three suboptions. Rebuilding might be somewhat slower than Alternative 3.

Alternative 3. Alternative 3 is the same as Alternative 2 except the default OY would always be reduced to account for uncertainty under Alternative 3. Depending on the magnitude of the default uncertainty adjustment selected by the Council, for example three percent to five percent SPR, OYs would be expected to be roughly 15% to 25% below Alternative 2 in many cases. Such caution may be appropriate for stocks that are below their overfished/rebuilding threshold or whose status is extremely uncertain, environmental conditions are unfavorable, or essential habitat has been impacted. Implementation of reduced harvest rates would tend to rebuild stocks to MSY levels more quickly. Alternative 3 could be modified to apply the mandatory uncertainty adjustment only for stocks below B_{msy} . If this was done, Alternative 3 would be identical to Alternative 2 for healthy stocks.

For stocks determined to be above the MSY biomass level, harvest levels might be the same under all three alternatives. For stocks determined to be below B_{msy} , harvest levels would vary depending on the degree of separation between ABC and OY. Under the status quo and Alternative 1, the Council would recommend reduction from ABC on a case-by-case basis. Under Alternatives 2 and 3, a formula would determine the basic OY, although this value could be adjusted for specified reasons. Alternative 3 would likely result in the smallest OYs due to the mandatory uncertainty adjustment; all other things being equal, OYs could be as much as 15% to 25% lower under this alternative. However, it is more likely stocks would remain at or above B_{msy} (or return to B_{msy} more quickly) under Alternative 3 due to the more restrictive harvest levels that would likely be established. According to the draft "Technical Guidance on the Use of Precautionary Approaches to Implementing National Standard 1" by Restrepo et. al.,

The equilibrium consequences of fishing at the default 75% F_{MSY} were evaluated using the deterministic model of Mace (1994). The results of this exercise indicate that fishing at 75% F_{msy} would result in equilibrium yields of 94% MSY or higher, and equilibrium biomass levels between 125% and 131% B_{msy} -- a relatively small sacrifice in yield for a relatively large gain in biomass. Although it is likely that results would diverge for more complex models (e.g., those in which the ages of maturity and recruitment differed substantially, or those incorporating stochasticity), the calculations indicate that relatively small sacrifices in yields will result in relatively much larger gains in stock biomass. Increased biomass should in turn result in a number of benefits to the fishery, including increased CPUE, decreased costs of fishing, and decreased risk to the stock. Relative to fishing at F_{msy} , fishing at 75% F_{msy} will reduce the probability that a stock will decline to $\frac{1}{2} B_{msy}$.

The deterministic simulation results presented ... should not be taken as being strictly applicable to every situation. Variability in the population dynamics parameters of a stock will affect the performance of fishing at 75% F_{msy} . As well, the evaluation only pertains to cases where F_{msy} can be reliably estimated. As such, the performance of the default target will depend on the robustness with which F_{msy} can be estimated or approximated.

Thus, it is likely that Alternative 3 would have the highest likelihood of maintaining stocks at or above B_{msy} and preventing stocks from becoming overfished, followed by Alternative 2, Alternative 1 and the status quo. However, Alternative 3 may be more conservative than necessary and may be more likely to prevent achievement of MSY. Also, nothing under Alternative 3 would prevent the Council from reducing OY in cases where uncertainty is high.

3.3.6 Socioeconomic Summary

As stated earlier, it is difficult to anticipate the differences between impacts of the status quo and Alternatives 1 and 2, because the Council has typically set harvest guidelines consistent with the best scientific advice it receives. Alternative 1 would likely be identical or nearly identical to the status quo. This implies an intangible social benefit from continuity with previous policy and procedure. Under Alternative 1 the amount of public comment and debate at Council meetings regarding appropriate OY levels would be similar to the status quo, since this alternative provides substantial Council discretion. Compared to Alternatives 2 and 3, Alternative 1 appears likely to result in the highest harvest levels, which would provide the greatest possible gross revenue to the fishing fleet in the short term. If those short term harvest levels inadvertently exceed sustainable levels, or tend to maintain stocks at lower levels, the long term benefits may be less than the other alternatives.

The primary social effect of Alternative 2 in the short term might be intangible benefits from a clearer, more consistent policy for setting harvest levels. Under each of the suboptions, the Council, fishing industry and public can easily see how harvest levels will be determined in response to any given biomass estimate. Such a consistent policy would simplify the decision-making process while still providing the Council a degree of flexibility. Compared to Alternative 1, the nature of public comment and debate at Council meetings might focus more on the scientific credibility of biomass estimates rather than adjustments to OY, and on the uncertainty in the scientific information and analysis.

Actual harvest levels under Alternative 2 might not differ significantly from the status quo or Alternative 1, but any of the three suboptions under consideration would generally result in lower harvest levels than the most liberal case under Alternative 1 (for stocks below $B_{40\%}$). In this regard, Alternative 2 is likely to be more restrictive than Alternative 1.

Alternative 3 would place the most constraints on Council choice of OY, and would likely result in the lowest short-term harvest levels of the three alternatives. In the long term, this alternative could result in greater OY stability by maintaining stocks at higher population size. If densities and availability of fish is greater under this alternative, catch efficiency would likely increase. This could either improve or worsen the situation if the likelihood of vessels exceeding trip limits increases, or if bycatch rates of non-target groundfish increase. The point is that merely increasing stock size will not eliminate many of the problems currently facing the fishing industry, but healthier stocks will contribute to improvement.

The short-term gross revenue differences between the alternatives could be computed using the figures in Tables 3.1 and 3.2. Assuming the status quo and Alternative 1 would be the same as the 1998 Council harvest guidelines, and suboptions A, B and C indicate changes from status quo, one could multiply the values by the exvessel values for each of the species to determine differences in gross exvessel values.

3.3.7 Potential Helpful Analysis

To determine the long-term differences in biological impacts on the various groundfish stocks, one would have to model the populations and population changes based on a variety of assumptions. Among the assumptions would be accuracy of stock assessments, including any long term bias (i.e., chronic over- or underestimation), recruitment, virgin population size and structure, longevity, and selectivity of harvest gears. The analysis should investigate the likelihood that individual stocks would fall below the MSY biomass level and the overfished/rebuilding threshold and the long term total harvest that would be expected under each of the alternatives and suboptions.

4.0 DEFINITION, DESCRIPTION AND IDENTIFICATION OF ESSENTIAL FISH HABITAT

4.1 Purpose and Need for Action

The 1996 Magnuson-Stevens Act amendments emphasized the importance of habitat protection to healthy fisheries and strengthened the ability of NMFS and the Councils to protect and conserve habitat of finfish, mollusks, and crustaceans. This habitat is termed essential fish habitat (EFH), and is defined to include "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity". Each Council is required to amend its management plans by October 1998 to:

- Identify and describe EFH for species managed under a fishery management plan.
- Describe adverse impacts to that habitat from fishing activities.
- Describe adverse impacts to that habitat from non-fishing activities.
- Recommend conservation and enhancement measures necessary to help minimize impacts, protect, and restore that habitat.
- Include conservation and enhancement measures necessary to minimize to the extent practicable, adverse impacts from fishing on EFH.

Once the FMPs are amended with this EFH information, NMFS and the Councils can be more proactive in protecting habitat areas by alerting other federal and state agencies about areas of concern. Federal agencies engaging in activities that may adversely affect EFH must consult with NMFS regarding those activities. NMFS and the Council may make suggestions on how to mitigate any potential habitat damage.

The themes of sustainability and risk-averse management are prevalent throughout the Magnuson-Stevens Act, both in the management of fishing practices (e.g., reduction of bycatch and overfishing and consideration of ecological factors in determining OY) and in the protection of habitats (i.e., prevention of loss of habitats, including EFH). Management of fishing practices and habitat protection are both necessary to ensure long-term productivity of our Nation's fisheries. Mitigation of EFH losses and degradation will supplement the traditional management of marine fisheries. The Council and resource managers will be able to address a broader range of impacts that may be contributing to the reduction of the groundfish resources. Fishery resources are dependent on healthy ecosystems and actions that alter the ecological structure and/or functions within the system can disturb the health or integrity of an ecosystem. Excess disturbance, including over-harvesting of key components (e.g., managed species) can alter ecosystems and reduce their productive capacity. Even though traditional groundfish management and the FMP have been mostly based on yields of single-species or multi-species stocks, the Magnuson-Stevens Act encourages a broader, ecosystem approach.

Each Council must identify in its FMPs the habitats used by all life history stages of each managed species in their fishery management units. Habitats that are necessary to the species for spawning, breeding, feeding, or growth to maturity are described and identified as EFH. These habitats are to be described in narratives (text and tables) and identified geographically (in text and maps) in the FMP. Mapping of EFH is intended to improve the sharing of information with the public, affected parties, and Federal and state agencies to facilitate conservation and consultation. After describing and identifying EFH, Councils are to assess the potential adverse effects of all fishing-equipment types on EFH and must include management measures that minimize adverse effects, to the extent practicable, in FMPs. Councils are also directed to examine non-fishing sources of adverse impacts that may affect the quantity or quality of EFH and to consider actions to reduce or eliminate the effects. Councils should identify means to further the conservation and enhancement of EFH.

Regulations implementing EFH provisions establish procedures for implementing the coordination, consultation, and recommendation requirements of the Magnuson-Stevens Act. NMFS will coordinate with other Federal and state action agencies by providing them with descriptions and maps of EFH, as well as information on ways to conserve and enhance EFH. The regulations allow Federal agencies to use existing consultation/environmental review procedures or the procedures outlined in the regulation to fulfill their requirement to consult with NMFS on actions that may adversely affect EFH. Consultations may be conducted at a programmatic and/or project-specific level. In cases where effects from an action will be

minimal, both individually and cumulatively, a General Concurrence procedure has been developed to simplify the Federal consultation requirements. Consultation on Federal actions may be conducted under Abbreviated or Expanded Consultation, depending on the severity of the threat to EFH. When NMFS or a Council provides EFH conservation recommendations to a Federal agency, that agency must respond in writing within 30 days. If the action agency's decisions differ from NMFS' conservation recommendations, further review of the decision may be continued by the two agencies.

4.2 Alternatives Including Proposed Action

Status quo (no action). The FMP would not be amended to address Essential Fish Habitat (EFH). This alternative does not comply with the Magnuson-Stevens Act and the national standard guidelines.

Alternative 1. (ADOPTED BY THE COUNCIL) Amend the FMP to define and identify EFH, for the fishery management unit as a whole, as the entire Exclusive Economic Zone (EEZ) and marine coastal waters inshore of the EEZ. For simplicity, EFH is described as seven composite habitats. The management framework(s) would be revised to authorize regulations to reduce the impact of fishing on EFH. Available life history information and habitat descriptions (for each individual species covered by the FMP) will be compiled into a reference document and made available on request. Potential nonfishing effects are identified and described, along with recommendations and consultation procedures. No regulations are proposed at this time.

(See proposed FMP text, Sections 6.6.1-6.6.4 and 11.10)

Alternatives considered but not included.

The EFH Technical Team considered several alternative definitions of EFH prior to recommending the composite EFH approach. In particular, the team was concerned about including the entire EEZ in the EFH definition, and debated whether a more restrictive definition could be developed. One approach would be to identify EFH for each species and life stage as their respective areas of high density, when known. For west coast groundfish, the fisheries and most surveys primarily provide information on adult distributions and densities. Consequently, sufficient data for adults of several species are available to describe areas of high density, and EFH could be identified as these areas. However, even for these species, there are significant geographic and seasonal limitations in the density information. For example, most bottom trawl surveys which measure adult densities sampled only trawlable bottom from 50 meters to 350 meters deep during spring or summer. Nontrawlable substrates, depths outside this range, and other seasons have rarely been surveyed.

There is substantially less information for younger life stages of nearly all groundfish species; data are not available or insufficient to identify areas of high density. As a result, EFH would not be identified for these. Also, it is unlikely there will be sufficient data in the foreseeable future to identify EFH based on densities.

Reliance on areas of high density to identify EFH has additional limitations. Utilizing high densities alone to identify EFH would not ensure that adequate areas were protected as EFH. Areas of high density based on current information do not adequately address unpredictable annual differences in spatial distributions of a life stage, nor changes due to long-term shifts in oceanographic regimes. Also, all habitats occupied by a species contribute to production at some level, and observed densities do not necessarily reflect all habitat essential to maintain healthy stocks within the ecosystem. Although contributions from individual locations may be small, collectively they can account for a significant part of total production. A species' long-term productivity is based on both high and low levels of abundance and the entire distribution may be required during times of low abundance. For these reasons, the team did not believe this approach was justifiable or scientifically supportable.

4.3 Environmental Consequences

4.3.1 Overview of Physical and Biological Impacts

There are no immediate biological impacts anticipated from the proposed action. The status quo (no action) is not a valid alternative because federal legislation requires identification of EFH and potential threats to EFH. However, definition and identification of EFH do not in themselves impose environmental consequences.

The long-term implications of the alternatives are more difficult to anticipate, because associated with the EFH policy is a mechanism to impose gear restrictions, area closures and harvest limits to protect EFH. The effects of any such measures would be analyzed when they are proposed.

There is little information on the effects of fishing gears on the habitat of Pacific coast groundfish, although there are numerous theories and a great deal of speculation about the effects of various fishing gears on structural habitat. If essential habitat has been degraded by fishing activities or would be by future fishing activities, and if that degradation affects productivity of any fish stock, and if that relationship can be established, then adoption of Alternative 1 could have a substantial beneficial affect on the long term productivity of that stock. Currently it is debatable whether any or all fishing effects on habitat are destructive to groundfish. For example, some people believe productivity may be enhanced by trawl gear turning over surface sediments when dragged over soft (mud, sand, etc.) sea floor. Others are concerned there may be negative effects from activities that tend to smooth the sea floor by flattening rock piles, overturning boulders, etc. It is clear that on-bottom trawl fishing activities remove large numbers of non-groundfish organisms (starfish, sea pens, brittle stars, etc.) and that many of these organisms die. This affects the population dynamics of those species and any ecosystem equilibrium that may have developed.

The available information on the effects of fishing gear on marine fish habitat comes from research that has been concentrated in heavily fished areas off the east coast of Canada and the United States, and in the North Sea. There are substantial differences in sea floor topography, other physical features, and biological characteristics between those regions and the Pacific coast of the United States. In addition, most research in those areas focused on trawl and dredge gears, with little information on the effects of non-mobile (fixed) gears. There is ongoing debate about the applicability of that research to the Pacific coast environment, however information from those areas will be used by the Council as appropriate. Pacific coast trawl adaptations, such as tire roller gear for improving gear performance in rocky areas, have only recently been explored outside of tropical habitats. Habitat protection will be considered as a tool in groundfish stock restoration.

