

# CHAPTER 1 INTRODUCTION

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## 1.1 How This Document is Organized

This document provides information and an evaluation of a proposed action and alternatives for managing the Pacific Coast groundfish trawl fishery. This fishery is managed under the *Pacific Coast Groundfish Fishery Management Plan* (groundfish FMP), developed by the Pacific Fishery Management Council (Council). This action is intended, among other things, to increase economic efficiency within the fishery (termed “rationalization”) and reduce bycatch (fish that are not kept or sold and are discarded, usually at sea). The proposed action also must be consistent of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) the principal legal basis for fishery management within the Exclusive Economic Zone (EEZ), which extends from the outer boundary of the territorial sea to a distance of 200 nautical miles from shore, and in particular the 10 National Standards for fishery conservation and management enumerated in §301 of the Act (see Chapter 6 in this document). Alternatives considered in this environmental impact statement (EIS) propose different mechanisms to achieve these objectives. Implementing the action will involve both changes to the management framework in the FMP and promulgation of implementing regulations. National Marine Fisheries Service (NMFS) reviews management proposals developed by the Council. If a proposal is approved, the FMP is amended to reflect the changes and NMFS implements any necessary regulations.

In addition to addressing MSA mandates, this document is a final environmental impact statement (FEIS), pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended. According to NEPA (Section 102(2)(C)), any “major Federal action significantly affecting the quality of the human environment” must be evaluated in an EIS. Based on a preliminary determination by Council and NMFS staff, implementing the proposed action referenced above could possibly have significant impacts. Therefore, rather than preparing an environmental assessment (EA), which provides “sufficient evidence and analysis for determining whether to prepare an environmental impact statement,” NMFS and the Council have decided to proceed directly to preparation of an EIS. This document is organized so that it contains the analyses required under NEPA, MSA, the Regulatory Flexibility Act (RFA), and Executive Order (EO) 12866. For brevity, this document is referred to as an EIS, although it contains required elements of an Initial Regulatory Flexibility Analysis (IRFA) pursuant to the RFA and a Regulatory Impact Review (RIR) pursuant to EO 12866.

Federal regulations (40 Code of Federal Regulations [CFR] 1502.9) require agencies to prepare and circulate a draft EIS (DEIS), which “must fulfill and satisfy to the fullest extent possible the requirements established for final statements in Section 102(2)(C) of the Act” (i.e., NEPA). Federal regulations (40 CFR 1506.10(c)) and agency guidelines (National Oceanic and Atmospheric Administration [NOAA] Administrative Order 216-6,

Section 5.01.b.1(i)) stipulate a minimum 45-day public comment period on the DEIS.<sup>1</sup> At the end of this period, a FEIS is prepared, responding to comments and revising the document accordingly. After the EIS is completed, a 30-day waiting period ensues before the responsible official may sign a record of decision (ROD) and implement the proposed action.

Environmental impact analyses have four essential components: a description of the purpose and need for the proposed action; a range of alternatives, including the proposed action, that represent different ways of accomplishing the purpose and need; a description of the human environment affected by the proposed action; and an evaluation of the predicted direct, indirect, and cumulative impacts of the proposed action and the alternatives.<sup>2</sup> The human environment is interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment (40 CFR 1508.14). These elements allow the decision maker to look at different approaches to accomplish a stated goal and to understand the likely consequences of each choice or alternative. In this EIS, Chapters 1 and 2 cover the purpose and need for the proposed action and describe the alternatives. Chapter 3 describes the components of the biological, physical, and human environments potentially affected by the proposed action. Chapter 4 evaluates the direct, indirect and cumulative effects of the proposed action and alternatives on the resources and stakeholder groups of concern. Chapter 4 is organized around environmental components whereby sections examine and describe the direct, indirect, and cumulative effects of each alternative on a particular resource or stakeholder group. The alternatives include the no action (status quo) alternative and the preferred alternative. These chapters describe both the status quo environment potentially affected by the proposed action and the predicted impacts of each of the alternatives. Subsequent chapters (and appendices) cover the following topics:

- Chapter 5 contains a review of other issues typically found in NEPA documents including short-term uses versus long-term productivity, irreversible resource commitments, and energy requirements and conservation potential of the alternatives.
- Chapter 6 examines the consistency of the proposed action with the trawl rationalization program goals, objectives, constraints, and guiding principles (listed in Section 1.2.3); the Groundfish FMP goals and objectives; and the national standards and other provisions of the MSA.
- Chapter 7 examines consistency with other Federal laws and EOs.
- Chapter 8 lists the individual preparers of this document.
- Chapter 9 presents a glossary of technical terms and a list of acronyms used in this document.
- Chapter 10 summarizes public comments submitted on the DEIS and responses to them.<sup>3</sup>
- Chapter 11 provides a list of the literature cited in this document.
- Appendix A contains a detailed analysis of the components, elements, and options that are part of the individual fishing quota (IFQ) alternative, one of the action alternatives described in Chapter 2.
- Appendix B contains a detailed analysis of the components, elements, and options that are part of the co-op alternative, one of the action alternatives described in Chapter 2.

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<sup>1</sup> This required public comment period occurs after the Council has taken final action, as part of NMFS's review process. Preliminary drafts of the document were also made available for public review as part of the Council process: a partial draft document in advance of the June 2008 Council meeting and a substantially complete draft in advance of the November 2008 Council meeting.

<sup>2</sup> Federal regulations at 40 CFR 1502 detail the requirements for an EIS. Although there are several additional components, this list is of the core elements.

<sup>3</sup> The original comment letters may be viewed on the Council's website.

- Appendix C contains descriptions of the models used in the impact analysis.
- Appendix D is the detailed description of the Council’s preferred alternative, which was adopted in November 2008 with additional program details finalized in June 2009.
- Appendix E contains supplemental analysis of impact of QS allocation on long-term distribution.
- Appendix F is an analysis of a fixed term, auction-based proposal for IFQ.
- Appendix G contains proposed amendments to the Groundfish FMP to implement the proposed action.
- Appendix H contains supplemental information and analysis required by the Regulatory Flexibility Act, which requires consideration of the impact of regulations on small businesses, and EO 12866, which requires and evaluation of the benefits and costs of regulatory proposals. Draft preliminary analyses were included with this FEIS to encourage early public comments on the expected economic effects of the alternatives proposed. As part of rulemaking, NMFS is preparing more comprehensive analyses. Appendix H contains analyses in support of the proposed rule published on May 27, 2010. Additional analyses will be prepared for subsequent rulemakings necessary to implement the trawl rationalization program.
- Appendix I lists the agencies, organizations, and persons to whom copies of this statement were sent.

## **1.2 Proposed Action and Purpose and Need**

### **1.2.1 The Proposed Action**

The proposed action is to create a management regime under which the owners of Pacific Coast groundfish fishery limited entry (LE) permits with trawl endorsements are more individually accountable for catch of target and nontarget species harvested by the vessels to which that their permits are registered. As originally framed, this action focused on the more general concept of dedicated access privileges (DAPs), now more commonly referred to as LAPs (described in Section 1.3). However, as the Council developed the range of alternatives, other methods to achieve the goals and objectives listed above were considered. The current range of alternatives includes establishing a framework for mandatory fishing vessel cooperatives (co-ops), which would not operate as an IFQ system. Because of these changes, beginning in 2006, the developing program has been referred to with the more general term “trawl rationalization” to capture the social and economic objectives that are expected to also have substantial conservation benefits, for example by reducing bycatch.<sup>4</sup>

### **1.2.2 Need for Action (Problems for Resolution)**

Despite a program completed in 2003 to reduce fishing capacity through the buy back of groundfish LE permits and associated vessels, management of the west coast LE groundfish trawl fishery is still marked by biological, social, and economic concerns, similar to those cited in the U.S. Commission on Ocean

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<sup>4</sup> Rationalization has a general connotation in economics and sociology as the practical application of knowledge to achieve a desired end. It is intended to increase efficiency or flexibility through the standardization of practices and workflow. In the context of the proposed action, the term is meant to encompass a variety of measures intended to improve the management of groundfish resources, in part by increasing the economic efficiency of the fishery. Economic efficiency, in turn, is defined in various ways, but generally refers to a condition where no one can be made better off without making someone else worse off, outputs are maximized for a given level of inputs, and production is at its lowest cost.

Policy's 2004 report (2004). Many participants and observers view the trawl fishery as economically unsustainable under the current management regime.

One major source of concern stems from the management of bycatch, particularly of overfished species.<sup>5</sup> Over the past several years, the Council's groundfish management efforts have focused on drafting rebuilding plans for overfished species, minimizing bycatch, and specific management of overfished species. The trawl rationalization program is expected to provide individual fishery participants more flexibility and more individual accountability for their impact on overfished species, other groundfish species, and possibly Pacific halibut.

Through the groundfish Strategic Plan and Amendment 18 to the Groundfish FMP, the Council has indicated its support for the use of IFQ programs to manage commercial groundfish fisheries.<sup>6</sup> These programs will give individual fishery participants more flexibility and more individual accountability for the impact of overfished species catch on the groundfish fishery as a whole.

As highlighted in the following problem statement that the Council sent out for public review in a June 2004 scoping document, problems with capacity, economic inefficiency, and bycatch management are interconnected with problems related to the ability to achieve optimum yield (OY),<sup>7</sup> the need for a precautionary management approach, the need for a flexible system that allows for variations and contingencies, long-term and short-term concerns for communities, and safety.

As a result of the legal requirement to minimize bycatch of overfished species, considerable harvest opportunity is being forgone in an economically stressed fishery. The west coast groundfish trawl fishery is a multi-species fishery in which fishermen exert varying and limited control of the mix of species in their catch. The OYs for many overfished species have been set at low levels, placing a major constraint on the industry's ability to fully harvest the available OYs of the more abundant target species that co-occur with the overfished species, wasting economic opportunity. Average discard rates for the fleet are applied to project bycatch of overfished species. These discard rates determine the degree to which managers must constrain the harvest of target species that co-occur with overfished species. These discard rates are developed over a long period of time and do not rapidly respond to changes in fishing behavior by individual vessels or for the fleet as a whole. Under this system, there is little direct incentive for individual vessels to do everything possible to avoid take of species for which there are conservation concerns, such as overfished species. In an economically stressed environment, uncertainties about average bycatch rates become highly controversial. As a consequence, members of fishing fleets tend to place pressure on managers to be less conservative in their estimates of bycatch. Given all of these factors, in the current system there are uncertainties about the accuracy of bycatch estimation, few incentives for the individual to reduce personal bycatch rates, and an associated loss of economic opportunity related to the harvest of target species.

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<sup>5</sup> Bycatch is defined in the MSA as "fish which are harvested in a fishery, but which are not sold or kept for personal use, and includes economic discards and regulatory discards."

<sup>6</sup> Section 6.3.3 of the FMP, as amended, authorizes the Council to establish IFQ programs for any groundfish commercial fishery sector for the purposes of reducing fishing capacity, minimizing bycatch, and to meet other goals of the FMP. This part of the FMP will be amended to reflect implementation of the trawl rationalization program.

<sup>7</sup> The MSA defines optimum yield as "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; [and] ... is prescribed as such on the bases of the MSY from the fishery, as reduced by any relevant economic, social, or ecological factor;..."

The current management regime is not responsive to the wide variety of fishing business strategies and operational concerns. For example, historically the Pacific Council has tried to maintain a year-round groundfish fishery. Such a pattern works well for some business strategies in the industry, but there has been substantial comment from fishermen who would prefer to be able to pursue a more seasonal groundfish fishing strategy. The current management system does not have the flexibility to accommodate these disparate interests. Nor does it have the sophistication, information, and ability to make timely responses necessary to react to changes in market, weather, and harvest conditions that occur during the fishing year. The ability to react to changing conditions is a key factor in conducting an efficient fishery in a manner that is safe for the participants.

Fishery stock depletion and economic deterioration of the fishery are concerns for fishing communities. Communities have a vital interest in the short-term and long-term economic viability of the industry, the income and employment opportunities it provides, and the safety of participants in the fishery.

In summary, management of the fishery is challenged with the competing goals of minimizing bycatch, taking advantage of the available allowable harvests of more abundant stocks, increasing management efficiency, and responding to community interest. “Taking advantage of the available allowable harvests” includes conducting safe and efficient harvest activities in a manner that optimizes net benefits over both the short and long term.

### **1.2.3 Purpose of the Proposed Action**

In 2003, the Council established a Trawl Individual Quota Committee (TIQC), which was charged with assisting the Council in identifying the elements of a trawl individual quota program and scoping alternatives and potential impacts of those alternatives in support of the requirements of the MSA and NEPA. At its first meeting in October 2003, the TIQC drafted a set of goals and objectives, which another Council-established committee, the Independent Experts Panel (IEP), subsequently recommended modifying. The Council adopted this list in June 2005, but at their March 2007 meeting, the Council adopted a further revision of the goals and objectives. The participation of the TIQC, the IEP, and other entities in the scoping process is described below in Section 1.6. To pursue the goal thus developed and shown below, the Council considered alternatives that would rationalize the west coast trawl fishery and provide incentives to reduce bycatch, either through an IFQ program for all groundfish LE trawl sectors and/or through cooperatives for the fishery sectors targeting Pacific whiting. Under either alternative, allocations would be made to eligible fishery participants as a privilege to harvest a portion of fish, and not as a property right. Though structurally different, the Council’s intention is that both the IFQ and co-op alternatives fulfill the goal of the program.

The following goal objectives outline the purpose of the proposed action:

#### Goal

*Create and implement a capacity rationalization plan that increases net economic benefits, creates individual economic stability, provides for full utilization of the trawl sector allocation, considers environmental impacts, and achieves individual accountability of catch and bycatch.*

## Objectives

The above goal is supported by the following objectives:

1. Provide a mechanism for total catch accounting.
2. Provide for a viable, profitable, and efficient groundfish fishery.
3. Promote practices that reduce bycatch and discard mortality and minimize ecological impacts.
4. Increase operational flexibility.
5. Minimize adverse effects from an IFQ program on fishing communities and other fisheries to the extent practical.
6. Promote measurable economic and employment benefits through the seafood catching, processing, distribution elements, and support sectors of the industry.
7. Provide quality product for the consumer.
8. Increase safety in the fishery.