A marine ecosystem in a "virgin" or unfished state would support a specific number and complexity of fish species. As a marine area is fished, the qualities of the ecosystem change in relation to the number of fish of each species removed from the ecosystem and the effects of fishing gear on the habitat(s) of species using that area. After a number of years of fishing, the habitat quality and nature of that marine ecosystem might be significantly different from the virgin ecosystem. Habitat modified by fishing pressure would support a different set of fish species from those supported by virgin habitat for that same area. In general, marine habitats that have been less altered by fishing and other activities are more complex in structure and more productive in lower level organisms such as worms and crustaceans than highly altered habitats. However, if alteration increases the complexity of the habitat, complexity and productivity of the ecosystem could theoretically be increased. Marine habitats with greater complexity at lower trophic levels and with greater structural complexity tend to support a more complex mix of fish species in greater abundances than altered habitats. In some cases, however, activities that add nutrients to the system can increase total productivity but reduce complexity. Thus, productivity alone should not be used as a measure of environmental integrity.

Marine habitat complexity can be altered by the scraping, shearing, and crushing effects of fishing gear. Physical effects of trawling include plowing and scraping the sea floor, and resuspension of sediment. Plowing and scraping effects depend on towing speed, substrate type, strength of tides and currents, and gear configuration. It has been found that otter doors tend to penetrate the substrate 1 cm to 30 cm; 1 cm

on sand and rock substrates, and 30 cm in some mud substrates. Another factor that will cause variation in the depth of the troughs made by the otter doors, is the size (weight) of the doors, i.e. the heavier the doors the deeper the trough. These benthic troughs can last as little as a few hours or days in mud and sand sediments, over which there is strong tide or current action, or they can last much longer, from between a few months to over five years, in seabeds with a mud or sandy-mud substrate at depths greater than 100 m, with weak or no current flow.

Another aspect of plowing and scraping is the alteration done by the footrope; different types of footropes will cause more or less alteration. Footropes that are designed to roll over the sea floor, cause little physical alteration, other than smoothing the substrate and minor compression. However, since a trawler may re-trawl the same area several times, these minor compressions can cause a "packing" of the substrate. Further compression of the substrate can occur as the net becomes full and is dragged along the bottom. Trawl gear used off the Pacific coast is often modified with a "roller gear" footrope, where rubber tires are packed together along the footrope, allowing the base of the net to bounce along the bottom, or to drag over obstructions without snagging the net. Development of roller gear has allowed trawlers to work in formerly inaccessible, rocky areas. New research in the Gulf of Alaska on the impacts of roller gear on bottom habitat may soon provide documentation on the effects of roller gear on bottom habitat.

Similarly, longline gear has been seen to shear marine plants, corals, and sessile organisms from the bottom. Observations of halibut longline gear made by NMFS scientists during submersible dives off Southeast Alaska provide some information: "Setline gear often lies slack on the sea-floor and meanders considerably along the bottom. During the retrieval process the line sweeps the bottom for considerable distances before lifting off the bottom. It snags on whatever objects are in its path, including rocks and corals. Smaller rocks are upended, hard corals are broken, and soft corals appear unaffected by the passing line. Invertebrates and other light weight objects are dislodged and pass over or under the line. Fish, notably halibut, frequently moved the groundline numerous feet along the bottom and up into the water column during escape runs disturbing objects in their path. This line motion was noted for distances of 50 feet or more on either side of the hooked fish." Further observations by scientist divers monitoring longline gear off Alaska noted that longlines swept the sea floor, entangling scallops and corals, bringing those animals to the surface during line retrieval.

Although there has been no research conducted on pot gear effects on habitat along the Pacific coast, pot gear may damage demersal plants and animals as it settles, and longlined pots may drag through and damage bottom fauna during gear retrieval. Similarly, anchoring the pot lines or the ends of the longlines may have crushing or dragging effects. In addition to direct bottom habitat alteration, fishing gear that is lost at sea and left to "ghost fish" can cause changes to habitat. Pacific coast groundfish regulations include trap gear restrictions that require trap construction with biodegradable escape panels, so that traps will no longer ghost fish after the escape panels have degraded. Depending on the number of pots that are lost each year and where they are fished, lost pots may alter marine habitat simply by providing a different type of relief than the natural habitat.

Beyond bottom habitat, fishing activities can impact the water column. Although there are presumably few, if any, direct effects from mid-water trawling on EFH, this fishery may alter species complexity in the water column. The at-sea fishery for Pacific whiting off the Pacific coast north of 42° N latitude processes fish at sea. There may be negative effects from the offal and processing slurry discard associated with these fisheries. Prolonged offal discards from some large-scale fisheries have redistributed prey food away from mid-water and bottom feeding organisms to surface-feeding organisms, usually resulting in scavenger and seabird population increases. Conversely, large offal discards in low-current environments, when not preyed upon by surface scavengers, can also collect and decompose on the ocean floor, creating anoxic bottom conditions. Pacific coast marine habitat is generally characterized by strong current and tide conditions, but there may be either undersea canyons affected by at-sea discard, or bays and estuaries affected by discard from shoreside processing plants. As with bottom trawling off the Pacific coast, little is known about the environmental effects of mid-water trawling and processing discards on habitat conditions.

One type of management authorized by the Alternative 1 is establishment of Marine Protected Areas (MPAs). Council members have specifically asked that these be investigated as potential management and/or EFH protection measures. There are examples of areas completely closed to fishing that have become havens for breeding populations or nursery areas for some species, especially sedentary species. The direct effects on EFH that would result from elimination of fishing impacts are difficult to predict, but to the extent that habitat has been degraded by fishing and that it can "heal" in the absence of such activities, EFH within the MPA boundaries would be improved. In establishing any MPAs, the Council would involve scientists, fishers, agency personnel, and the general public in a long term process of evaluation, education and debate.

4.3.2 Socioeconomic Summary

There are no immediate socioeconomic impacts anticipated from the proposed action. The status quo (no action) is not a valid alternative because federal legislation requires identification of EFH and potential threats to EFH. Definition and identification of EFH do not in itself impose environmental consequences.

The long-term social and economic implications of the alternatives are more difficult to anticipate, because associated with the EFH policy is a mechanism to impose gear restrictions, area closures and harvest limits to protect EFH. The effects of any such measures would be analyzed when they are proposed. Any restrictions on gear that is determined to negatively affect EFH would likely impose short-term costs on the fishers using that gear. Fishers using gear and techniques that do not negatively affect EFH would tend to benefit from improved catch rates as habitat and stocks "heal."

4.4 Additional Council Action Related to EFH Protection

Prior to its adoption of Alternative 1, the Council received a great deal of written and oral testimony about EFH, and much of the testimony strongly recommended the Council implement specific regulations to reduce fishing impacts on EFH. However, there is virtually no information connecting fishing gear or activities to destruction of groundfish EFH. Likewise, there is little or no information relating specifically to methods to reduce or mitigate any effects of fishing on EFH. The Council endorsed the concept of gathering such information and establishing gear performance standards. In particular, the Council committed to activating a committee to evaluate current gear regulations with the intent that the committee should investigate gear performance standards and specific gear configurations and/or fishing methods to reduce potential impacts on EFH. Such measures could include prohibitions on materials that protect fishing gear from damage by EFH, on the assumption that EFH is more likely to be damaged by gear that is relatively invulnerable to damage by contact with EFH. For example, the footrope of a trawl can snag and/or become entangled with structures on the ocean floor unless material is attached to the footrope to reduce snagging or otherwise protect it from damage. Typically, the footrope may be strung through rubber discs or tires that enable it to pass over rough bottom terrain such as rock piles and boulders. The EFH appendix to the FMP describes this and other potential effects of fishing gear on bottom habitat. The Council's committee will be instructed to consider such issues when it reviews the legal gear definitions.

In addition, the Council received testimony in support of reserves or refuges closed to some or all fishing activities. This issue is extremely controversial on the west coast at this time. Although many fishers may support the concept of setting aside harvest refuges, no one wants to be restricted from fishing productive areas near their own ports. The Council will continue to consider this concept both for protection of EFH and to reduce the likelihood of overfishing vulnerable groundfish stocks.

5.0 BYCATCH PROVISIONS

National Standard 9 states that "Conservation and management measures shall, to the extent practicable: (1) Minimize bycatch; and (2) To the extent bycatch cannot be avoided, minimize the mortality of such bycatch." The national standard guidelines explain that this standard requires the Council to consider the bycatch effects of existing and planned conservation and management measures. Bycatch is defined to mean fish that are harvested in a fishery, but that are not sold or kept for personal use. Bycatch includes the discard of whole fish at sea or elsewhere, including economic discards and regulatory discards, and fishing mortality due to an encounter with fishing gear that does not result in capture of fish (i.e., unobserved fishing mortality). The national standard guidelines state that "fish that are bycatch and cannot be avoided must, to the extent practicable, be returned to the sea alive. Any proposed conservation and management measure that does not give priority to avoiding the capture of bycatch species must be supported by appropriate analyses. The national standard guidelines state the Council must "Promote development of a database on bycatch and bycatch mortality in the fishery to the extent practicable." The Council must review and, where necessary, improve the data collection methods, data sources, and applications of data for each fishery to determine the amount, type, disposition, and other characteristics of bycatch and bycatch mortality in each fishery. The Council must "For each management measure, assess the effects on the amount and type of bycatch and bycatch mortality in the fishery." The Council must "Select measures that, to the extent practicable, will minimize bycatch and bycatch mortality." The Council also must monitor selected management measures.

5.1 Purpose and Need for Action

Federal legislation mandates that bycatch be avoided to the extent practicable, and similarly that bycatch mortality be avoided. The Council is required to consider the bycatch effects of its proposed regulations. Currently the FMP authorizes implementation of management measures to reduce bycatch of non-groundfish species in certain limited circumstances. There are no specific measures to collect bycatch information, monitor management measures for bycatch effects, or objectives to minimize bycatch and bycatch mortality. Currently the FMP (Section 6.2.4) authorizes implementation of measures "to control groundfish fishing to share conservation burdens identified under overfishing definitions adopted by the Council, the ESA, or other applicable laws, while minimizing disruption of the groundfish fishery." This provision, although intended "to reduce bycatch or other direct mortality of any species," is limited to situations where information is presented to substantiate the conservation concern for a particular species. "The intention of the measures may be to share conservation burdens while minimizing disruption of the groundfish fishery, but under no circumstances may the intention be simply to provide more fish to a different user group or to achieve other allocation objectives." National Standard 9 does not include or imply such limitations, but rather establishes a broad mandate to minimize bycatch and bycatch mortality. Thus it is likely the FMP is not in compliance with the Magnuson-Stevens Act.

5.2 Alternatives Including Proposed Action

Status quo (no action). There will be no changes to the FMP related to bycatch. (This alternative is not viable.)

Alternative 1. (ADOPTED BY THE COUNCIL) Establish a bycatch management objective, a standardized reporting methodology, and procedures for implementing bycatch reduction measures, and promote bycatch data collection efforts. (See proposed FMP, Sections 2.1, 6.2.2, 6.2.3, and 6.3.2) No regulations are proposed at this time.

Under this alternative, the "points of concern" and socioeconomic framework procedures would be amended to add three provisions. First, if estimated bycatch of a species or species group increases substantially above previous estimates, a "point of concern" occurs, triggering an evaluation of whether a resource conservation issue exists. Second, the Council will evaluate, to the extent possible, the effects of proposed management measures on bycatch. Third, there would be clear authorization that management measures may be implemented to reduce anticipated bycatch of either groundfish or nongroundfish species.

5.3 Environmental Consequences

5.3.1 Overview of Physical and Biological Impacts

Under the Magnuson-Stevens Act nearly all species of marine animals (except birds and mammals) are considered to be "fish." Thus, the term bycatch applies to the incidental capture and discard of not just finfish but many other non-target species such as crustaceans, starfish, corals, sea urchins, etc. When the Council addressed bycatch issues in recent years, the focus was on prohibited species (Pacific salmon and halibut) and also groundfish (those species and amounts which must be discarded according to current regulations).

Neither the status quo nor proposed action would result in an immediate change in the federal regulations. The proposed action would amend current policies and procedures relating to bycatch in the West Coast groundfish fisheries. These policies in themselves do not impose environmental consequences, and there are no immediate biological impacts anticipated from either the status quo or alternative. The long term implications of the alternatives are difficult to anticipate, because associated with the bycatch reduction policy is a mechanism to impose gear restrictions, area closures, harvest limits and other measures to reduce bycatch. The effects of any such measures would be analyzed when they are proposed.

There is little information on the biological effects of bycatch on Pacific coast groundfish and other species. The most critical concern has been related to salmon stocks listed as threatened or endangered under the ESA. In response to concerns expressed by the Council, NMFS and public, the participants in the fisheries for Pacific whiting adopted voluntary standards for avoiding bycatch of salmon, particularly chinook salmon. The Council endorsed this voluntary standard of 0.05 chinook salmon per metric ton of whiting caught. NMFS has also endorsed this voluntary bycatch standard and included it in biological opinions which concluded the groundfish fisheries do not threaten the long term health of salmon stocks.

Bycatch of Pacific halibut in the groundfish fishery is generally considered not to be a biological threat but more of a social and economic impact. Pacific halibut quotas off Washington, Oregon, and California take estimates of bycatch into account.

Estimates of groundfish bycatch are typically deducted from allowable harvests set each year. These estimates were developed based on various data sources, most of which came from research conducted prior to about 1987. The groundfish fisheries have changed substantially since then, with several additional species subject to trip limits and all trip limits substantially smaller than during the research periods. To the extent these bycatch estimates are accurate, there should be little threat to the groundfish stocks. However, if the estimates are too low, and actual groundfish harvest levels are in excess of sustainable levels, groundfish stocks would decline.

The proposed action includes establishment of procedures to implement bycatch reduction regulations, such as gear restrictions, harvest specifications, seasons and area closures. Therefore, in the long term it is expected that bycatch will decline and any negative biological effects would be reduced. Also, the proposed management objective to reduce bycatch may help educate fishers and the public to the national and Council policy to reduce bycatch and bycatch mortality.

Accurate reporting of total fishing mortality (i.e., number or pounds of fish actually killed) is an important aspect of fishery management. Currently there is very little bycatch information, and the GMT has continually stressed the need for an onboard observer program or other methods to accurately assess total bycatch. An observer program could greatly improve estimates of groundfish bycatch and prohibited species, but estimates of bycatch of other species would probably require specific research. Other methods of collecting groundfish and prohibited species bycatch information (e.g., logbooks) could be effective if participants recognized the value and need and were willing to provide this information.