## Constraints and Guiding Principles

The above goals and objectives should be achieved while the following occurs:

1. Take into account the biological structure of the stocks including, but not limited to, populations and genetics.
2. Take into account the need to ensure that the total OYs and allowable biological catch (ABC) are not exceeded.
3. Minimize negative impacts resulting from localized concentrations of fishing effort.
4. Account for total groundfish mortality.
5. Avoid provisions where the primary intent is a change in marketing power balance between harvesting and processing sectors.
6. Avoid excessive quota concentration.
7. Provide efficient and effective monitoring and enforcement.
8. Design a responsive mechanism for program review, evaluation, and modification.
9. Take into account the management and administrative costs of implementing and oversee the IFQ or co-op program and complementary catch monitoring programs, as well as the limited state and Federal resources available.

## **1.3 Background on Limited Access Privileges**

### **1.3.1 *The Theory behind Tradable Permits***

Tradable permit arrangements have found wide application in dealing with common pool resources. Unlike private property, rights of access to and use of common pool resources are not unitary—controlled by a single person or entity. They are a kind of public good with particular characteristics; aside from the lack of unitary authority to control access and use they are subtractable—that is, the use of the resource by one person affects the ability of others to use it. Examples of common pool resources include the atmosphere (as a place to dispose of airborne pollutants traded off against its life-sustaining properties), water resources (again, both as a sink for pollutants and a resource for human use) and—relevant to the case at hand—fish. Common pool resources may be “open access” with no institutional arrangements to constrain access or use, government owned, or “common property” defined as a system under which access is limited and some type of institution facilitates decision making about resource use by the group that has exclusive access (Ostrom 1990).

U.S. fisheries traditionally have been managed under government trusteeship. Under the trust doctrine, the government sets rules about resource use for the benefit of its citizens who are the “owners” of the resource. Access may be unlimited (or practically so, if only limited to any citizen or resident), and government may establish rules over use in an effort to prevent over-exploitation. A variety of rules may be established to limit fishing activity, or effort—and, thus, indirectly, catch, such as time and area closures and limits on gear effectiveness. Alternatively, catch can be limited directly through quotas, bag limits, landing limits (trip limits), and the like.

Limiting catch directly or indirectly may address stock conservation concerns if catches can be constrained to or below maximum sustainable yield (MSY); even so, economic efficiency objectives are unlikely to be met. Furthermore, effectively matching catch with MSY can be very expensive in terms of government monitoring and enforcement costs. If participation cannot be limited, according to early fisheries economics theory (Gordon 1954; Shaefer 1957), people will enter the fishery until an equilibrium is reached where costs (including the opportunity cost of capital and labor<sup>8</sup>) match revenue. Even in a fishery with a few vessels, this phenomenon is expected: new vessels will continue to enter the fishery, even though average cost for each vessel increases, to the point where revenues no longer exceed costs. In an unconstrained fishery, and depending on costs, this usually occurs at a level of catch above MSY. Maximum economic yield, according to this model, occurs below MSY when revenue is highest in relation to costs. Fishery participants probably would like to maximize profit (the difference between costs and revenue), but they cannot do so if there is no means to exclude entry. Thus, while the individual may be satisfied with wages received, there is a cost in terms of lost profits for the fishery as whole.

Even if participation can be limited, profits may be dissipated as costs escalate, because of over-investment in vessels and equipment to beat out other fishermen in catching the available fish. This type of competition should not be confused with market competition, which serves to lower prices. In an unconstrained fishery, fewer fish will be caught at higher costs, resulting in higher prices in the raw fish market. Even in a constrained fishery, over-capitalization results in higher costs than would otherwise be necessary, potentially increasing prices.

Tradable permits ration access to a resource—the permit represents an exclusive right to use some increment of the resource (a ton of sulfur dioxide emitted into the air or a pound of fish brought aboard, for example) (Tietenberg 2002). In such a scheme, the first step is to set a limit on total resource use, TAC, which in the west coast groundfish context is the OY.<sup>9</sup> This aggregate amount can then be subdivided and allocated in some fashion. In an IFQ scheme, this allocation typically represents a percentage share of the TAC, which can vary over time (OYs, for example, are set every two years based on an assessment of stock status and can go up or down). This share can then be converted into a quantity (pounds of fish) when applied against the externally determined TAC limit (or OY/ACL).

Tradability is an important feature in terms of economic efficiency and bycatch reduction objectives. It requires each fisherman to match the amount of fish caught to the permit amount. In a competitive market, shares will tend to accrue to the highest valued use. Individuals with higher operational costs, for example, may be better off selling their shares to a person who can use them at lower overall cost (operational cost plus the cost of share purchase). The seller benefits more from selling the shares than

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<sup>8</sup> In this context, opportunity cost represents the individual’s assessment that no other activity that he or she can pursue will pay a comparable wage. Opportunity cost can include nonmonetary benefits. For example, someone may choose to continue fishing at a lower wage because the work is more enjoyable than other kinds of work that might pay better.

<sup>9</sup> Under new rules in the MSA, the method for determining these harvest limits may change, and OYs may be referred to as annual catch limits (ACLs) by the time the trawl rationalization program is implemented.

from using them and the buyer can still earn profit after absorbing the purchase cost.<sup>10</sup> In this construct, the shares have been put to the most efficient use, because both the buyer and seller are better off. However, some social costs may be external to the tradable quota system. For example, consolidation of shares in fewer hands, resulting in a smaller fishing fleet, can affect fishing-dependent communities where the lost vessels were important income generators, contributed to community identity, supported infrastructure used by other fleets, or provided other benefits. For a tradable permit system to be effective, several preconditions must be met (Tietenberg 2002). A competitive market may be distorted if any one participant exercises too much market power. Transactions costs—the costs involved in exchanging permits (above the actual sales price) and in obtaining information about prices—cannot be too high. The system as a whole relies on effective monitoring and enforcement; “free riding” or “quota busting” occurs if a participant catches fish without possessing the corresponding QPs. When free riding occurs, resource conservation objectives are not met (affecting resource value, reflected in share prices) and, over time, confidence in the system may break down.

The initial allocation of Qs is often controversial. According to economic theory, the value of the resource will be maximized no matter how the shares are initially allocated (Montgomery 1972), whether freely distributed (based on past participation or by lottery) or auctioned off. The implication, according to Tietenberg (2002) is that “the resource manager can use initial allocation to solve other goals (such as political feasibility or ethical concerns) without sacrificing cost-effectiveness.”

By itself, an IFQ program may have few direct conservation benefits, but substantial indirect benefits. This may be illustrated by reference to some of the features of the preferred alternative. First, under the preferred alternative each harvester would be accountable for his or her total catch rather than just landings. Second, the fishery would be subject to 100 percent observer coverage, allowing accurate accounting of bycatch in addition to landings. The program may also increase efficiency and profits enough for industry to be able to bear these monitoring costs. These features are expected to reduce or eliminate regulatory bycatch substantially (discarding of fish because regulations discouraging targeting requires one to do so), which has been a big problem in the groundfish fishery as currently managed, resulting in lost value due to throwing away otherwise marketable fish. If not adequately accounted for, this bycatch contributes to excess mortality and misspecification of future OYs. In addition, IFQs can motivate fishermen to avoid stocks with low harvest limits (such as overfished species) because scarcity value drives up share prices for these stocks. At the same time, direct conservation benefits are probably limited. For example, OY (MSY as reduced by other biological and social factors) is set externally. If it is misspecified, the IFQs do nothing to correct the problem. Certain external costs—habitat impacts, for example—may be addressed through the use of IFQ allocations to provide incentive for use of low impact gears (as an example, see the adaptive management provisions described in Chapter 2). It could also be argued that an IFQ program, because of share value to yield, would stimulate a conservation ethic among fishermen, prompting them to minimize such external effects. For this to work, fishermen would have to see a clear correlation between their behavior and the effect on yield and be confident that all, or most, of the other fishermen behave in the same fashion. This potential benefit is discussed in the analysis.