Full implementation of a bycatch reduction program would result in one or more of the following: a greater proportion of the groundfish catch being retained and delivered to shore; a reduction in the number of nongroundfish finfish being killed; a reduction in mortality of other non-target animals; a more accurate assessment of total mortality of all species harvested incidentally in groundfish fisheries.

5.3.2 Socioeconomic Summary

There are no immediate socioeconomic impacts anticipated from either of the alternatives. The proposed policies and procedures in themselves do not impose consequences. However, the Council is mandated to consider the bycatch effects of its current and future regulations, and this may result in social and/or economic impacts in the future. The long term implications of the alternatives are difficult to anticipate, because associated with the bycatch reduction policy is a mechanism to impose gear restrictions, area closures, harvest limits and other measures to reduce bycatch. The social and economic effects of any such measures would be analyzed when they are proposed.

The term "regulatory bycatch" is used to refer to the species and amounts of groundfish that fishers would retain if allowed but that they must discard in accordance with regulations (that is, so they stay within the specified landing limits). There are at least two ways to reduce such regulatory bycatch. One way this type of bycatch can be reduced is by revising the regulations and allowing fishers to retain and sell all the fish they catch. Several important benefits could be expected from this approach. Conscientious fishers would not face the emotional strain about killing good fish and throwing them away rather than keeping and selling them. The fish could provide food, fishers could increase their revenues, and the public perception of waste could be reduced. A second way would be to reduce target fisheries in order to reduce impact on non-target species. This would likely reduce the harvest of associated species, reduce the amount of fish available as food, and reduce fishers' revenues.

The current policy of maintaining a year-round groundfish fishery is based on the assumption that catch by individual vessels can be held within specified limits. The harvesting sectors are currently overcapitalized, and trip limits for most species have been reduced to the lowest levels ever. There is a widespread assumption (based on some data and substantial anecdotal information) that the rate of groundfish bycatch (i.e., regulatory discard) increases as trip limits are reduced. However, no quantitative relationship between the two is available.

In the long term, the Council may consider providing incentives for vessels that maintain low bycatch rates. Such incentives would require mechanisms to verify bycatch rates, either through an on-board observer program or other way. Individual quotas (either directed fishing quotas or bycatch limits) could contribute to bycatch reduction. Other more general measures could also be applied. However, measures that decrease efficiency impose economic costs on the industry and may even increase bycatch.

5.3.3 Summary of Impacts

To the extent that better information becomes available from adoption of Alternative 1, and to the extent that management measures and public awareness result in reduced bycatch, benefits to the groundfish resource and other components of the marine ecosystem would be expected. Additional costs to groundfish harvesters would be likely if harvest efficiency of target stocks is reduced in order to reduce bycatch. No regulations are proposed at this time, so any costs and benefits would be delayed until such regulations are implemented. Costs and benefits would be investigated during the implementation process.

5.4 Additional Council Action Related to Bycatch Reduction

As for EFH protection, the Council received a great deal of written and oral testimony about bycatch reduction, and much of the testimony strongly recommended the Council to take immediate action to evaluate current bycatch levels in the groundfish fisheries, monitor changes in bycatch levels, and implement bycatch reduction measures. In particular, there was considerable support for an observer program to monitor bycatch, and much of the comment called for immediate implementation of an observer program. On several occasions since 1990, the Council has initiated development of an observer program

but has been unable to resolve funding limitations. Recently, the Council established a new committee and directed it to evaluate methods to determine total catch of groundfish, including the widespread or occasional use of observers, logbooks, etc., and possible funding sources.

In addition, the Council committed to activating a committee to evaluate current gear regulations with the intent that the committee should investigate gear performance standards and specific gear configurations to reduce the likelihood that a vessel would catch more than the specified vessel trip limit. Council members noted that vessels typically use the same size nets that were used when groundfish trip limits were much larger. One idea under consideration is to reduce (potential and actual) bycatch by limiting the physical capacity of the gear so that large amounts of fish cannot be caught. This could include smaller nets or nets of different design, limitations on the number of hooks, or other capacity limitations. Such measures could also reduce fishing effects on EFH, as noted in Issue 3, but could exacerbate EFH impacts if not carefully evaluated. The Council's committee will meet in late 1998 or early 1999 and will be instructed to consider such issues when it reviews the legal gear definitions.

6.0 FISHING COMMUNITIES

6.1 Purpose and Need for Action

Amendments to the Magnuson-Stevens Act in 1996 established National Standard 8 which states that "Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (1) provide for the sustained participation of such communities, and (2) to the extent practicable, minimize adverse economic impacts on such communities." The FMP does not specifically address fishing communities and potential impacts on such communities, and may not be in compliance with the Magnuson-Stevens Act and national standard guidelines.

6.2 Alternatives Including Proposed Action

Status quo (no action). The FMP would not be amended to address impacts on fishing communities. The Council is preparing a baseline description of fishing communities for inclusion in the SAFE document or a separate report.

Alternative 1. (ADOPTED BY THE COUNCIL) Establish a management objective relating to maintenance of fishing communities and amend the framework procedures to consider impacts of management measures on fishing communities. The Council is preparing a baseline description of fishing communities for inclusion in the SAFE document or a separate report. Indian fishing communities will be included in this description, to the extent possible. No regulations are proposed at this time.

Under Alternative 1, a new FMP objective 17 would be established (See FMP Section 2.1). The "points of concern" and socioeconomic framework procedures would be amended to require the Council to describe the anticipated impacts of proposed management measures on fishing communities. (See FMP Sections 6.2.2 and 6.2.3).

6.3 Environmental Consequences

There are no immediate biological or socioeconomic impacts anticipated from the status quo or proposed action. At this time, nothing prevents the Council from complying with the Magnuson-Stevens Act and national standard guidelines voluntarily; the current FMP frameworks authorize the Council to consider any relevant factors in making management decisions, and impacts on fishing communities would be a relevant factor. The underlying principle of the FMP is protection of the groundfish fishery resource which, in the long term, would provide protection to the communities that rely on that resource. However, Alternative 1 would make a clear statement to the public and fishing industry of its intent to consider the effects of management decisions on the broader fishing public. By establishing a new FMP objective and modifying the management framework, the Council would be laying the groundwork for closer consideration of fishing communities. In order to accomplish this, better information on fishing communities must be readily available. Therefore, the Council is preparing a baseline description of fishing communities, including the commercial, private recreational and charter sectors. These policies and procedures in themselves do not impose environmental consequences. However, availability of information about fishing communities will provide tangible and intangible social benefits. Better information typically leads to better-informed decisions, and an improved understanding of the needs of fishing communities should contribute to their economic well-being. The intention of National Standard 8 is to improve the social and economic conditions of fishing communities by requiring the Council and NMFS to consider their special needs prior to taking management actions that could impose costs or reduce benefits.

7.0 CLARIFY AND EXPAND COUNCIL AUTHORITY TO REQUIRE GROUND FISH USE PERMITS

7.1 Purpose and Need for Action

Section 303 (b) of the Magnuson-Stevens Act lists discretionary provisions of FMPs. According to this section, any FMP may "(1) require a permit to be obtained from, and fees to be paid to, the Secretary, with respect to (A) any fishing vessel of the United States fishing, or wishing to fish, in the EEZ... (B) the operator of any such vessel; or (C) any United States fish processor who first receives fish that are subject to the plan." During the session held by the Council in June 1997 to determine the scope of the FMP amendment, public testimony supported including an a provision to clarify the FMP authority to require a permit for groundfish processors and other groundfish users. Among the concerns expressed were the potential for inaccurate records of participation in the various commercial fishing sectors and processing sector, the potential for unreliable catch and landings statistics, and the possible need to restrict entry into an industry that is already severely overcapitalized. The primary concern related to the processing sector, including commercial fish buyers. Over the past few years, the Council has discussed the issue of a general groundfish use permit, including as a way to determine total participation in the fishery and as a potential effort control measure.

7.2 Alternatives Including Proposed Action

Status quo (no action). The current permit discussion and provisions would remain unchanged.

Alternative 1. (ADOPTED BY THE COUNCIL) Amend the FMP to clarify the authority to require permits for all groundfish users, including groundfish processors, and conditions for obtaining permits. The process for establishing federal permits would also be identified. No regulations are proposed at this time.

Under Alternative 1, Section 6.5.1.1 of the FMP would be amended as follows to clarify that permits may be required for any commercial harvest of groundfish and for groundfish processors, including those entities that purchase and/or take delivery of live fish.

"Federal permits may be required for any fishing vessel fishing, or wishing to fish, for groundfish in the EEZ, the operator of any such vessel, and any groundfish processor who first takes delivery of any groundfish. This includes any individuals or facilities (including vessels) that process groundfish or purchase live groundfish. In determining whether to require a harvesting or processing permit, and in establishing the terms and conditions for issuing a permit, the Council may consider any relevant factors including whether a permit:

1. Will enhance the collection of biological, economic or social data
2. Will provide better enforcement of laws and regulations, including those designed to ensure conservation and management and those designed to protect consumer health and safety.
3. Will help achieve the goals and objectives of the FMP.
4. Will help prevent or reduce overcapacity in the fishery.
5. May be transferred, and under what conditions.

Separate permits or endorsements may be required for harvesting and processing, or for vessels or facilities based on size, type of fishing gear used, species harvested or processed, or such other factors that may be appropriate. The permits and endorsements are also subject to sanctions, including revocation, as provided by section 308 of the Magnuson-Stevens Act.

In establishing a permit requirement, the Council will follow the full-rulemaking procedures in Section 6.2."

7.3 Environmental Consequences

No immediate social, economic or biological consequences are anticipated from either the status quo or Alternative 1. Alternative 1 would amend the FMP to clarify the federal authority to require groundfish processors to acquire permits including individuals who prepare or provide fish directly for retail sale, and to indicate that qualification criteria may be established for obtaining and transferring permits, should they be required. Alternative 1 would also clarify the procedure the Council would follow in establishing a permit requirement for groundfish processors, and criteria they will consider in determining the need for such permits. No regulation is proposed at this time, and therefore any potential impacts would be delayed until some future time. The biological, social and economic impacts of a processor permit requirement would be evaluated during the process of implementing a regulation.

Throughout the early consideration of this issue, public comment was minimal but universally in favor of Alternative 1. However, in mid-1998 the issue became somewhat controversial, apparently due to fears that larger fish processing firms might be laying the groundwork to eliminate smaller competitors and potential future competitors. The opposition appeared to come from vessel operators who would like to maintain the option of selling directly to retail markets, restaurants and perhaps the public at the dock; such opportunities are viewed as important ways to increase revenues from the same or smaller amount of fish. These vessel operators are concerned that trip limits have continued to be reduced, and will probably be even smaller in the future as more conservative management is put into effect. In order to maintain economic viability, they are trying to get more value from every fish, in some cases including sale of live fish or filleting fish on board for dockside sale or delivery to local restaurants. They are concerned about potential restrictions on these activities will cause them economic hardship.

On the other hand, the Council has heard in public testimony that many sales of live fish go unreported and that establishment of a federal processing permit could be a useful enforcement tool to improve landings statistics and compliance with various fishing restrictions. The threat of having their permit revoked could provide incentive for some operators to pay more attention and comply better with regulations.

8.0 SCIENTIFIC RESEARCH, AND UTILIZATION OF FISH TO PAY FOR RESEARCH

The Sustainable Fisheries Act (SFA) added two provisions to allow NMFS to contract with fishing vessels to do resource surveys, and to pay for these surveys through sale of fish taken during the survey, and possibly during a later voyage. Section 303 (Content of Fishery Management Plans) contains discretionary provisions which include at section 303(b)(11) that a Council could "reserve a portion of the allowable biological catch of the fishery for use in scientific research." Section 402 (Information Collection) includes the following provisions:

"402 (e) RESOURCE ASSESSMENTS.--

(1) The Secretary may use the private sector to provide vessels, equipment, and services necessary to survey the fishery resources of the United States when the arrangement will yield statistically reliable results.

(2) The Secretary, in consultation with the appropriate Council and the fishing industry --

(A) may structure competitive solicitations under paragraph (1) so as to compensate a contractor for a fishery resources survey by allowing the contractor to retain for sale fish harvested during the survey voyage;

(B) in the case of a survey during which the quantity or quality of fish harvested is not expected to be adequately compensatory, may structure those solicitations so as to provide that compensation by permitting the contractor to harvest on a subsequent voyage and retain for sale a portion of the allowable catch of the surveyed fishery; and

(C) may permit fish harvested during such survey to count toward a vessel's catch history under a fishery management plan if such survey was conducted in a manner that precluded a vessel's participation in a fishery that counted under the plan for purposes of determining catch history.

(3) The Secretary shall undertake efforts to expand annual fishery resource assessments in all regions of the Nation."

Scientific research surveys are routinely conducted from chartered fishing vessels, chartered university vessels, and dedicated NOAA vessels. In a scientific research survey, all samples (fish) are collected according to a specified research plan. NMFS distinguishes survey activities by a scientific research vessel from commercial fishing activities according to a process of acknowledging scientific research as described at 50 C.F.R. 600.745(a). NMFS frequently uses this mechanism to conduct research from chartered fishing vessels and, in some cases, some of the scientific catch has been sold by the vessel to reduce wastage and to defray some of the costs of the charter.

The new provisions of the SFA provide the authority to go beyond simply allowing sale of fish caught during the course of the scientific research. However, any additional harvest to be taken on a subsequent voyage as payment for the resource survey would not be scientific research itself, and would be authorized by an Exempted Fishing Permit. (Existing regulations at 50 C.F.R. 600.745(b) would be amended to cover this.)

8.1 Purpose and Need for Action

In recent years, substantial public concern has been expressed regarding uncertainty in the scientific information in groundfish stock assessments and the conclusions based on those assessments. The fishing industry, environmental groups, and NMFS have actively explored various ways to expand and improve scientific data used in management of the groundfish fishery, and to involve the fishing industry in conducting that research. Part of this effort involves finding more creative means of funding the research, which involves compensating a fishing vessel with fish for its participation in gathering scientific information. The Magnuson-Stevens Act now provides NMFS and the Council greater flexibility to utilize private vessels to participate in groundfish surveys. To provide for compensation for these vessels, the Council would "reserve a portion of the allowable biological catch of the fishery for use in scientific research," which requires amendment to the FMP. The amendment would establish a procedure for developing a recommendation to NMFS regarding how much fish should be set aside to fund research. Because the exact amounts and species of fish used as compensation will not be known until the research and subsequent fishing have been completed, it would be most appropriate to wait and subtract the actual amounts, rather than subtracting anticipated amounts. Over time, the amounts should stabilize from year

to year, minimizing fluctuation in OYs from this source of adjustment. The term "fish-for-research" has been adopted by the Council and the fishing industry to refer primarily to compensation of a vessel that is chartered by NMFS to conduct scientific surveys. The vessel then becomes a "scientific research vessel" as defined at 50 CFR 600.10 and it may not conduct commercial fishing on the same trip.