An IFQ program may also reduce some government costs—there may be less need to constantly adjust regulations constraining the pace of fishing, for example—while increasing other administrative and monitoring costs (e.g., tracking the exchange of quota, observing total catch, requiring onboard observers).

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<sup>10</sup> Because of the distinction between QS and QP that represents a realized amount, a variety of other arrangements can be used, such as leasing or selling QP (while retaining the asset value of the QS). But the general principal still applies.

### 1.3.2 Cooperatives

Cooperatives differ from IFQs in that catch privileges are held jointly by members of the co-op. They can be classed as a kind of common property regime where government plays an instrumental role. Instead of QSs held by individuals, each co-op member receives an allocation that can only be accessed exclusively when it is pooled within the co-op. How fishing occurs within the cooperative (how much of the co-op's pooled allocation any one member may catch) is a matter of joint decisionmaking by co-op members (through side deals, contracts, and the like). In effect, tradability can occur within a co-op; such arrangements are usually not brokered by government.

In theory, cooperatives are less economically efficient than IFQs because the barriers imposed on tradability prevent the assignment of catch privileges to the highest valued use. On the other hand, cooperatives may facilitate fishermen' ability to pool both opportunity and risk. This is an important benefit in West coast groundfish fisheries where low OYs/ACLs for some overfished species are likely to impose constraints on target species fishing opportunity. Government-facilitated cooperatives are probably more attractive in the Pacific whiting fishery, because the catch composition and operational characteristics of the participants are more uniform in comparison to the nonwhiting trawl fishery sector.

In addition, rather than cumulative trip limits, the whiting fishery operates under a primary season structure where each whiting fishery sector (shore-based, mothership, and catcher-processor) receives an allocation, which when reached closes that fishery. In comparison to the trip limit regime more economic efficiency may be lost in a race for fish.<sup>11</sup> This means that cooperatives offer efficiency gains from status quo in comparison to—other things being equal—adoption of cooperatives in the nonwhiting trawl fishery.

### 1.3.3 Dedicated Access Privileges and Concerns about Conferring a Property Right

The U.S. Commission on Ocean Policy (2004) popularized the term “dedicated access privilege” without defining it except by example.<sup>12</sup> The term is meant, first, to underscore the diversity of arrangements that can be established to regulate access to fishery resources including IFQs, cooperatives, or community control. As important, the Commission emphasized that these arrangements do not confer any real interest in property, as represented by ownership of a QS, for example:

U.S. fishermen do not now and will never have inalienable rights to fish because the fisheries resources of the United States belong to all people of the United States. Under current law, fishermen are granted a privilege to fish, subject to certain conditions. Because this privilege can be taken away, it is not a right. (p. 289)

<sup>11</sup> This was partially addressed by Amendment 15 to the groundfish FMP, implemented in 2009 to reduce the incentives that result in a race for fish in the whiting sectors. Amendment 15 was intended to be an interim measure until the implementation of a trawl individual quota or co-op management program.

<sup>12</sup> A dedicated access privilege (DAP) fishery management program provides an individual fisherman, cooperative, or community with the exclusive privilege of harvesting a quantity of fish. In a DAP program, each recipient of a fishing privilege can use its share of the harvest quota at any time during the fishing season. The MSA currently authorizes only two forms of DAPs—individual fishing quota programs, and community quotas (specifically authorized in two geographic areas). Current DAP programs have resulted in increases in per-unit product value and decreases in total harvesting cost. They have also provided fishermen with greater control over when to fish, thus improving safety. This flexibility also allows them to improve profitability by harvesting fish when prices are most favorable. For more information, see [http://www.nmfs.noaa.gov/docs/msa2005/daps\\_fs.pdf](http://www.nmfs.noaa.gov/docs/msa2005/daps_fs.pdf).

Section 303A of the reauthorized MSA, entitled “Limited Access Privilege Programs,” elaborates on this point by stating that such programs do not create a right, title, or interest in allocated fishing opportunity (e.g., QSs). Any such privilege may be revoked without compensation at any time.

## 1.4 Biological Context of West Coast Groundfish

The species covered by the Groundfish FMP include more than 90 species that live on or near the bottom of the eastern Pacific Ocean within 200 miles of the U.S. west coast. These include the following species groups:

- **Rockfish.** The FMP covers at least<sup>13</sup> 64 different species of rockfish, including widow, yellowtail, canary, shortbelly, chilipepper, yelloweye, darkblotched, and vermilion rockfish; bocaccio; cowcod; thornyhead; and Pacific ocean perch.
- **Flatfish.** The FMP covers 12 species of flatfish, including various soles, starry flounder, turbot, and sanddab.
- **Roundfish.** The six species of roundfish included in the FMP are lingcod, cabezon, kelp greenling, Pacific cod, Pacific whiting (hake), and sablefish.
- **Sharks and skates.** The six species of sharks and skates in the FMP are leopard shark, soupfin shark, spiny dogfish, big skate, California skate, and longnose skate.
- **Other species.** These include ratfish, finescale codling, and Pacific rattail grenadier.

The list of current trawl target species includes flatfish, roundfish, thornyheads, and a few species of rockfish. Primary flatfish target species include petrale sole and Dover sole. Roundfish target species include Pacific whiting, Pacific cod, and sablefish. Some rockfish species, especially Pacific ocean perch and widow rockfish, were important trawl targets until the mid 1990s. Rockfish include four genera under the family Scorpaenidae. One genus, *Scorpaena*, forms only a small fishery off southern California. The thornyheads, genus *Sebastolobus*, are occasionally referred to as rockfish; however they are biologically quite different. The genus most commonly referred to as rockfish, *Sebastes*, is a very diverse group. Figure 1-1 shows the distribution of members of the genus *Sebastes* and other groundfish species by latitude and depth association.

<sup>13</sup> Because the management unit includes all species in the family Scorpaenidae, and their systematics are still being resolved, there is a potential for new species to be added to the management unit.



**Figure 1-1.** Latitude and depth association of selected groundfish species.

West coast flatfish and roundfish stocks are relatively abundant, short-lived, and productive. Large initial catches of rockfish gave the impression that these stocks were also highly productive. However, increased scientific knowledge of the natural history and stock status of several rockfish species made it clear that most members of the genus *Sebastes* are not able to withstand the level of removals that occurred until the mid 1990s. There are several reasons for this:

1. Most rockfish are viviparous. Fertilization is internal, and the female retains the eggs until they hatch, giving birth to live young. This limits the number of eggs that are produced annually.
2. Rockfish have extreme longevity. Specimens of several rockfish species have been estimated at over 60 years of age, and some over 100 years.
3. Rockfish have long generation times. Many rockfish species require 10 or more years to reach sexual maturity.
4. Rockfish have low natural mortality. Rockfish are adapted to relatively slow natural population turnover, unlike species such as Pacific whiting, sablefish, and most flatfish.
5. Fecundity increases with age. Evidence shows that older female rockfish produce more young than younger ones.

6. Rockfish have infrequent recruitment success. Ocean conditions or other factors seem to create large variability in recruitment success.
7. Specific habitat requirements vary with life stage. Eggs, larvae, juvenile, and adult forms of many rockfish use different types of habitat over their lifecycle.
8. Rockfish have relatively low mobility of adults. Many rockfish tend to inhabit a particular site for much of their adult life, making them particularly susceptible to capture.

The traits of long life, slow growth, viviparity, and increasing fecundity with age may have evolved to deal with environmental variability. The ability of rockfish to live a long time and produce more young with age increases the odds that they will be able to “wait out” poor environmental conditions and produce enough young that a few offspring will likely survive. However, these characteristics also lead to a relatively low productivity for a given biomass and mean that most rockfish are unable to support large, sustained removals. Low productivity, coupled with a tendency to associate with other target species, increases management difficulty. This is especially problematic when the associated species differ markedly in life history traits such as generation time, fecundity, and natural mortality rate.

## **1.5 Groundfish Fisheries Context**

The west coast groundfish fishery uses bottom trawl (large footrope, small foot rope, and selective flatfish), midwater trawl, trap, and hook-and-line gears, including recreational gear. The commercial fishery is prosecuted over a wide range of depths, from 20 fathoms (37 meters [m.]) for English sole and sanddabs to as deep as 700 fathoms (1,280 m.) for Dover sole, thornyheads, and sablefish. Fishing may occur on smooth mud/sand substrates, rocky reefs, pinnacles, and canyons. Recreational groundfish fisheries typically occur closer inshore than most commercial fisheries.

West coast groundfish range from semi-pelagic species like Pacific whiting, shortbelly rockfish, and widow rockfish to demersal species such as Dover sole, lingcod, and thornyheads. Most species primarily inhabit the continental shelf, but Dover sole, thornyheads, rex sole, petrale sole, and some others occur in greatest abundance on the continental slope. The close spatial relationship of certain species often results in large catches of a mix of species. This is particularly true in the case of bottom trawl catches. For example, vessels catching Dover sole also catch large amounts of other valuable species such as thornyheads, sablefish, and darkblotched rockfish. Several species of rockfish may be caught in a single trawl tow, and the species mix changes from north to south. Historically, widow rockfish, yellowtail rockfish, and canary rockfish were caught in the Vancouver and Columbia management areas, while bocaccio and chilipepper rockfish have been significant catch components in the Monterey and Conception areas (Figure 1-2). Currently, only a few rockfish species are trawl targets, including yellowtail rockfish in northern midwater fisheries and splitnose rockfish and associated species in the southern slope fishery.

To exercise some control over the mix of various species in their catches, fishermen can modify the depth and area of their fishing effort, as well as the manner in which gear is fished. However, it is often impossible to avoid catch of some nontarget species. The fishery’s multi-species nature is further complicated by seasonal changes in fish availability, weather, and market conditions (prices and poundage limits)—factors that may cause a trawler to fish on several species’ assemblages in a single fishing trip. Many gear types are used in the commercial groundfish fishery, including trawl nets, traps, and longlines. However, trawl nets (both bottom and midwater types) account for the major portion of the groundfish catch.

In the trawl fishery, some incidental catch of nontargeted groundfish is unavoidable, and for economic or regulatory reasons, some of the catch is discarded.

Figure 1-2. West Coast groundfish management areas and other key management lines.



## 1.6 Groundfish Management Context

The west coast groundfish trawl fishery is jointly managed by state and Federal authorities under the MSA, which was passed in 1976 to “Americanize” U.S. fisheries. In addition to establishing eight regional fishery management councils, the MSA extended U.S. fishery management authority in territorial waters from 12 miles out to 200 miles from the shore. This created the EEZ, which, including U.S. Federal territorial waters, extends from 3 to 200 miles off shore. For the west coast (California, Oregon, and Washington), the Council coordinates Federal management of fisheries in the Federal EEZ with state management of fisheries occurring in state waters (i.e., between the shoreline and 3 miles offshore).

The Secretary of Commerce approved the Groundfish FMP in 1982. The Groundfish FMP initially focused on species targeted by the midwater trawl fishery (widow rockfish and Pacific whiting). Over the following decade, several additional species were added to the list of actively managed species, with established OY catch amounts and, in some cases, allocations, harvest guidelines, or quotas. Under the MSA, catch by foreign fleets in the EEZ was eliminated by 1992. However, this decline was more than offset by expansion of the U.S. domestic fleet, which was encouraged by government subsidies.

In 1996, the Sustainable Fisheries Act amended and reauthorized the MSA. The MSA’s National Standard 1 requires that FMPs prevent overfishing while maintaining OY. OY is the harvest amount that will achieve MSY, as reduced by relevant economic, social, or ecological factors (MSA §3(33)). Under the Groundfish FMP, a stock is considered overfished if current stock biomass is less than 25 percent of the unfished biomass.

The Council manages the commercial fishery primarily with bimonthly cumulative trip limits set to prevent fishing mortality from exceeding OYs. During a two-month cumulative trip limit period under the cumulative trip limit system, each vessel may land fish up to weight limits established for each species, stock, stock complex, or other management unit for which an OY has been set. The two-month cumulative limits can change from one period to the next and may be adjusted in response to new information. The primary exceptions to the use of cumulative trip limits are the trawl whiting fishery, which is managed using quotas and season closures, and the fixed-gear sablefish fishery, which is managed using a restrictive individual quota program tied to the “stacking” of multiple permits and associated quota, on a single vessel (Section 3.8.1). Both the cumulative trip limits and the sablefish quotas are functionally limited access privilege programs (LAPPs) because individual vessels are provided an opportunity to catch specified amounts of fish. However, the cumulative limits only cover landings; the system does not provide individual accountability for bycatch, which can be a problem for constraining species, where the limit is set very low or retention is prohibited. In effect, bycatch is estimated (based on observer data) and limited indirectly through season and area closures, or gear restrictions. Fixed-gear sablefish quotas only apply to the one target species; incidental catch may be subject to cumulative limits and the same issue as described above applies to bycatch.

In multi-species fisheries such as this, it is practically impossible to optimize harvests—achieve MSY—for all stocks simultaneously. Optimally harvesting any one stock may result in either under-harvest or over-harvest of co-occurring stocks. While under-harvest is not a concern from a biological standpoint, it may have social and economic impacts in terms of forgone protein supply, revenues, and income.