These provisions have been implemented temporarily through an emergency rule in order to include compensation with fish in contracts NMFS awarded to commercial fishing vessels to conduct research during the summer of 1998. In accordance with the emergency rule, the compensation amounts harvested in 1998 will be deducted from the 1999 ABCs in determining OYs and/or harvest guidelines. The FMP amendment specifies this approach will be followed in subsequent years as well.

Compensation for a fishery resource survey. The Magnuson-Stevens Act authorizes the Secretary, in consultation with the Council and the interested public, to structure competitive solicitations by which a vessel's owner may compete for a contract with NMFS to conduct fishery resource surveys. Fishery resource surveys generally are conducted from chartered fishing vessels, chartered university vessels, and dedicated NOAA vessels. In a fishery resource survey, all samples (fish) are collected according to a specified research plan or protocol. NMFS distinguishes survey activities by a scientific research vessel from commercial fishing activities according to a process of acknowledging scientific research described at 50 CFR 600.745(a). NMFS frequently uses this mechanism to conduct research from chartered fishing vessels, and in some cases, some of the research catch has been sold by the vessel to reduce waste and to defray some of the costs of the charter.

The new provisions of the Magnuson-Stevens Act provide the authority to go beyond allowing sale of fish caught during the course of the fishery resource survey. However, any additional harvest taken on a subsequent, commercial trip as payment for the survey would not be considered scientific research. Such "compensation fishing" would be authorized by an exempted fishing permit (a "compensation EFP") which would enable the vessel to exceed trip limits (or to be exempt from other specified management restrictions) so that the compensation amount could be achieved.

The compensation EFP would include terms and conditions that would limit the authorized activities. Conditions for disposition of bycatch or any excess catch, for reporting the value of the amount landed, and other appropriate terms and conditions will be specified in the EFP. Compensation fishing must take place during the period specified in the EFP, and must be conducted according to the terms and conditions of the EFP. Under this amendment, the Council anticipates that compensation fishing will occur no later than the end of September in the year after the research occurred. The compensation EFP also may require the vessel owner or operator to keep separate records of compensation fishing conducted after the survey is completed, and to submit them to NMFS within a specified period of time after the compensation fishing is completed. NMFS and the States of Washington, Oregon, and California will modify their catch reporting systems, if necessary, so that fish taken under the compensation EFP are counted separately from commercial landings.

Research EFP with a compensation clause. NMFS also intends to conduct smaller-scale cooperative research projects on vessels while they are operating in the commercial fishery. This type of activity would not be considered scientific research under 50 CFR 600.745(a) because it is not from a scientific research vessel, even though the vessels are gathering scientific information. In those cases, NMFS could issue EFPs to fishing vessels under 50 CFR 600.745(b). The EFP would require the vessel to conduct specific activities, and allow it to retain and sell a limited amount of fish above the amount it could take under its regular trip limit. After the scientific information has been obtained, the EFP could authorize the vessel to sell the fish that were in the scientific sample; this would be a standard EFP, issued for the purpose of conducting research, under the procedures at 50 CFR 600.745(b). All fish taken under a research EFP would be counted towards achievement of the current year's OY/harvest guideline in contrast with fish taken under the compensation EFP which are deducted from the following year's ABCs prior to establishing OYs.

In some circumstances, NMFS may want to allow the commercial vessel to harvest slightly more fish than necessary for the research. The extra fish would compensate the vessel for the extra work involved in collecting the scientific samples, may encourage vessels to participate, and would utilize more of the total

catch if surplus to the amount needed for the scientific samples. NMFS could propose the amount of fish that would be used as compensation, or the EFP applicant could propose an amount in the EFP application. In these cases, when NMFS announces receipt of the EFP application and requests comments as required under 50 CFR 600.745(b), NMFS would also announce a window period during which vessels would have an opportunity to submit EFP applications. NMFS would consider the qualified applications, issue EFPs to all of them, select participation by lottery, issue EFPs to the first applicants, or use other impartial selection methods. NMFS contemplates two ways of issuing research EFPs. The EFPs could be issued to individuals implementing a protocol approved by NMFS. This issuance would follow the process described above. Or, NMFS could issue the EFP to a NMFS element, or a state or other federal research agency, and the research agency's proposal would include an impartial way of selecting fishing vessel participants that will receive individual EFPs under the umbrella EFP held by the research agency. The analysis below emphasizes the use of compensation fishing in the context of chartering vessels to conduct scientific research surveys, because the issues and impacts are of a greater magnitude than those involved in a research EFP with a compensation clause.

8.2 Alternatives Including Proposed Action

Status quo (no action). No provision would be established to authorize a portion of OYs or harvest guidelines to be set aside for compensation of industry research activities. Vessels may not be compensated with fish for conducting research. They either would be paid in dollars, would volunteer their services, or would not participate.

Alternative 1. Fish-For-Research (ADOPTED BY THE COUNCIL) - Amend the FMP to authorize the use of fish as compensation for private vessels conducting research and establish procedures to identify the species and subtract research catches from the Acceptable Biological Catch in setting the harvest guideline or OY. Promulgate regulations to authorize: (1) allocation of to be fish used as compensation for vessels conducting resource surveys according to a NMFS-approved protocol; (2) compensation of vessels with fish for gathering scientific information; (3) issuance of EFPs that authorize a vessel to exceed trip limits (or waive other management measures) so that the vessel has the opportunity to harvest the compensation fish. (See FMP section 5.4.)

Suboption 1A: Deduct the compensation fish from the current year's fishery.

Suboption 1B: (ADOPTED BY THE COUNCIL) Deduct the compensation fish from the next year's fishery. (See FMP section 5.3.2.)

If alternative 1 is approved and implemented, and compensation with fish is approved in 1999, for example, then those fish would be deducted from the year 2000 ABCs before the OYs, harvest guidelines, or quotas are set.

Process--Compensating a scientific research vessel: The process incorporates three procedures: (1) Selection of commercial vessels to be used to conduct the resource survey; (2) issuance of compensation EFPs to provide for compensation with fish; and, (3) adjustment of the ABC to account for the compensation fish used.

Proposal. At a Council meeting, NMFS will advise the Council of upcoming resource surveys that would be conducted with groundfish as whole or partial compensation. For each proposal, NMFS will present: (i) the maximum number of vessels expected or needed to conduct the survey; (ii) an estimate of the species and amount of compensation fish likely to be needed to compensate the vessel for conducting the survey; (iii) when the fish would be taken, and (iv) when the fish would be deducted from the ABC before determining the harvest guideline or quota. This is, in effect, equivalent to NMFS presenting an EFP application to the Council for the compensation amounts. Compensation fish should be similar to surveyed species, but there may be reasons to provide payment with healthier or more abundant stocks, or more easily targeted species. For example, NMFS may decline to pay a vessel with species that are, or are expected to be, over fished, that are subject to overfishing, or that are unavoidably caught with species that are overfished or subject to overfishing.

Competitive bids. NMFS will initiate a competitive solicitation (request for proposal, or RFP) to select vessels to conduct resource surveys. The RFP will be published in the Commerce Business Daily and will include guidelines that will be used in evaluating the bids. Bids will be evaluated on a technical basis, also taking into account cost and past performance. Vessels will bid to conduct the scientific research for a specified total dollar amount of compensation, or in metric tons of particular species. The announcement in the Commerce Business Daily serves as official notification to the public, and takes the place of notification in the Federal Register that would be required under 50 CFR 600.745(b) for a standard EFP without a compensation clause.

Consultation. NMFS will consult with the Council regarding the amounts and types of groundfish species to be used to support the surveys. If the Council approves NMFS' proposal, NMFS may proceed with awarding the contracts, taking into account any modifications requested by the Council. If the Council does not approve the proposal to use fish as compensation to pay for resource surveys, NMFS will not use fish as compensation.

Awarding the contract. NMFS concludes its contract negotiations following normal procurement procedures. The vessel's contract will include any conditions and limits on compensation fishing, including a requirement to carry on board: (i) a letter of research acknowledgment (signed by the RA, Director, or designee) while conducting any scientific fishing, and (ii) the compensation EFP while conducting compensation fishing, and for a period of at least 15 days after the end of any applicable cumulative trip limit period in which compensation fishing occurred. In general, NMFS would prefer to compensate a vessel with similar species to those taken for the scientific research. However, NMFS may decline to compensate a vessel with certain species, particularly stocks that are (or are expected to be) overfished, subject to overfishing, or have bycatch that are overfished (or are expected to be) or are subject to overfishing. NMFS may also want to take into account other factors in determining compensation species and amounts, among them: expected discards, incidental catches of other species, etc.

Retention of research catch. All fishing on a scientific research cruise is conducted according to scientific protocol, and is considered research. However, some fish caught while conducting research may be retained and sold as compensation for the vessel's participation. Retention of this research catch for sale will be at the discretion of the chief scientist on board, who will consult with the vessel captain. Collection of research catch and samples is highest priority and may interfere with the ability to retain market-quality fish.

Issuance of the compensation EFP. Upon successful completion of the scientific research, and determination of the amount and/or value of the research catch that was retained as payment for conducting the research, NMFS will issue a "compensation EFP" to the vessel if it has not been fully compensated with the amount (or value) of fish specified in its contract with NMFS. The compensation EFP will allow the vessel an opportunity to exceed current commercial fishing limits by the total amount of compensation fish specified in the research contract minus the value of the fish caught and sold as compensation from the resource survey. The compensation EFP also may exempt the vessel from other specified management measures.

Accounting for compensation fish. Because the species and amounts of fish used as compensation will not be determined until the contract is awarded, it may not be possible to deduct the amount of compensation fish from the ABC or harvest guideline in the year that the fish are caught. Even if this could be done, it would cause great confusion with the many allocations and limits that were set before the compensation amount were known. NMFS therefore proposes that the compensation fish be deducted from the ABC the year after the fish are harvested. During the annual specification process (50 CFR 660.321(b)), NMFS will announce the total amount of fish caught during the year as compensation for conducting a resource survey, which then will be deducted from the following year's ABCs before setting the OYs, harvest guidelines, or quotas.

Example of Compensation with Fish: Examples of compensation for participation in the annual slope survey are attached in the appendix (Tables 1-3). NMFS will stay within the total amounts approved by

the Council, but is not limited to using the methods, amounts, values, species, or ratio of fish to dollars in these examples. The final determination of compensation will come out of the normal Federal procurement process, which involves negotiation between the government and the prospective participant.

Process--Research EFP with a compensation clause. The EFP procedures at 50 CFR 600.745 for issuing a standard EFP apply. Each proposed project will be evaluated by NMFS and the Council according to strict scientific standards. If the project is acceptable, and if retention and sale of extra fish is more than a minimal amount, NMFS would announce a window period during which vessels would have an opportunity to submit EFP applications and to propose the amount of fish they think appropriate as compensation. The window period, if any, would be announced in the *Federal Register*, and could be included in the announcement of receipt of an EFP application and request for comments required under 50 CFR 600.745(b). After consulting with the Council, NMFS would consider the qualified applications, issue EFPs to all of them, select participation by lottery, issue EFPs to the first applicants, or use other impartial selection methods. Nothing precludes a State or research institution from applying for a research EFP with a compensation clause, as could NMFS, or any other legal vessel owner. The analysis below emphasizes the use of compensation fishing in the context of chartering vessels to conduct scientific research surveys, because the issues and impacts are of a greater magnitude than those involved in a research EFP with a compensation clause.

8.3 Environmental Consequences

This proposal affects scientific research, and gathering scientific information, on groundfish and incidental catch 0-200 nautical miles off Washington, Oregon, and California, and possibly beyond, if part of the scientific protocol.

8.3.1. Biological Impacts

The FMP governs over 80 species of groundfish, many which are caught in multispecies fisheries and which are managed by cumulative trip limits. Compensation fish would include only those species managed with trip limits or other management restrictions; the industry would find no benefit in being paid with species that they already can take with few or no restrictions. Currently, species under direct management in the FMP are: Dover sole, shortspine thornyheads, longspine thornyheads, trawl-caught sablefish (DTS complex), nontrawl sablefish, lingcod, Pacific whiting, Pacific ocean perch, widow rockfish, and the *Sebastes* complex of rockfish which includes yellowtail rockfish, canary rockfish, bocaccio, and other rockfish species. For purposes of this EA/RIR, the analysis emphasizes the DTS complex, as it is the most valuable component of the groundfish fishery and would have the greatest potential impact on the fishing industry.

Biological impacts of Alternative 1. The biological impacts of using fish as compensation are expected to be neutral in the short-term and positive in the long-term. In the short-term, the amount of fish used as compensation is intended to be within the ABC and therefore is within current acceptable biological levels. However, if discards are larger than the amount estimated in the ABC, retaining fish (as compensation) that otherwise would have been discarded would benefit the resource by enabling this catch to be landed and recorded, and counted against the ABC.

In general, the Council and NMFS would be likely to compensate a vessel with similar species to those taken for the scientific research. However, NMFS may take into account other factors, including, but not limited to, expected level of discards, incidental species, suitability or availability of classes of vessels, etc. NMFS may decline to compensate a vessel with certain species, particularly stocks that are (or are expected to be) overfished, subject to overfishing, or have bycatch of species that are overfished (or are expected to be) or are subject to overfishing. In the long-term, the additional information that is gathered under this provision will provide more and better data for use in stock assessments, which will result in better management of the stock and reduced likelihood of overfishing. Neither of the suboptions (to deduct the compensation fish from the current year's fishery, or the next year's fishery) is expected to result in a biological impact; the amounts taken as compensation are expected to be relatively small (generally less than five percent of the current year's ABC) and would not result in harvest above ABC.

Biological impacts of the status quo. NMFS will continue conducting stock assessments and gathering information under Federal fiscal constraints. However, NMFS and other scientists will have less information on which to base stock assessments. If information is lacking or inconclusive, the Council and NMFS are obligated to manage conservatively to reduce the risk of overfishing.