Current under-harvest of target species is the indirect result of over-harvest, which led to the designation of seven groundfish species as overfished (bocaccio, canary rockfish, cowcod, darkblotched rockfish, Pacific ocean perch, widow rockfish and yelloweye rockfish). Bocaccio, lingcod, and Pacific ocean perch were declared overfished in 1999. Under the Groundfish FMP, when a species is declared overfished, mortality levels for that species must be reduced to allow the species to recover to a biomass capable of

supporting MSY. In response, the Council began implementing depth-based area closures in the summer of 2002. These measures were designed to exclude fishing effort from depth zones particularly inhabited by overfished species. In addition, to keep the groundfish fishery within the species-specific catch limits for overfished species (landings plus discard mortality), limits were imposed on the landings of healthy stocks to reduce the take of incidentally caught overfished species. The entire fishery is thus managed based on constraints imposed by a few species, even if those species are not targeted by any particular fishery. Constraints of this type led the Secretary of Commerce to declare the west coast groundfish fishery a Federal disaster in January 2000.

The current number of overfished species and their occurrence in different areas and habitats affect virtually all fisheries for healthy stocks. For this reason, overfished species are sometimes referred to as “constraining stocks.” Managing fisheries to prevent overfishing of these stocks requires forgoing substantial potential harvests.

The Council has been developing programs to reduce capacity in the groundfish fisheries since the mid-1980s, culminating with this proposal to consider IFQs and/or co-ops. Groundfish FMP Amendments 6, 8, 9, and 14 were drafted specifically to reduce capacity in groundfish fisheries. A vessel buyback program implemented in 2003 reduced the number of groundfish trawl vessels by one third. The adoption of rebuilding plans for overfished species (Amendment 16) led to the development of a vessel monitoring system (VMS), implemented in 2007, to ensure that proscribed fishing does not occur in closed areas—termed groundfish conservation areas (GCAs).

## 1.7 Council and Agency NEPA Scoping

Pursuant to NEPA, scoping is “an early and open process for determining the scope of issues to be addressed and for identifying significant issues related to a proposed action” (40 CFR 1501.7). The scoping process described in NEPA regulations emphasizes public involvement, prioritization of issues so that the impact analysis may focus on potentially significant impacts, and planning the impact analysis. The Council and the public process it conducts pursuant to the MSA provide an effective process for coordinating involvement of the public and interested state and Federal agencies in decisionmaking related to Federal fishery management. As such, the Council process serves as an effective scoping mechanism. All Council meetings and meetings of its various committees are open to the public, and this provides an opportunity for oral and written comment on issues brought before these bodies.

Development and refinement of the alternatives leading to the Council’s choice of a preferred alternative has taken more than five years, with numerous Council and committee meetings during the process. The Council initiated development of an IFQ program for groundfish trawl fisheries at its September 2003 meeting.<sup>14</sup> The Council Chair then appointed members to the Ad Hoc TIQC from a broad range of constituencies. The TIQC was an important part of the scoping process, making recommendations on the development of the trawl rationalization program. Several other ad hoc committees have been formed to support the process of considering individual quotas; an existing standing committee, the Groundfish Allocation Committee (GAC), has also become involved in developing and refining the alternatives and options considered by the Council. Table 1-1 lists these committees with a brief description of their functions. Rosters for standing and ad hoc committees may be accessed on the Council’s website at <http://www.pcouncil.org/operations/rosters.html>. Table 1-2 lists the meetings that have been held by the committees as well as Council meetings at which trawl rationalization or intersector allocation (which, as described above, is a separate but closely related action) has been discussed, with a brief description of the topics covered in each meeting.

<sup>14</sup> IFQs were an alternative under the 1991 Amendment 6 groundfish license limitation program, and they have been raised in Council discussions about management alternatives before and since that time.

Two standing committees, the Groundfish Management Team (GMT) and the Groundfish Advisory Subpanel (GAP), play an ongoing role in all aspects of groundfish management. The GMT is composed of representatives from NMFS and state fishery management agencies, while the GAP draws its representation from groundfish fishery sectors, gear groups, and other stakeholders. These two committees meet at every Council meeting where groundfish issues are on the agenda, and the GMT also holds three or four additional week-long meetings every year. Although initially not directly involved in development of the trawl rationalization program, these two committees' roles grew by commenting and providing recommendations as program alternatives were developed. Because their activities are not confined to the trawl rationalization program and the frequency of their meetings, these two committees' activities are not listed in Table 1-2.

Examination of Table 1-2 shows that the process of program development (formulating and evaluating alternatives, culminating in Council action to choose a preferred alternative) has moved forward in several stages. In late 2003, once the Council had committed to program development, and through 2004, various committees began initial work on program development. Publication of a notice of intent (NOI) to prepare an EIS on May 24, 2004, (69 Federal Register [FR] 29482) initiated an extensive public scoping effort, including a deadline for submitting comments by August 2, 2004. Input on the range of alternatives and potential impacts of the proposed action were solicited during this scoping period. Comments received during this NEPA public scoping period are summarized in a separate document (PFMC 2004b). Although the notice established a public comment deadline, scoping has effectively continued through the Council process because, as noted above, all meetings of the Council and its committees are open to the public and opportunities for the broader public to comment are provided at each meeting.

A funding shortfall at the end of 2004 prevented much work being done until funding was secured in the summer of 2005. At that time a consulting firm (Northern Economics, Inc.) was hired to begin EIS development. This process was broken up into two stages. During the first stage a detailed outline and analytical framework were to be developed; subsequent production of the EIS is a second stage. The consultants organized a workshop in April 2006 to bring together the various Council committees and members of the public to seek further input on program development and the structure of the alternatives. The completed Stage 1 document (NEI 2006) was presented to the Council in September 2006 (this EIS document is considered the Stage 2 document). In the latter part of 2006, the TIQC and GAC developed recommendations for a major restructuring of the alternatives to simplify them, including dropping some elements (such as an alternative involving permit stacking) in order to narrow the scope of the action. It was during this period that the Council added the whiting sector cooperatives alternative.<sup>15</sup> Because of this broadening of the range of alternatives, what had been referred to as the trawl individual quota program was henceforth called the trawl rationalization program. These restructured alternatives were adopted by the Council in March 2007, further refined by the committees, and adopted in detailed form for analysis by the Council in November 2007. These are the alternatives evaluated in this EIS.<sup>16</sup>

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<sup>15</sup> The alternative principally deals with the at-sea and shorebased whiting fishery subsectors. The third whiting subsector, catcher-processors, operates under an independently formed co-op.

<sup>16</sup> In the process of developing the alternatives, the Council focused on many detailed aspects of the IFQ and co-op programs, working from an outline organization of program features, which is reflected in the structure of Appendices A (IFQ program components analysis), B (co-op program components analysis), and D (description of the Council preferred alternative). The alternatives adopted in 2007 were organized in this format. Generally, Council decisionmaking proceeded along the lines of considering no action, IFQs for all the trawl sectors, and a combination of IFQs for the nonwhiting trawl sector and co-ops for the whiting sectors, with variations in many specific program components. Preliminary drafts of the environmental analysis produced in 2008 presented "analytical scenarios" in Chapter 4 that allowed programmatic comparison of these various features, consistent with the general Council approach of considering IFQs and co-ops for different trawl

Council and NMFS staff used the Stage 1 document as the basis for developing the EIS, along with some modifications to the proposed structure of the document and analytical approach and incorporating the major modifications to the alternatives subsequently made.

The Council chose a preliminary preferred alternative for trawl sector rationalization in June 2008. Council decisionmaking on the trawl rationalization program culminated in November 2008 when it took final action by choosing a preferred alternative. However, several issues relating to the detailed specification of the preferred alternative still had to be resolved. These issues were addressed in the first half of 2009, with the Council taking final action on these program details at its March, April, and June 2009 meetings. A 45-day public comment period on the DEIS commenced on December 4, 2009, as required by the Council on Environmental Quality (CEQ) regulations. This FEIS responds to comments received (see Chapter 10).<sup>17</sup> The responsible official within NMFS (the Assistant Administrator) may sign a ROD no less than 30 days after publication of the FEIS, which clears the way for program implementation (recognizing that various other statutory requirements must be simultaneously met). Although this NEPA process is expected to be completed in 2010, the earliest projected date for program implementation—in terms of when fishing would begin under a rationalization program involving IFQs and/or cooperatives—is January 1, 2011. Program infrastructure (e.g., IFQ monitoring systems) is under development during 2010.

## 1.8 Relationship to Other NEPA Documents

The EIS is a stand-alone NEPA document that does not tier off any previous EISs. A NEPA environmental review was prepared for the Groundfish FMP, which was implemented in 1982. NEPA environmental reviews have been prepared for each of the subsequent amendments to the FMP. These documents are incorporated into the EIS as necessary to fully explain the No Action (status quo) Alternative and to analyze the cumulative effects of the alternatives on the human environment.

This EIS incorporates information from other EISs produced by NMFS and the Council by reference, where applicable. EISs prepared to evaluate harvest limits and management measures for the last two biennial management cycles (2005-06 and 2007-08) (PFMC 2004a; PFMC 2006) provide detailed discussion of the Federal, state, and tribal roles and responsibilities in groundfish management; fishery ecosystem and marine biodiversity in relation to groundfish management; groundfish essential fish habitat (EFH), including adverse impacts of fishing and nonfishing related activities; life history characteristics, distribution, and stock status of groundfish species and nongroundfish species; life history, population biology, and foraging ecology of protected species, including ESA-listed salmon, marine mammals, seabirds and sea turtles; and the socioeconomic environment, which includes commercial, tribal and recreational fisheries, coastal communities, and nonconsumptive and nonmarket benefits. The *Pacific Coast Groundfish Fishery Management Plan Essential Fish Habitat Designation and Minimization of Adverse Impacts Final Environmental Impact Statement* (EFH EIS) prepared by NMFS (NMFS 2005) provides habitat information and analysis of the effects of the groundfish fishery on habitat. Additionally, *The Pacific Coast Groundfish Fishery Management Plan Bycatch Mitigation Program Final Environmental Impact Statement* (Bycatch EIS) prepared by NMFS (NMFS 2004c) provides a guide for developing issues for a rights-based program of IFQs.

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sectors. In completing the DEIS, it was decided that presenting the analytical scenarios as alternatives in Chapter 2 would improve reader comprehension and better reflect the decisions made by the Council.

<sup>17</sup> Section 302(f) of the MSA Reauthorization Act of 2006 (P.L. 109-479) requires the Council to submit a proposal for the rationalization program to Congress within 24 months of the Act's passage, or January 12, 2007. Although a DEIS was not released for public comment by that date, a description of the Council's preferred alternative adopted in November 2008 and a preliminary version of the DEIS were submitted to Congress to satisfy this requirement.

The Council took action parallel to trawl rationalization to allocate harvest opportunity for selected species between the groundfish trawl sector and other groundfish fishery sectors (Amendment 21 to the Groundfish FMP). These allocations support trawl rationalization since a quantity of fish, by species or management unit, must be identified for assignment through the IFQ or co-op systems. A separate EIS has been prepared for this action.

**Table 1-1.** Description of committees involved in trawl rationalization program development.

Committee Name	Composition and Function
Groundfish Allocation Committee (GAC)	Six voting members are drawn from the Council; seven nonvoting members drawn from stakeholders. Provides high level policy guidance and refinement of alternatives for consideration by the full Council.
Ad Hoc Groundfish TIQ Committee (TIQC)	Seventeen members drawn from stakeholders; principally fishing and processing interests. Involved in the initial development of program features; provides stakeholder perspective on program development.
Ad Hoc TIQ Analytical Team	Council and agency staff and consultants conducting NEPA analysis. This group held several public meetings early in the process to discuss how the impact analysis would be done. Composition subsequently changed to include mainly agency and Council staff with most work occurring internally.
Ad Hoc TIQ Enforcement Group	Drawn from the standing Enforcement Consultants committee to review and advise on practicality of program features in terms of enforceability.
Ad Hoc Trawl Rationalization Tracking and Monitoring Committee	Management and enforcement agency staff at the state and Federal level; charged with developing program options for monitoring and enforcement.
Ad Hoc TIQ Independent Experts Panel	Five academic experts with expertise in fishery science, economics. Provides external review of program features.

**Table 1-2.** Committee and Council meetings related to trawl rationalization program development.

<b>Date</b>	<b>Committee</b>	<b>Subject</b>
September 11, 2003	Council meeting, Agenda Item C.10 <sup>a</sup>	Initiated development of a TIQ program, which later became the trawl rationalization program.
October 28-29, 2003	Ad Hoc TIQC	Began development of alternatives for an individual quota program to cover LE trawl landings in the west coast groundfish fishery. Established committee charge, decision rules, and purpose, need, and objectives for an individual quota program.
November 6, 2003	Council meeting, Agenda Item D.12	Provided guidance based on Ad Hoc TIQC report and considered establishing a new control date.
March 18-19, 2004	Ad Hoc TIQC	Continued development of alternatives.
March 24-25, 2004	GAC <sup>b</sup>	Discussed allocations necessary to support trawl sector IFQs.
April 9, 2004	Council meeting, Agenda Item C.16	Provided further guidance on program development and discussed issue of latent permits.
May 25-26, 2004	Ad Hoc Groundfish TIQ Enforcement Group	Conducted preliminary scoping on types of enforcement programs that would be necessary for a groundfish trawl IFQ program, information needs, and landings tracking and monitoring systems.
June 8-9, 2004	Ad Hoc TIQ Analytical Team Ad Hoc Groundfish TIQ Independent Experts Panel	Conducted preliminary scoping on the types of impacts to be considered and analytical methods used in a groundfish trawl DAP EIS. Related data collection issues also discussed.
June 17, 2004	Council meeting, Agenda Item C.9	Heard committee reports, discussed need for programmatic EIS, and approved scoping information document for public distribution.
July 1-2, 2004	Ad Hoc TIQ Analytical Team	Continued work from previous meeting.
September 7-8, 2004	Ad Hoc TIQ Analytical Team	Reviewed results from public scoping plan and progress on analytical tasks; discussed organization and assignments for EIS.
September 17, 2004	Council meeting, Agenda Item C.11	Heard progress report and results of public scoping, provided guidance on committee work and composition, and intersector allocation.
September 22-23, 2004	Ad Hoc Groundfish TIQ Independent Experts Panel	Reviewed scoping information document and comments received during recently completed NEPA public scoping period to determine whether there were significant options and impacts not yet identified that, in the Experts Panel's view, should be considered by the Council.
September 28, 2004	Ad Hoc Groundfish TIQ Enforcement Group	Reviewed enforcement program alternatives developed at its previous meeting in the light of comments received during the recently completed NEPA scoping period and worked on developing a general assessment of the costs for status quo enforcement and levels of enforcement that might be required for different individual quota enforcement programs.