8.3.2 Socioeconomic Summary

8.3.2.1 Description of the Fishery

As of February 1998, the West Coast groundfish fishery included approximately 506 limited entry vessels (280 trawl and 226 fixed gear), and an unknown, but larger number of recreational and open access vessels. The open access fleet alone has been estimated to include 2,000 vessels. However, not all these vessels operated in 1996, the most recent year for which fairly complete information is available. A review of 1996 commercial landings records and other information determined that 478 limited entry vessels (including 10 large catcher/processor vessels operating in the offshore whiting fishery) and 1,792 open access vessels landed groundfish taken off Washington, Oregon, and California. The exvessel value of the 1996 landed catch was approximately \$81.4 million, with an additional \$10 million added by the at-sea whiting sector. The 1997 value, excluding the portion of the Pacific whiting catch processed at sea, was approximately \$79 million to \$81 million. The at-sea sector of the whiting fishery added approximately \$19 million 1997, bringing the total value to roughly \$98 million.

8.3.2.2 Examples of Past and Current Participation - Use of private vessels to conduct scientific research.

Slope survey. In 1988, NMFS initiated annual surveys of groundfish on the continental slope off Washington, Oregon, and California (slope surveys). Except for 1997 when the whole coast was surveyed, these surveys have covered only about one-third of the coast each year. Survey areas were "stepped" north or south each year such that, over about a three-year period, the whole coast was covered. The absence of a comprehensive annual coastwide slope survey is considered a major deficiency. Usually, a single, large NOAA research vessel (R/V MILLER FREEMAN) has been used to conduct the survey. However, the MILLER FREEMAN will be in dry-dock for several months beginning in 1998, leaving no comparable vessel to conduct the survey. Only one private vessel, in 1989, has participated in this survey.

The 1998 slope survey was expected to be the first of a new annual survey series, using different gear on a different class of (smaller) vessel, and covering the entire coast at a different time of year than prior slope surveys. NMFS anticipates that the MILLER FREEMAN will be available in future years so that the difference among the vessels can be calibrated. Coverage of the entire coast under the new slope survey requires more than 90 sea days. Federal funds, although increased recently, are not adequate to outfit and charter enough vessels (probably six) for enough days to complete the new survey. Compensation with fish would make up the shortfall.

Triennial shelf survey. The triennial survey is a survey of the species on the continental shelf, so its area of coverage is inshore of most of the area covered by the slope survey, although there is some overlap. It is conducted every three years by two chartered vessels, typically not the same ones from one survey to the next. The June-September 1998 triennial survey was not affected by the 1998 emergency rule, but future surveys would likely fall under the provisions of the FMP amendment.

Other surveys. Nothing precludes use of nontrawl vessels from conducting appropriate resource surveys, and being compensated with fish, if such research is approved by NMFS, and the vessels are appropriate to the research, qualified, and receive the contract.

8.3.2.3 Bycatch

As compensation fishing would occur as commercial harvest within the ABC, bycatch is expected to be no greater under Option 1 than under the status quo.

8.3.3 Economic and Social Impacts -- Regulatory Impact Review: Economic Implications of the Alternatives

To fulfill the requirements of the EO 12866 and the Regulatory Flexibility Act, this regulatory impact review assesses the economic impacts of the alternatives. The amount of compensation fish (as a percentage of the ABC) will depend on the value of a species and the cost of the survey. The cost of each survey is relatively fixed, no matter what the abundance and value of the species surveyed. The contract cost for an extensive survey such as the current NMFS triennial trawl survey would be about \$450,000, requiring two vessels for 60 days each. This \$450,000 is slightly less than 0.5% of the \$90 million exvessel value of the entire groundfish fishery in 1996, and about 0.46% of the \$98 million value in 1997. Excluding the at-sea whiting value, the cost of the survey would still be less than 0.6% of the 1997 fishery value. This same survey would cost the equivalent of less than one percent of the combined exvessel value of the 1996 Dover sole, thornyhead, and sablefish fisheries (\$47 million) and about one percent of the \$45 million value of 1997. The contract cost of a less extensive survey, such as one of the nearshore flatfish resources (Petrale sole, English sole, rex sole, etc.), would be about \$175,000. This is the equivalent of about 2.5% of the roughly \$7 million value of this fishery.

The value of the entire groundfish fishery is not fully available as compensation fish. Only those groundfish species for which there is a constraining trip limit or season will be desirable targets as compensation, because a vessel is not limited in its catch of other groundfish species. At the current time, the most important groundfish species limited by trip limits (other than the DTS complex) are widow rockfish, Pacific ocean perch, the *Sebastes* complex (including yellowtail rockfish, canary rockfish and bocaccio), lingcod, and, during part of the year, Pacific whiting. Of these, Pacific ocean perch, bocaccio and lingcod are considered overfished and will likely not be available as compensation species except in restricted cases. For example, a small amount of Pacific ocean perch might be provided so the vessel could access a larger amount of other species. The fact that depressed stocks such as Pacific ocean perch cannot afford an allocation of compensation fish, while many healthy stocks (such as English sole) have no trip limits or allocations, limits the range of species that could be considered as payment. However, these considerations do not diminish the utility of using fish as compensation. In order to provide enough economic incentive to attract qualified vessels to participate, the Council and NMFS may have to deviate from the practice of using the same or similar species as compensation.

As noted above, some survey cruises may extend over 2-3 months, and vessels engaged in such extended surveys would likely not have adequate opportunity to take their commercial trip limits during that time. The contract and EFP may address the possibility of allowing the take of a cumulative landing limit outside the normal period as one of the activities that might be provided as compensation for conducting the research. For example, a vessel that could not take its July-August trip limit could be authorized to take that amount, along with the regular trip limit, during the subsequent 12 months. Additional fish would likely be involved also as part of the contract payment.

To the extent that a vessel may retain trip limit overages as compensation fish for prior research, total fleet discards, and waste, will be reduced.

The amount of compensation fish awarded to a survey vessel would be deducted from the subsequent year's ABC. If compensation fish comprise a large proportion of an OY/harvest guideline, the Council might be forced to reduce trip and/or bag limits for that species or species associated with it in a multispecies complex. Such factors would be taken into when the Council decides the species and amounts to reserve for compensation fishing. However, the amounts used as compensation are expected to be less than 5 percent of an ABC, well within the range of uncertainty associated with ABCs, inseason catch monitoring, and trip limit derivations. Therefore, it is not likely that awarding fish for compensation would result in smaller trip limits or additional or earlier restrictions, although potentially this could occur.

Because the amount of fish used for compensation would be subtracted "off the top" of the ABC, the loss of compensation fish would be shared among all sectors and vessels (commercial, recreational, and tribal) in the fishery.

Use of compensation fish would reduce the Federal outlay of capital, although it would increase the Federal workload by adding new EFP procedures and potentially complicating the determination of acceptable charter offers for resource surveys.

Use of fish as compensation for conducting resource surveys should increase the participation and interest by members of the fishing industry, many of whom have been skeptical of NMFS's data and survey procedures. Resource survey cooperation between industry and government would provide scientists with valuable guidance from veteran fishers, and would provide participating fishers with first-hand insight into scientific sampling procedures and a more comprehensive (coastwide) view of fish distribution and abundance.

A survey vessel would receive an extra financial benefit under this proposed process; however, the recipient and level of the benefit would be determined through a competitive process.

Using fish as compensation would enable more data to be gathered than would otherwise be possible. More abundant data should lead to better stock assessments and a more accurate long-term prognosis for a sustainable fishery, and thus contribute to stability in the fishing industry and in the resources upon which the industry depends.

Suboption 2A. The amount of compensation fish are deducted from the ABC in the year the fish are caught. OYs (previously called harvest guidelines) and allocations for the year are set by or near January 1; there is no simple or expedient way to take compensation fish "off the top" during the season, as this would change any associated the allocations. Although there could be some argument that the compensation fish should be deducted from the allocation for the class of participating vessels (for example, only from the limited entry trawl fishery), NMFS believes that all vessels should contribute to the compensation allocation, as all potentially will benefit in the long run.

Suboption 2B (**adopted by the Council**). The compensation fish for a scientific research vessel are deducted from the subsequent year's ABC. If compensation fish comprise a large proportion of a harvest guideline or quota, then it could potentially lower the trip or bag limits for that species, or result in earlier or other constraints on the fishery. However, the amounts used as compensation are expected to be less than five percent of an ABC, well within the range of uncertainty associated with ABCs, inseason catch monitoring, and trip limit derivations. Therefore, it is not likely that compensation fish would lower the trip limits or result in additional or earlier restrictions, although potentially this could occur, especially if the ABC is much lower the year the compensation fish are deducted. By subtracting the compensation amount "off the top" of the ABC, the loss of compensation fish is shared among all sectors and vessels (commercial, recreational, and tribal), in the fishery.

The value of the entire shore-based groundfish fishery in 1996 was \$81.4 million. The estimated cost of the 1998 slope survey (\$270,000) was about one-third of one percent (0.33%) of the \$81.4 million total value of groundfish landed shoreside. Therefore, the average loss of value per vessel of compensating the survey vessels entirely with fish would also be well less than one percent. If fish account for only half the research vessels' compensation, the average cost per vessel would be about 0.17% of the fleet-wide average value of groundfish landed, assuming the same relative values in 1998 and 1999 as in 1996.

Specifically, less than 200 mt of groundfish (primarily the DTS complex) are expected to be used as compensation for survey work in 1998; this is less than one percent of the sum of the 1998 ABCs for these species (Table 8.1), and a much smaller percent of the total of the ABCs for all groundfish available for harvest in 1998. If the ABCs are similar in 1999, the amount deducted from the 1999 ABCs (fish caught in 1998 and used as compensation) would be a similar proportion.

Using the example for the 1998 slope survey in Table 8.1 (in which the charter vessel cost of the slope survey was expected to be funded half with fish), the compensation fish are valued at \$135,000, which, divided among the 468 shore-based limited entry vessels that landed groundfish in 1996, is equivalent to approximately \$275 per vessel. (If the entire survey was funded with fish-for research, the average cost would have doubled to less than \$600 per shore-based limited entry vessel.) If the open access fleet of

about 1,792 vessels is included so that the cost is spread among the entire fleet that landed groundfish shoreside in 1996, the average impact would be considerably less, about \$60 per vessel. The cost of the compensation fishery would be estimated at \$128,000 for the limited entry fleet and about \$7,000 for the open access fleet, assuming average proportions of landings of approximately 95% for limited entry and 5% for open access.

TABLE 8.1. Derivation of impacts on the shore-based groundfish fishery, assuming 50% compensation with fish.

Groundfish vessels	Cost of survey in fish	Number of vessels landing groundfish in 1996	Average cost per vessel
Limited entry only (including ten catcher/processors and assuming no impact on open access fleet)	\$135,000	478	\$282.43
Limited entry (excluding 10 catcher/processors)	\$128,000	468	\$273.50
Open access	\$7,000	1,792	\$3.91
Total	\$135,000	2260	\$59.73

8.3.3.1 Harvest and Revenue Implications of the Alternatives

Compensation fish would be within the ABC and therefore the harvest implications are the same under the status quo and option 1. Participation will provide an extra financial benefit to those vessels conducting the resource surveys, but the recipient, and the level of the benefit will be determined through a competitive process. The loss of revenue to the rest of the fleet (due to the compensation allocation) should be relatively minor on an individual vessel basis.

Using fish as compensation will enable more data to be gathered than would otherwise be possible under the status quo. This should lead to better stock assessments and a better long-term prognosis for a sustainable fishery and thus contribute to stability in the fishing industry. If the Council and NMFS do not have adequate information, they must manage in a risk-averse manner in order to prevent overfishing.

To the extent that fish are kept as compensation that otherwise would be discarded under the status quo, payment with fish supports full-utilization and improves accountability of total catch.

The slope survey, which is estimated to cost about \$270,000 in 1998, represents about one third of one percent of the \$81.4 million in revenue generated from all shorebased groundfish landings in 1996; the triennial shelf survey, estimated to cost about \$450,000, represents about one-half of one percent of the \$81.4 million.

8.3.3.2 Regulatory Flexibility Act Analysis.

The RFA asks that NMFS determine whether more than 20% of the fleet would experience a significant economic impact (more than five percent decline in revenue) from the proposed action. Potentially the entire groundfish fleet could be affected by an allocation that results in lowered trip limits. However, the relative impacts to individual vessels of diverting less than five percent of a species ABC to as compensation fish depends on the species mix landed by individual vessels and their success in landing trip limits. This varies from vessel to vessel and from year to year. The groundfish fishery is noteworthy for being a multispecies fishery. Most active vessels, if not all, do not rely on a single species or complex, or even only on groundfish.

Assuming continuation of the current management framework of two-month cumulative trip limits, reducing an OY/harvest guideline to account for compensation fish could translate into slightly lower cumulative limits.

(This is not necessarily so since the amounts involved are within the range of uncertainty in inseason monitoring.) Moreover, only vessels that regularly or occasionally take the full trip limits would be affected by this action. These are likely to be the most successful vessels, and thus earning the most from groundfish. Since their total incomes are greater than the fleet average, the percentage impact for them should be very small.

For the 1998 slope survey--impact on vessels that achieved the cumulative DTS limits (Table 8.1). If only the limited entry vessels that landed a DTS limit are examined, there are 198, with the average number of cumulative limits achieved being 7.9 (out of a possible 24). The minimum total revenue (from all fishing) in this group is \$30,000, where five percent is \$1,500. The smallest revenue for any permit with two or three periods of limit attainment was \$82,000, where five percent is \$4,100. If the \$128,000 cost were distributed in proportion to number of limit-periods, the maximum impact on any permit would be 0.63% (which would double if the if the slope charter costs were paid entirely with fish).

Also a factor is that the denominator for calculating the percentage impact should be total fishing revenue, not only groundfish revenue (see Table 8.2). Fishing off the west coast is a multispecies endeavor, and the majority of groundfish vessels also harvest other species. The following discussion considers the cost of the compensation fishery to those vessels that landed groundfish in 1996, and considers revenue earned from fishing for groundfish as well as other species. We assume that the \$285 average cost per limited entry vessel would be lowered as much as five percent to ten percent if the open access fishery is considered (using the approximate ratio of limited entry and open access allocations). This leaves the average cost per limited entry vessel to approximately \$275, and the average cost to an open access vessel at around \$10.

In the limited entry fleet, a \$275 cost would represent more than five percent of the total fishing revenue for seven permits in 1996, about one percent of the active permits that year. Even if the cost were doubled (e.g. the entire slope survey were funded with compensation fish), no more than two percent of the active limited entry vessels would be affected by more than five percent of total fishing revenue.

In the open access fleet, the number of vessels whose total income would be diminished by more than five percent as a result of a \$10 loss would be less than eight percent of the fleet. These vessels clearly are not those successfully achieving the majority of the available trip limits. As with the limited entry fleet, the actual loss associated with these low-production vessels is likely to be smaller than the average loss across all participants, which would suggest this is the upper end of potential impacts.

TABLE 8.2. Total 1996 revenue of all species (groundfish and other fish) for limited entry and open access.

1996	No. vessels	Value from groundfish (\$)	Value from other fish (\$)	Total revenue--all species (\$)
Open Access	1,792	9,475,839	53,979,546	63,455,385
Limited Entry (excl. catcher/processors)	468	68,432,919	27,030,699	95,463,618
Total	2,260	77,908,758	81,010,245	158,919,003

Source: Dr. J. Hastie, NMFS

Moreover, five percent of an ABC is within the range of uncertainty in inseason catch monitoring and the setting of trip limit amounts, and the compensation allocation most likely will be less than 5% of any of the DTS species' ABCs (see Table 8.1). Therefore, it is very unlikely that the implementation of the recommended action would result in a 5% reduction in revenue for more than 20% of any sector in the groundfish fishery.

8.3.3.3 Other Impacts

Compensation fishing should increase the participation and interest by the fishing industry, many who have been skeptical of data and survey procedures. This industry/government cooperative association will provide valuable guidance from veteran fishers to scientists, and will provide the industry participants with

first-hand insight into scientific sampling procedures and perhaps a more comprehensive view of the distribution and abundance of various species over a wider geographic range than they might otherwise see.

Use of compensation fish reduces the Federal outlay of capital, although it increases the Federal workload by adding additional EFP procedures and complicating the determination of acceptable charter bids for research surveys. In addition, the Council workload will be increased due to review of additional EFP applications and in complicating determination of OYs, harvest guidelines, and/or quotas.

8.3.3.4 Benefit and Cost Considerations

The benefits and costs of these alternatives cannot be quantified other than to indicate that Federal dollars will stretch farther if they can be supplemented with fish; more vessels may be hired and/or more extensive research may be conducted, than under the status quo. Individual contract recipients may benefit, particularly if they are able to delay compensation fishing and sell their catch at a time when market conditions may be more favorable (for example, when trip limits are greatly restricted and local supplies of fish are reduced). The "loss" of the "compensation" fish by the rest of the fishery will be spread among a much larger number of vessels and likely would be small on the individual vessel level. (If the \$135,000 value of compensation fish for the 1998 survey were spread equally among all vessels in the groundfish fishery that landed shoreside in 1996, the average cost would be \$60 per vessel (\$135,000/2260 vessels.) The average "loss" of fish for compensating charter vessels in the 1998 slope survey (if the charter vessels are paid half with fish and half in dollars) is about \$275 per shorebased limited entry vessel. This is about one third of one percent of the average groundfish revenue generated per vessel in the shore-based limited entry fleet.

8.4 Summary of Impacts

Biological impacts. There are no biological impacts expected from the process of issuing compensation EFPs and subtracting compensation amounts from the ABC. Compensation with fish is intended to improve the quantity and quality of data used in stock assessments, and therein to provide information necessary to managers to minimize the risk of overfishing the resource. Thus, in the long-term, a positive biological impact is expected.

The amount of salmon taken under any of the options is expected to be within the range considered in the Biological Opinion prepared for the groundfish fishery.

Socio-economic impacts. Although compensation fishing will provide an extra financial benefit to those vessels that are selected to participate, it is not likely that compensation fish would result in reduced trip limits or other restrictions, although potentially this could occur. All vessels share proportionately in the "cost" of compensation fishing because it will be deducted from the ABCs before the OYs, harvest guidelines and any allocations are derived. Better data should lead to better stock assessments, and ultimately more economic stability in the fishery. Use of compensation fish reduces the Federal outlay of capital, although it increases the Federal workload by adding more complicated contract negotiations and issuance of additional EFPs. This process also will provide for more cooperation and understanding between the fishing industry and government scientists and managers.

8.5 Consistency with FMP Goals and Objectives

The FMP currently is silent on compensating survey vessels with fish because this was not authorized by the Magnuson-Stevens Act until October 11, 1996. The Council believes this amendment is consistent with the provisions in the Magnuson-Stevens Act and essentially similar to the emergency rule. This action would be consistent with the overall goal of the FMP to base management decisions on sound scientific information, thereby preventing overfishing, maintaining optimum utilization, and achieving the maximum sustainable yield. In addition, the action is consistent with Objective 10 to reduce waste of fish, by enabling vessels that conducted research charters to land compensation fish when they are commercial fishing after the research is completed. The compensation fish are likely to be fish that otherwise would be discarded because they exceed trip limits.

9.0 UPDATE INDUSTRY DESCRIPTIONS AND OTHER SECTIONS

9.1 Purpose and Need for Action

SEC. 303 (a) (2) of the Magnuson-Stevens Act (Required provisions of FMPs) states that an FMP must "contain a description of the fishery, including, but not limited to, the number of vessels involved, the type and quantity of fishing gear used, the species of fish involved and their location, the cost likely to be incurred in management, actual and potential revenues from the fishery, any recreational interest in the fishery, and the nature and extent of foreign fishing and Indian treaty fishing rights, if any." The current descriptions in the FMP have not been updated since Amendment 4 in 1989. The industry has evolved since that time and litigation has further clarified related to Indian treaty fishing rights. The Council is considering updating these descriptions.

9.2 Alternatives Including Proposed Action

Status quo (no action). Current industry descriptions would remain.

Alternative 1. Update summary descriptions of private recreational and charter sectors, and nature and extent of Indian treaty fishing rights as drafted by NOAA General Counsel. Most of the information on fishing communities and details on the fishing industry will be included in a comprehensive source document separate from the FMP. No regulations are proposed at this time.

Alternative 2. (ADOPTED BY THE COUNCIL) Update summary descriptions of private recreational and charter sectors, and nature and extent of Indian treaty fishing rights as recommended by the Groundfish Advisory Subpanel. Most of the information on fishing communities and details on the commercial sector will be included in a comprehensive source document separate from the FMP. No regulations are proposed at this time.

9.3 Description of the Alternatives

9.3.1 Description of Status quo

Under the status quo, the commercial and recreational sector descriptions would remain unchanged, as would the description of tribal fishing rights and activities. In particular, the following two sections would remain.

"11.3.3 Recreational Harvesting Sector

Groundfish are caught for recreation by anglers who fish from piers, jetties, beaches, banks, party or charter passenger vessels, and private or rental boats. Take by recreational fisheries is substantial for some species (e.g., bocaccio and lingcod). However, data for recreational fisheries are inaccurate and often misleading and not appropriate for management of the fishery. Improvement in sampling and data collection from the recreational fishery are essential for management of this fishery."

"11.7.6 Indian Treaty Rights

Treaties with a number of Pacific Northwest Indian tribes secure to certain treaty tribes certain rights to take fish at their usual and accustomed fishing grounds.

The tribes which presently have been found to have such fishing grounds in areas which are embraced by this FMP are:

Makah Tribe: Marine waters extending from the Strait of Juan de Fuca "out into the ocean to an area known as Swiftsure and then south along the Pacific Coast to an area intermediate to Ozette Village and the Quileute Reservation." [384 F. Supp. at 312, 364 (W.D. Wash., 1974)]

Quileute and Hoh Tribes: Tidewater and saltwater areas adjacent to the coastal area that includes the Hoh, Quillayute, Queets, and Quinault Rivers and Lake Ozette. [384 F. Supp. at 359, 372].

Quinault Tribe: "Ocean fisheries . . . in waters adjacent to their territory" which for fishing purposes includes the area from the Clearwater-Queets River system to Grays Harbor. [384 F. Supp. at 374].

The Council knows of only one active tribal fishery for species covered by the FMP (that of the Makah Tribe for sablefish). At some time in the future the FMP may have to consider amending the FMP to address these and other tribal fisheries that might develop. "

9.3.2 Description of Alternative 1

Under Alternative 1, Section 11.3.3 would be amended to reference a general community description source document in preparation and expected early in 1999. In addition, section 11.7.6 would be revised with a description of Indian fishing rights and activities prepared by NOAA General Counsel, in consultation with tribal and State attorneys.

11.3.3 Recreational Harvesting Sectors

Recreational fishing on the West Coast includes fishing from piers, jetties, beaches, banks, private recreational vessels, and commercial vessels that take passengers (i.e., charters). Recreational fishing is managed primarily by the three states, although the Council sets recreational bag limits for fishing in federal waters. Federal management has focused on lingcod and rockfish landings in all three states, with specific attention on bocaccio rockfish in California and black rockfish in Washington and Oregon. Efforts are currently underway to improve statistics relating to recreational groundfish catch and landings, numbers of participants in marine recreational fisheries, and communities that rely on marine recreational fishing industries.

Summaries of various groundfish species caught by the private recreational and charter sectors are included in the annual SAFE document prepared each year in conjunction with setting annual harvest levels. Additional information on the recreational fishing sectors will be available in a community description document expected to be available early in 1999.

"11.7.6 Indian Treaty Rights

Treaties between the U.S. Government and a number of Pacific Northwest Indian tribes reserve to these tribes the right of taking fish at usual and accustomed grounds and stations (U & A) in common with other citizens of the United States. See *U.S. v. Washington*, 384 F. Supp. 312, 349 - 350 (W.D. Wash. 1974).

NMFS has determined the tribes that have U & A in the area managed by this FMP are the Makah, Hoh, and Quileute tribes, and the Quinault Indian Nation. The Makah tribe is a party to the Treaty of Neah Bay, Jan. 31, 1855, 12 Stat., 939. See 384 F. Supp. at 363. The Hoh and Quileute tribes, and the Quinault Indian Nation are successors in interest to some of the tribes that signed the Treaty with the Quinaeil, et al., July 1, 1855, 12 Stat. 971. See 384 F. Supp. at 359 (Hoh); 371 (Quileute); 374 (Quinault).

The fishing right is generally described as the opportunity to take a fair share of the fish, which has been interpreted as up to 50 percent of the harvestable surplus of fish in the U & A. *Washington v. Washington State Comm'l Pass Fishing Vessel Ass'n*, 443 U.S. 658, 685-687 (1979). *U.S. v. Washington*, 459 F. Supp. 1020, 1065 (1978). *Makah v. Brown*, No. C85-160R, and *United States v. Washington*, Civil No. 9213 - Phase I, Subproceeding No. 92-1 (W.D. Wash., Order on Five Motions Relating to Treaty Halibut Fishing, at 6, Dec. 29, 1993). *U.S. v. Washington*, 873 F. Supp. 1422, 1445 & n. 30 (W.D. Wash. 1994); 135 F. 3d 618, 639, 640 (9th Cir. 1998) (This 9th Circuit decision may be further appealed to the Supreme Court).

The treaty fishing rights have been, and are being, interpreted in the ongoing case of *U.S. v. Washington*. A subproceeding (96-2) is currently pending regarding whiting.

The Treaty Right

This FMP has generally acknowledged that certain treaty Indian tribes have secured rights to harvest fish from their U & A. In 1995, NMFS and NOAA General Counsel advised the Council that the Federal Government recognizes that Washington coastal treaty Indian tribes, by virtue of their treaties with the United States, have harvest rights to Pacific coast groundfish.

This recognition of treaty rights to groundfish has been challenged with the assertion that tribes only have treaty rights to those species of fish that they harvested at treaty times, and they may only exercise these rights to nonanadromous fish after they have presented *prima facie* evidence of the treaty right. However, in the shellfish subproceeding of *U.S. v. Washington*, (subproceeding 89-3) the court found:

The fact that some species were not taken before treaty time - either because they were inaccessible or the Indians chose not to take them - does not mean that their *right* to take such fish was limited * *
* Because the "right of taking fish" must be read as a reservation of the Indians' pre-existing rights, and because the right to take *any* species, without limit, pre-existed the Stevens Treaties, the Court must read the "right of taking fish" without any species limitation. [emphasis in original]

873 F. Supp. 1422 at 1430; 135 F.3d 618, 631 (9th Cir. 1998) (This issue may be further appealed to the Supreme Court.)

In the pending whiting subproceeding, the judge concluded that the rulings in the shellfish subproceeding "should remain the binding law of the case until the Ninth Circuit decides the appeal of that decision now pending before it." *U.S. v. Washington*, Civil No. 9213 Phase I, Subproceeding No. 96-2 (W.D. Wash., Order Granting Makah's Motion for Partial Summary Judgment and Denying Oregon's Cross Motion for Summary Judgment and Washington's Motion for Stay, November 4, 1996). As quoted above, the court of appeals did uphold the district court on this issue. Therefore, the federal government has determined that the tribes have treaty rights to groundfish which must be accommodated.

The U & A

The Makah U & A has been found to extend from the Strait of Juan de Fuca "out into the ocean to an area known as Swiftsure and then south along the Pacific Coast to an area intermediate to Ozette Village and the Quileute Reservation." 384 F. Supp. 312 at 364 (W.D. Wash. 1974). A western boundary has also been determined by the court at about 40 miles offshore at longitude 125 degrees W. 730 F.2d. 1314 at 1318 (9th Cir. 1984).

The court described the Hoh U & A as follows: "In treaty times the usual and accustomed fishing places of the Quileute and Hoh Indians included the entire Hoh river system and the Quillayute, Dickey, Bogachiel, Calawah, Soleduck, Queets and Quinault river systems." 384 F. Supp 312 at 359.

The court's findings for the Quileute tribe are as follows: "Before, during and after treaty times, the usual and accustomed fishing places of the Quileute and Hoh Indians included the Hoh River from the mouth to its uppermost reaches, its tributary creeks, and Quileute River and its tributary creeks, Dickey River, Soleduck River, Bogechiel River, Calewah River, Lake Dickey, Pleasant Lake, Lake Ozette, and the adjacent tidewater and salt-water areas." 384 F. Supp. 312 at 372.

The Quinault Indian Nation's U & A are described to include waters adjacent to their territory, which for fishing purposes include the area from the Clearwater-Queets River system to Grays Harbor. 384 F. Supp. 312 at 374.