<b>Date</b>	<b>Committee</b>	<b>Subject</b>
October 25-26, 2004	Ad Hoc TIQC	Reviewed results from public scoping and some preliminary analysis and refined recommendations to the Council.
November 3-4, 2004	Council meeting, Agenda Item E.6	Provided guidance for the evaluation of a preliminary range of alternatives.
November 17-18, 2004	Ad Hoc TIQ Analytical Team	Reviewed the Council action from the November 2004 Council meeting; planned the next analytical tasks.
January 27, 2005	GAC*	Discussed allocations necessary to support rationalization.
February 23-24, 2005	Ad Hoc TIQC	Continued review of results from public scoping and some preliminary analysis; refined recommendations to the Council.
May 2-3, 2005	GAC	Discussed rationalization alternatives with attention to intersector allocation.
May 10-11, 2005	Ad Hoc TIQC	Developed recommendations on program design.
June 16, 2005	Council meeting, Agenda Item C.5	Approved range of alternatives for analysis.
October 30, 2005	Ad Hoc TIQC	Provided guidance on measures to mitigate impacts to communities.
November 3, 2005	Council meeting, Agenda Item H.11	Received update on progress of program development, provided guidance on measures to mitigate impacts to communities.
November 14-15, 2005	GAC	Discussed allocations necessary to support rationalization.
March 16, 2006	Ad Hoc Groundfish TIQ Independent Experts Panel	Reviewed and commented on preliminary internal draft document that consultants developed for a public workshop (see below) on approach for analysis of TIQ alternatives.
April 18-20, 2006	Public Workshop on Trawl Individual Quota Analysis	Conducted workshop to review and receive comments from the public and Council advisory bodies on the first stage of the draft analytical package developed by consultants.
June 11, 2006	Ad Hoc TIQC	Developed recommendations on structure of alternatives and program design.
June 15, 2006	Council meeting, Agenda Item F.3	Reviewed draft of the preliminary (Stage 1) analysis and provided recommendations on refinements to analytical approach. Drafting of the EIS was divided into two stages due to budget constraints. Stage 1 was an analytical framework for the EIS.
September 10, 2006	Ad Hoc TIQC	Reviewed stage 1 document (analytical framework). Provided guidance.
September 14, 2006	Council meeting, Agenda Item C.7	Reviewed Stage 1 document (analytical framework). Provided guidance on a process to revise and simplify the alternatives for Stage 2 analysis. Added alternative for cooperatives in Pacific whiting fishery.
October 18-19, 2006	GAC	Provided guidance on development of alternatives for allocation between trawl and nontrawl sectors necessary to support rationalization.

<b>Date</b>	<b>Committee</b>	<b>Subject</b>
November 6-8, 2006	Ad Hoc TIQC	Reviewed and further developed alternatives under analysis, with particular emphasis on co-op alternatives for whiting sectors; reviewed GMT comments from September 2006 Council meeting.
November 16, 2006	Council meeting, Agenda Item D.7	Adopted preliminary alternatives for intersector allocation, which supports trawl rationalization (to be analyzed in a separate NEPA document).
December 12-14, 2006	GAC	Recommended restructuring and narrowing the range of alternatives to be considered for rationalization.
February 20-22, 2007	Ad Hoc TIQC	Reviewed and further developed alternatives under analysis, with particular emphasis on GAC report from GAC's December meeting and GMT comments from GMT's January 2007 meeting.
March 8, 2007	Council meeting, Agenda Item E.4	Modified and simplified alternatives based on GAC and other committees' recommendations. Adopted revised goals and objectives for the program. Added feature to Pacific whiting cooperative alternative to cover shore-based sector.
May 2-4, 2007	Ad Hoc TIQC	Reviewed and further developed alternatives under analysis, particularly with respect to alternatives for whiting sector vessel co-ops.
May 15-17, 2007	GAC	Developed recommendations for further refinement of trawl rationalization alternatives.
June 13, 2007	Ad Hoc TIQC	Further refined the trawl rationalization alternatives.
September 25-27, 2007	GAC	Developed recommendations for further refinement of trawl rationalization alternatives and intersector allocation alternatives.
October 11-12, 2007	Ad Hoc TIQC	Reviewed and further developed trawl rationalization alternatives under analysis.
November 7-9, 2007	Council meeting, Agenda Items D.5 and D.7	Adopted range of intersector allocation alternatives for analysis. Refined and finalized trawl rationalization alternatives for analysis.
November 30, 2007	Ad Hoc Trawl Rationalization Tracking and Monitoring Committee	Provided agency guidance and perspectives on design constraints and scoped likely impacts of alternative configurations of tracking and monitoring systems for trawl rationalization.
February 13, 2008	Ad Hoc Trawl Rationalization Tracking and Monitoring Committee	Provided agency guidance and perspectives on design constraints and scoped likely impacts of alternative configurations of tracking and monitoring systems for trawl rationalization.
February 20-22, 2008	GAC	Considered draft alternatives (and other material for trawl rationalization) and intersector allocation alternatives.
April 7-12, 2008	Council meeting, Agenda Item H.3	Deferred selection of preferred alternative for intersector allocation to support trawl rationalization until March 2009.
May 13-15, 2008	GAC	Developed advice a preferred alternative for the Council's June 2008 decision.
May 15-16, 2008	Ad Hoc TIQC	As above for the GAC.

<b>Date</b>	<b>Committee</b>	<b>Subject</b>
June 8-13, 2008	Council meeting, Agenda Item F.6	Selected preliminary preferred alternative for trawl rationalization program.
October 8-9, 2008	GAC	Developed recommendations to the Council on preferred trawl rationalization alternative, on which the Council was scheduled to take final action at the November 2008 Council meeting.
November 1-7, 2008	Council meeting, Agenda Item F.3	Selected preferred alternative for trawl rationalization program.
January 27-29, 2009	GAC	Developed recommendations on accumulation and control limits for IFQs.
March 7-13, 2009	Council meeting, Agenda Item G.3	Provided guidance on eligible to own provisions and clarified aspects of its November 2008 decision.
April 2-9, 2009	Council meeting, Agenda Items F.4 and F.5	Clarified action on adaptive management program, community fishing associations, and other miscellaneous issues.
May 5-7, 2009	GAC	Considered options for adaptive management program and community fishing associations, vessel and control limits for Pacific halibut and IFQs, FMP amendment language, and other miscellaneous items.
June 11-19, 2009	Council meeting, Agenda Items E.10 - E.12	Took final action on outstanding issues for trawl rationalization program.
October 31-November 5, 2009	Council meeting, Agenda Item G.8	Modified the initial allocation formula for canary rockfish IFQs.
March, April, and June 2010	Council meetings	Council reviews proposed regulations for program implementation and deems them necessary and appropriate.

<sup>a</sup>Briefing materials provided at each Council meeting are available at <http://www.pcouncil.org/bb/bbarchives.html>. The materials constitute a substantial part of the record of the development of the program. Council meeting minutes, summarizing Council discussion and decisions, are available at <http://www.pcouncil.org/minutes/cminutes.html>.

<sup>b</sup>The GAC was originally constituted as the Ad Hoc Allocation Committee. It was converted to a standing committee in March 2005.