The court has not specified a western boundary for the Hoh, Quileute or Quinault. In 1986, NMFS published in its halibut regulations specific coordinates for tribal fishing in the ocean, which included western boundaries. In 1987, NMFS included these same areas in the ocean salmon regulations. The boundaries have not changed in these regulations since then. In 1996 when NMFS first published regulations governing Pacific Coast treaty Indian groundfish fishing in the Exclusive Economic Zone, it established the previously-

described areas as the U & A for the four tribes. NMFS specified that the boundaries of a tribe's fishing area may be revised as ordered by a Federal court. These U & A are as follows:

1. *Makah* - That portion of the FMA north of 48 02'15" N. lat. (Norwegian Memorial) and east of 125 44'00" W. long.
2. *Quileute* - That portion of the FMA between 48 07'36" N. lat. (Sand Point) and 47 31'42" N. lat. (Queets River) and east of 125 44'00" W. long.
3. *Hoh* - That portion of the FMA between 47 54'18" N. lat (Quillayute River) and 47 21'00" (Quinault River) and east of 125 44'00" W. long.
4. *Quinault* - That portion of the FMA between 47 40'06" N. lat. (Destruction Island) and 46 53'18" N. lat. (Point Chehalis) and east of 125 44'00" W. long.

Over the years, NMFS received comments objecting to portions of these areas. In addition, there are some intertribal disagreements regarding boundaries of U & A, and disagreements between the state and some tribes. NMFS has indicated it has not received definitive information that would cause it to change the federal interpretation of U & A in Federal waters. The boundaries can all be litigated in *U.S. v. Washington*, and NMFS indicated in its implementing regulations that the areas in the rules will be changed consistent with any relevant court rulings. In the shellfish subproceeding in *U.S. v. Washington*, the court found "that, as a matter of treaty interpretation, the Tribes' usual and accustomed grounds and stations cannot vary with the species of fish." 873 F.Supp. 1422 at 1431 (W.D. Wash. 1994); 135 F.3d 618, 632 (9th Cir. 1998). (This 9th Circuit decision may be further appealed to the Supreme Court.) This provides support to the NMFS approach of using the same ocean U & A for all species of fish.

The Quantification of the Right

The exact quantification of a treaty right to groundfish is a difficult issue. With the exception of halibut and herring, most of the legal and technical precedents are based on the biology, harvest, and conservation requirements for Pacific salmon, which are very different from those for groundfish. Those requirements also vary among species of groundfish covered by this plan. Quantification is also complicated by data limitations for each species. Nonetheless, the federal government must use the best information available to provide the appropriate amount of groundfish to the tribes. The parties to the whiting subproceeding in *U.S. v. Washington* will be working, through settlement negotiations or litigation, to determine the appropriate quantification for whiting. This work could help in determining the appropriate quantification for other groundfish species.

Conclusion

Regulations have been and will be promulgated under this FMP to implement Indian treaty fishing rights, since treaty fishing rights are other applicable law with which management measures must comply. Any court decisions that refine or clarify treaty rights will be complied with in the implementation of this FMP.

The rights will be implemented either through specific allocations to tribes which will be managed by the tribes, through federal regulations that will apply specifically to the tribes, or in other ways that accommodate treaty fishing rights and are not inconsistent with this FMP."

9.3.3 Description of Alternative 2

Under Alternative 2, Section 11.3.3 would be amended to reference a general community description source document in preparation and expected early in 1999 (as in Alternative 1). In addition, section 11.7.6 would be revised with a brief description of treaty rights.

"11.3.3 Recreational Harvesting Sectors

Recreational fishing on the West Coast includes fishing from piers, jetties, beaches, banks, private recreational vessels, and commercial vessels that take passengers (i.e., charters). Recreational fishing is managed primarily by the three states, although the Council sets recreational bag limits for fishing in federal waters. Federal management has focused on lingcod and rockfish landings in all three states, with specific attention on bocaccio rockfish in California and black rockfish in Washington and Oregon. Efforts are currently underway to improve statistics relating to recreational groundfish catch and landings, numbers of participants in marine recreational fisheries, and communities that rely on marine recreational fishing industries.

Summaries of various groundfish species caught by the private recreational and charter sectors are included in the annual SAFE document prepared each year in conjunction with setting annual harvest levels. Additional information on the recreational fishing sectors will be available in a community description document expected to be available early in 1999.

11.7.6 INDIAN TREATY RIGHTS

Treaties with a number of Pacific Northwest Indian tribes reserve to those tribes the right of taking fish at usual and accustomed grounds and stations (U & A) in common with other citizens of the United States.

NMFS has determined the tribes that have U & A in the area managed by this FMP are the Makah, Hoh, and Quileute tribes, and the Quinault Indian Nation. Several tribal fisheries exist for species covered by the FMP. The federal government has accommodated these fisheries through a regulatory process. Until such time as tribal treaty rights are finally adjudicated or the regulatory process is modified or repealed, the Council will continue to operate under that regulatory process to provide recommendations to the Secretary on levels of tribal harvest."

9.4 Environmental Consequences

This revision to the FMP has no regulatory effect and is only descriptive in nature. There is no impact on groundfish populations, the ecosystem or the marine environment. However, public and GAP comments at Council meetings opposed Alternative 1 due to the description of Indian treaty groundfish fishing rights, stating the description represents opinion that could change upon further court review and interpretation. They believed that any detailed description of treaty groundfish fishing rights should be postponed until final court action has occurred. Alternative 3, which was drafted by members of the Council's GAP to address those concerns, was ultimately endorsed by the Council.

10.0 FMP OBJECTIVES AND DEFINITIONS

10.1 Purpose and Need for Action

Section 3 of the Magnuson-Stevens Act, as revised in 1996, provides several new definitions of terms and revised definitions used in the legislation. Several terms used in the FMP are no longer consistent, and a number of terms are not defined. Also, in Section 301, several National Standards were revised or added. The Council intends that the FMP definitions conform with the legislation, and FMP objectives clearly reflect the spirit of the National Standards. Without such changes, the FMP would likely not comply with the Magnuson-Stevens Act and national standard guidelines.

10.2 Alternatives Including Proposed Action

Status quo (no action). Current definitions and FMP objectives would remain unchanged.

Alternative 1. (ADOPTED BY THE COUNCIL) Revise the FMP objectives and definitions in response to recent amendments to the Magnuson-Stevens Act and national standard guidelines. No changes to current regulations are proposed at this time. (See FMP sections 2.1 and 2.2.)

Under Alternative 1, the following objectives would be revised or added to Section 2.1 in the FMP under the appropriate heading of conservation, utilization, or social factors. Other objectives would be renumbered accordingly. Replaced text is ~~crossed out~~; new text is shown in **bold**.

Conservation

Proposed Objective 5. **Describe and identify EFH, adverse impacts on EFH and other actions to conserve and enhance EFH, and adopt management measures that minimize, to the extent practicable, adverse impacts from fishing on EFH.**

Utilization

Proposed replacement Objective 10. Strive to reduce the economic incentives and regulatory measures that lead to wastage of fish. **Also, develop management measures that minimize bycatch to the extent practicable and, to the extent that bycatch cannot be avoided, minimize the mortality of such bycatch. In addition, promote and support monitoring programs to improve estimates of total fishing-related mortality and bycatch, as well as those to improve other information necessary to determine the extent to which it is practicable to reduce bycatch and bycatch mortality.**

Social Factors

Proposed Objective 16. Avoid unnecessary adverse impacts on small entities.

Proposed Objective 17. Consider the importance of groundfish resources to fishing communities, provide for the sustained participation of fishing communities, and minimize adverse economic impacts on fishing communities to the extent practicable.

Proposed Objective 18. Promote the safety of human life at sea.

The following definitions would be added to Section 2.2 of the FMP. Replaced text is ~~crossed out~~; new text is shown in **bold**.

Bycatch means fish which are harvested in a fishery, but which are not sold or kept for personal use or donated to a charitable organization, and includes economic discards and regulatory discards.

Charter fishing means fishing from a vessel carrying a passenger for hire (as defined in section 2101(21a) of title 46, United States Code) who is engaged in recreational fishing.

Economic discards means fish which are the target of a fishery, but which are not retained, because they are of an undesirable size, sex, or quality, or for other economic reasons.

Essential fish habitat means those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity.

Fishing community means a community which is substantially dependent on or substantially engaged in the harvest or processing of fishery resources to meet social and economy needs, and includes fishing vessel owners, operators, and crew, and recreational fishers and United States fish processors that are based in such community.

Individual fishing quota means a federal permit under a limited access system to harvest a quantity of fish, expressed by a unit or units representing a percentage of the total allowable catch of a fishery that may be received or held for exclusive use by a person.

MSY stock size means the largest long-term average size of the stock or stock complex, measured in terms of spawning biomass or other appropriate units, that would be achieved under an MSY control rule in which the fishing mortality rate is constant. The proxy typically used in this FMP is 40% of the estimated unfished biomass, although other values based on the best scientific information are also authorized.

Optimum yield means the amount of fish which will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities, and taking into account the protection of marine ecosystems, is prescribed as such on the basis of the maximum sustainable yield from the fishery, as **reduced** by any relevant economic, social, or ecological factor; and in the case of an overfished fishery, provides for rebuilding to a level consistent with producing the maximum sustainable yield in such fishery.

Overfishing means fishing at a rate or level that jeopardizes the capacity of a stock or stock complex to produce MSY on a continuing basis. More specifically, overfishing is defined as exceeding a maximum allowable fishing mortality rate. For any groundfish stock or stock complex, the maximum allowable mortality rate will be set at a level not to exceed the corresponding maximum sustainable yield rate (F_{msy}) or its proxy (e.g., $F_{35\%}$).

Overfished describes any stock or stock complex whose size is sufficiently small that a change in management practices is required to achieve an appropriate level and rate of rebuilding. The term generally describes any stock or stock complex determined to be below its overfished/ rebuilding threshold. The default proxy is generally 25% of its estimated unfished biomass; however, other scientifically valid values are also authorized.

Processing or to process means the preparation or packaging of groundfish to render it suitable for human consumption, retail sale, industrial uses or long-term storage, including but not limited to cooking, canning, smoking, salting, drying, filleting, freezing, or rendering into meal or oil, but does not mean heading and gutting unless additional preparation is done.

Processor means a person, vessel, or facility that (1) engages in processing; or (2) receives live groundfish directly from a fishing vessel for retail sale without further processing.

Recreational fishing means fishing for sport or pleasure, but not for sale.

Regulatory discards are fish harvested in a fishery which fishermen are required by regulation to discard whenever caught, or are required by regulation to retain but not sell.

10.3 Environmental Consequences

This revision to the FMP has no regulatory effect and is only descriptive in nature. There is no impact on groundfish populations, the ecosystem or the marine environment. FMP objectives relating to EFH and bycatch may result in regulatory changes in the future, however, which would be intended to reduce the impacts of fishing activities on the groundfish resources and marine environment. The environmental, social and economic impacts of any such regulations would be evaluated if and when regulations are proposed.

11.0 GENERAL EDITORIAL CLEANUP

11.1 Purpose and Need for Action

The most recent comprehensive FMP amendment was completed in 1990, and several amendments to the Magnuson-Stevens Act have been passed in the interim. In addition, the groundfish management program has evolved over the years, and certain terms, names and Council processes have changed. This issue of the groundfish FMP amendment is intended to update the FMP document to reflect current word usage and procedures. For example, in past years the NMFS Regional Administer was referred to as the "Regional Director." In addition, numerous reference to FMP "Amendment 4" occur throughout the FMP document. However, the Council did not authorize a complete and comprehensive update of the FMP document. Therefore, certain information will remain dated, such as fishery catch statistics (the FMP currently includes data only through 1987 or 1988). More recent information is provided in the annual Stock Assessment and Fishery Evaluation (SAFE) documents.

11.2 Alternatives Including Proposed Action

Status quo. No action. Under this alternative, outdated references would remain in the FMP document.

Alternative 1. (ADOPTED BY THE COUNCIL) Make editorial changes throughout the FMP document. No regulations are proposed at this time.

11.3 Environmental Consequences

This revision to the FMP has no regulatory effect and is only descriptive in nature. There is no impact on groundfish populations, the ecosystem or the marine environment. Editorial revisions to the FMP text are intended to make the document more readable and up to date.

12.0 REMOVE JACK MACKEREL FROM THE FISHERY MANAGEMENT UNIT

12.1 Purpose and Need for Action

The Council has approved an amendment to the FMP for Northern Anchovy that would rename the FMP as the Coastal Pelagic Species (CPS) FMP and would add three species to that fishery management unit. Jack mackerel (*Trachurus symmetricus*), which has been included in the groundfish FMP fishery management unit since the early 1980s, would be removed from the groundfish FMP and moved to the CPS FMP when that amendment is implemented. The Council expects that regulations implementing the CPS FMP will modify both plans with a single action. If NMFS fails to approve the CPS FMP, jack mackerel will remain in the groundfish FMP.

12.2 Alternatives Including Proposed Action

Status quo. No action. Under this alternative, jack mackerel would remain in the FMP document.

Alternative 1. (ADOPTED BY THE COUNCIL) Jack mackerel would be removed from the groundfish fishery management unit and added to the CPS fishery management unit.

12.3 Environmental Consequences

The social and environmental consequences of removing jack mackerel from the groundfish FMP, which are expected to be minimal, are addressed in the analysis for Amendment 8 to the Northern Anchovy/CPS FMP. The species will continue to be managed to achieve the optimum yield, prevent overfishing, and achieve the maximum benefit to the Nation.

13.0 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

This assessment has been prepared according to 40 CFR 1501.3, 1508.27, and 1508.9 and National Oceanic and Atmospheric Administration (NOAA) Administrative Order 216-6 in order to determine whether an Environmental Impact Statement is required for any major action that will have a significant impact on the quality of the human environment. An EIS is not required if the EA concludes that there is no significant impact.

The need for action, alternatives, and impacts are covered in Sections 2-12 of this document. Aside from technical changes to definitions that may be necessary, the only anticipated regulatory change is described in Section 8.

The implementation of proposed changes to the groundfish FMP would not be a major action having significant impact on the quality of the marine or human environment of the West Coast. Mitigating measures related to such changes would be unnecessary. No unavoidable, adverse impacts on protected species, wetlands, or the marine environment would be expected to result from the recommended action. However, such effects may result from failure to take the proposed action.

Section 1508.27 of the CEQ Regulations lists ten specific points to be considered in determining whether or not impacts are significant. These ten points cover the five criteria for non-significance listed in Section 6.11 of NOAA Administrative Order 216-6.

Beneficial and Adverse Impacts

Over the short term there will be some adverse economic impacts resulting from the reductions in harvest levels, however, over the long terms benefits are expected to be greater than would have occurred if higher harvest levels had been maintained.

None of the alternatives would jeopardize the productive capability of the target resource species or any related stocks. In general, the Council's actions are directed at preventing overfishing and maintaining optimum yield. The Council relies on the best scientific information available, which typically comes from stock assessment documents prepared each year by various authors and the advice of its GMT and SSC. Short-term harvest reductions may result in some shift of effort onto other species. Vessels may seek to make-up any short-term reduction in revenue with effort increases in other fisheries. These effort shifts are expected to be monitored and controlled either as part of the management program for groundfish or other state and federal management programs for the species to which effort is redirected.

Public Health or Safety

The proposed actions are not expected to adversely impact public health or safety.

Unique Characteristics

The proposed actions are not expected to have any significant adverse impact on unique characteristics of the area such as historic or cultural resources, park lands, wetlands, or ecologically critical areas.

Controversial Effects

The proposed actions are not expected to involve significant controversial issues for the broader public. Among participants in the fleet, the reductions in biomass indicated by recent stock assessments are being challenged by some fishery participants; harvest reductions that are likely to result from the new harvest policy are likely to will exacerbate this situation. On the other hand, a different sector of the public has supported more conservative management and adoption of specific timelines for improving bycatch data and imposing fishing restrictions to reduce bycatch and fishing effects on EFH.

Uncertainty or Unique/Unknown Risks

The proposed actions would not be expected to have any significant effects on the human environment that are highly uncertain or involve unique or unknown risks.

Precedent/Principle Setting

The proposed actions are not expected to have any significant effects in establishing a precedent and do not include actions which would represent a decision in principle about a future consideration.

Relationship/Cumulative Impact

The proposed actions are not expected to have any significant cumulative impacts that could have a substantial adverse effect on the fishery resources or any related resource.

Historical/Cultural Impacts

The proposed actions are not expected to have any significant effects on historical sites listed in the National Register of Historic Places and will not result in any significant impacts on significant scientific, cultural, or historic resources.

Interaction with Existing Laws for Habitat Protection

The proposed actions are not expected to have any significant interaction which might threaten a violation of Federal, state, or local law or requirements imposed for the protection of the environment. The proposed action has no direct effect on ocean or coastal habitat, but the recommended FMP provisions are intended to strengthen the Council's role in habitat protection.

13.1 Other Applicable Law

13.1.1 Endangered Species Act (ESA)

NMFS issued Biological Opinions under the ESA on August 10, 1990, November 26, 1991, August 28, 1992, September 27, 1993, and May 14, 1996 pertaining to the impacts of the groundfish fishery on Snake River spring/summer chinook, Snake River fall chinook, and Sacramento River winter chinook. The opinions concluded that implementation of the FMP for the Pacific Coast Groundfish Fishery is not expected to jeopardize the continued existence of any endangered or threatened species under the jurisdiction of NMFS, or result in the destruction or adverse modification of critical habitat. Each alternative is within the scope of these consultations. Because the impacts of this action fall within the scope of the impacts considered in these Biological Opinions, NMFS has determined that additional consultations are not required for this action. In addition, coho salmon south of Cape Blanco, Oregon, have been listed as threatened (northern California/southern Oregon) and endangered (central California) under the ESA; steelhead have been listed as threatened (Snake River Basin/central California/south-central California) and endangered (upper Columbia River/southern California) under the ESA. None of the alternatives, including the status quo, will affect coho salmon or steelhead.

13.1.2 National Environmental Policy Act (NEPA)

NMFS initially has determined that implementation of any of the alternatives for this issue would not significantly affect the quality of the human environment, and therefore preparation of an environmental impact statement is not required by Section 102(C) of NEPA or its implementing regulations.

13.1.3 Executive Order 12866 (EO 12866)

Based on the above analysis, the proposed rule has been determined to be "not significant" for purposes of EO 12866.

13.1.4 Regulatory Flexibility Act (RFA)

The RIR also is designed to determine whether the proposed rule has a "significant economic impact on a substantial number of small entities" under the RFA. The purpose of the RFA is to relieve small businesses, small organizations, and small governmental entities from burdensome regulations and record keeping requirements. If the proposed action meets both the "significant" and "substantial" criteria, preparation of an Initial Regulatory Flexibility Analysis (IRFA) is required.

Only one immediate regulatory change is anticipated from the proposed amendment to the groundfish FMP, relating to implementation of a program which authorizes the use of groundfish as compensation to vessels participating in scientific research (see Section 8 above). (Minor changes to definitions would also result from the proposed action, but these are considered to be insignificant.) The category of small businesses potentially affected by the proposed regulation is virtually the entire groundfish fishery (excluding the catcher/processor fleet of ten vessels that operates only in the offshore whiting fishery). The impacts of the proposed action on groundfish vessels have been discussed above in section 8, particularly 8.1.2.3. An IRFA is conducted to make a preliminary determination as to whether the proposed action would have a "significant economic impact on a substantial number of small entities." In addition, the IRFA provides an estimate of the number of small businesses affected, a description of the small businesses affected, and a discussion of the nature and size of the impacts.

Section 8 describes the vessels that participate in the groundfish fishery. For the purposes of the RFA, all fishing vessels that operate in the Pacific groundfish fishery are considered "small entities," with the exception of the 10 catcher/processors in the Pacific whiting fishery. Shore-based groundfish processors also may be considered "small entities." Motherships operating in the whiting fishery are not small businesses, and do not harvest groundfish. (The Small Business Administration defines a small business in the commercial fishing activity as a firm with receipts of up to \$2 million annually (thus eliminating at-sea processing vessels) and a processor with fewer than 500 employees. The average at-sea processor during 1991 earned \$33 million in revenues from pollock, whiting, cod and other species and so does not meet the definition of a "small entity.") Therefore, all but 10 vessels operating in the groundfish fishery off Washington, Oregon, and California are considered small businesses, and these 2,260 vessels (478 limited entry + 1,792 open access - 10 catcher/processors) are considered the universe for purposes of this analysis under the RFA.

The proposed rule implementing the "fish for research" provisions of the amendment could affect a maximum of 2,270 vessels. Of these, approximately 2,260 (almost 100%) are considered small entities. The rule is expected to have several different types of impacts. For vessels that obtain contracts to conduct research in exchange for fish, this rule would provide increased opportunity for profit. This rule is also expected to lead to the availability of increased scientific data on the status of the fishery. The availability of this data will enhance the ability of the agency to manage the fishery and is likely to lead to long-term benefits for all participants.

There is also the small possibility that this rule could result in negative economic impacts on some fishery participants. The fish that are awarded as compensation would be deducted from next year's ABC. The amounts likely to be diverted for compensation would be so small as to be within the range of accuracy expected for inseason monitoring of OYs, harvest guidelines and quotas, and most likely would not change the size of trip limits or their date of achievement. However, there is a remote possibility that some trip limits would be reduced, or reduced earlier, as a result of the small compensation allocation for survey vessels. For example, if surveys were funded entirely by compensating vessels with Dover sole, thornyheads and sablefish, resulting in reduction in those trip limits, those trawl vessels that routinely achieve their Dover sole, thornyheads, and trawl-caught sablefish complex limits could experience some degree of economic loss. NMFS estimates that approximately 208 limited entry vessels achieved these limits during at least one

trip-limit period between July 1996 - June 1997. Thus, 9% (208 vessels/2270 vessels) of the affected small entities could hypothetically experience some economic loss as a result of this rule.

Substantial number of small entities. Under the FMP's license limitation (limited entry) program, approximately 468 vessels landed groundfish shoreside in 1996, and approximately 1,792 vessels operated in the open access fishery, for a total of 2,260 small businesses. An undetermined number also participate in recreational fisheries. In general NMFS has indicated that a "substantial number" of small entities to be more than 20% of those small entities engaged in the fishery. In this case, all vessels participating in the shoreside groundfish fishery potentially could be affected by the proposed rule, depending on the compensation species and amounts and the vessels' success in achieving current trip limits. Therefore, the preferred option, if adopted and implemented, potentially could affect a substantial number of small entities.

Significant economic impacts. Economic impacts on small business entities are considered to be "significant" if the proposed action would result in any of the following: (a) reduction in annual gross revenues by more than 5%; (b) increase in total costs of production by more than 5% as a result of an increase in compliance costs; (c) compliance costs as a percent of sales for small entities are at least 10% higher than compliance costs as a percent of sales for large entities; (d) capital cost of compliance represent a significant portion of capital available to small entities, considering internal cash flow and external financing capabilities; or, (e) as a rule of thumb, 2% of small business entities being forced to cease business operations. The proposed rule would result in no additional compliance costs, and therefore items (b), (c), and (d) are not at issue. Item (e) is not relevant as this action would not force any business to cease operations. Only (a) appears potentially relevant to this issue.

Section 8 presents the potential impacts which are used in making determinations under the RFA. Some small businesses could experience slightly reduced income because the amount available for harvest is reduced by the compensation fish; however, the amounts of fish likely to be diverted for compensation are so small as to be within the range of accuracy expected for inseason monitoring of harvest guidelines and quotas. In other words, the amounts are small enough that they most likely will not change the size of trip limits or their date of achievement. Only vessels that routinely achieve the DTS limits would be impacted negatively by the compensation allocation for the 1998 slope survey, and only if trip limits were lowered, or lowered earlier, as a result of the small compensation allocation for research vessels.

In the following analysis, the \$135,000 value of the 1998 compensation fish is divided in approximate proportion to the catch for the limited entry and open access fisheries: \$121,000-128,000 (90% to 95%) for the limited entry vessels and \$7,000 to \$14,000 (five percent to ten percent) for the open access vessels. Only limited entry vessels are used in this analysis because it is unlikely that trip limits for open access vessels will be reduced as a result of the small compensation allocation valued at \$7,000 to \$14,000, and averaging \$4 to \$10 per open access vessel.

NMFS estimates that approximately 208 limited entry vessels achieved at least one DTS species trip limit between July 1996 through June 1997. Thus, nine percent (208 DTS vessels/2260 groundfish vessels that are small businesses) of the affected small entities could hypothetically experience some economic loss as a result of this rule if all compensation fish were of these species. If the entire \$128,000 cost of the compensation fish for the limited entry fleet were "lost" by the 208 vessels described above, then the average cost to each of these 208 vessels would be \$615. (If the entire \$135,000 cost is divided among these 208 vessels, the average cost would be \$650.) The average annual fishing revenue for limited entry vessels in 1996 was \$204,000. Thus, the average cost per vessel of spreading the \$128,000 cost among 208 vessels would be 0.3% (\$615 divided by \$204,000). NMFS notes that the smallest 12-month revenue for any of these 208 vessels was \$15,000, five percent of which is \$750, which is higher than the \$615 to \$650 average cost of the compensation fish for these 208 vessels. As the vessel revenue increases, which it does for the remaining 207 vessels, the relative impact of the cost of compensation fish becomes smaller, and remains less than five percent.

From a slightly different perspective, if the \$128,000 cost to the limited entry fleet associated with using fish as compensation were distributed among the limited entry vessels in proportion to the number of periods

in which they attained a limit for any species in the DTS complex (during July 1996 through June 1997), then the largest reduction in annual revenue for any vessel would be 0.5%.

The Council does not anticipate reducing trip limits in the open access fishery as a result of the scientific research regulations associated with this amendment. With respect to the economic impact of 1998 research compensation on the open access sector, the \$7,000 expected total value of compensation fish is so small relative to the number of open access participants (1,792 vessels) that any effects on individual revenue would be undetectable.

If impacts are examined with respect to the average cost to the entire fleet of 2,260 small businesses that harvested groundfish in 1996 (not only those vessels reaching the cumulative limits for Dover sole, thornyheads, and sablefish), the impact is even smaller. In the limited entry fleet, an average \$275 annual cost (Table 13.1) would represent more than five percent of the total fishing revenue for seven permits in 1996, about one percent of the active permits that year. (Even if the cost were doubled, e.g. the entire slope survey were funded with compensation fish, no more than two percent of the active limited entry vessels would be affected by more than five percent.) In the open access fleet, the number of vessels whose total revenue would be diminished by more than five percent as a result of a \$10 annual loss (Table 13.1) would be less than eight percent of the fleet. These vessels clearly are not those successfully achieving the majority of the available trip limits. As with the limited entry fleet, the actual loss associated with these low-production vessels is likely to be smaller than the average loss across all participants, which would suggest this is the upper end of potential impacts. Landings by these vessels are so low that it is clear current trip limits are not being achieved, and a reduction in trip limits due to using fish as compensation is not likely to affect them.

TABLE 13.1. Average impact on small businesses of compensating survey vessels half with fish.

Vessels (Excluding Catcher/Processors)	Average Vessel Revenue, All Species, in 1996	Value of Compensation Fish	Number Small Businesses that Landed Groundfish in 1996	Average Cost per Vessel of the Rule (\$)	Approx. Number of Vessels with a Potential Impact Greater than 5% of Total Revenue	Percent of Vessels with an Impact Greater than 5% of Total Revenue
Limited entry	\$203,982	\$121,000-128,000	468	\$258 -275	1 (using \$275)	0.2%
Open access	\$35,410	\$7,000-14,000	1,792	\$4 - 10	140 (using \$10)	8%
Total small businesses	\$70,318	\$135,000	2260	\$60	141	6%

Any negative impact is mitigated by other small businesses receiving the benefit of the "lost" revenue by being compensated with fish for conducting scientific research. The compensation fish are sold through normal channels. Most likely, the vessels receiving compensation fish would experience a potentially significant benefit, which is paid for (with fish) by the entire industry.

Conclusion. From the foregoing discussion, it is determined that the proposed compensation process, and any likely compensation allocation developed under this process, would not result in a reduction in annual gross revenues by more than five percent for 20% or more of the small businesses affected by this action. Therefore, this amendment and its proposed implementing rule are determined not to have a significant economic impact on a substantial number of small entities.

13.1.5 Paperwork Reduction Act (PRA)

This amendment does not require additional reporting requirements. The proposed rule contains a collection-of-information requirement subject to the PRA, which already has been approved by the Office of Management and Budget (OMB # 0648-0203).

13.1.6 Coastal Zone Management Act (CZMA)

Any of the alternatives considered would be implemented in a manner that is consistent to the maximum extent practicable with applicable State coastal zone management programs. NMFS has corresponded with the responsible State agencies under Section 307 of the CZMA to obtain their concurrence in this finding.

13.1.7 Executive Order 12612 (EO 12612)

This rule does not contain policies with federalism implications sufficient to warrant preparation of a federalism assessment under EO 12612.

13.2 Coordination and Consultation

Using fish as compensation, and subtracting compensation fish from the next year's ABC were discussed and endorsed by the Council at it's the November 1997 meeting in Portland, Oregon.

Finding of no Significant Impact

For the reasons discussed in this document, neither implementation of the proposed actions nor the status quo would significantly affect the quality of the human environment, and the preparation of an environmental impact statement on the final action is not required by Section 102 (2)(C) of NEPA or its implementing regulations.

Assistant Administrator for Fisheries

Date

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