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## 1.0 Purpose and Need For Action

### 1.1 The Proposed Action

The *PACIFIC FISHERY MANAGEMENT COUNCIL (COUNCIL)* and *NATIONAL MARINE FISHERIES SERVICE (NMFS)*, also called *NOAA FISHERIES - National Oceanic and Atmospheric Administration, U.S. Department of Commerce*) propose to evaluate, at a broad scale, how to minimize *BYCATCH* in the West Coast groundfish fisheries to the extent practicable, minimize the mortality of unavoidable bycatch, and ensure that bycatch is reported and monitored as required by law. The proposed action would set groundfish bycatch mitigation policies and future program directions. The Council is expected to immediately undertake preparation of a new groundfish fishery management plan amendment that will include the conservation and management measures necessary to minimize bycatch and to minimize the mortality of bycatch that cannot be avoided, to the extent practicable. This *PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT (PEIS)* is intended to provide the analytical underpinnings for that effort.

Words printed in *TYPE LIKE THIS* are defined in the glossary at the end of this document.

### 1.2 Need for the Proposed Action

The 1996 *SUSTAINABLE FISHERIES ACT* requires that every federal *FISHERY MANAGEMENT PLAN (FMP)* must be consistent with *NATIONAL STANDARD 9* of the *MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT (MAGNUSON-STEVENSON ACT)*. National Standard 9 requires that “Conservation and management measures shall, to the extent practicable, (A) minimize bycatch and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.” Section 303(a)(11) of the Magnuson-Stevens Act requires each FMP “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.”

The proposed action is needed to (1) reduce waste, discard, and collateral damage to marine animals and plants by groundfish fishing activities on the Pacific Coast, (2) collect and report appropriate and adequate information to support the groundfish fishery management program, and (3) balance these needs with environmental and social values (i.e., need to allow for fishing).

### 1.3 Purpose of the Proposed Action

As identified by the Council's ad hoc Environmental Impact Statement Oversight Committee (Committee), the purposes (objectives) of the proposed action include the following:

- **account for total fishing mortality by species**
- **establish monitoring and accounting mechanisms to keep total catch of each groundfish stock from exceeding the specified limits**
- **reduce unwanted incidental catch and bycatch of groundfish and other species**
- **reduce the mortality of animals taken as bycatch**
- **provide incentives for fishers to reduce bycatch and flexibility/opportunity to develop bycatch reduction methods**
- **monitor incidental catch and bycatch in a manner that is accurate, timely, and not excessively costly**
- **reduce unobserved fishing-caused mortalities of all fish**
- **gather information on unassessed and/or non-commercial species to aid in development of ecosystem management approaches.**

### 1.4 How this Chapter Is Organized

Chapter 1 identifies the issue of bycatch reduction and reporting as the focus of the proposed action and describes why the action is needed. Section 1.5 further clarifies the legal mandates and defines the term bycatch as it is used throughout this EIS. Council and NOAA Fisheries actions relating to bycatch are described to help set the context for the proposed action. Section 1.6 describes the process used to identify the important environmental issues addressed by various alternatives. Previous Council and NOAA Fisheries actions to reduce bycatch are described in Section 1.7. Section 1.8 identifies the criteria that used in selecting the agency preferred alternative. Section 1.9 describes the organization of this EIS and the steps to determine and evaluate the anticipated environmental impacts.

### 1.5 Background

The Magnuson-Stevens Act (16 U.S.C. §§ 1801-1884) was first enacted by Congress in 1976 and has been amended several times since then. The Magnuson-Stevens Act established United States fisheries jurisdiction over the *EXCLUSIVE ECONOMIC ZONE (EEZ)* (waters 3-200 miles offshore). It also established eight regional fishery management councils charged with developing fishery management plans for the areas under their respective jurisdictions. Fishery management plans are approved, implemented, and enforced by NOAA Fisheries.

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The Pacific Council is responsible for fisheries in the EEZ off Washington, Oregon, and California. The Pacific Council has developed several fishery management plans, including the *PACIFIC COAST GROUND FISH FISHERY MANAGEMENT PLAN* (Groundfish FMP). The Groundfish FMP was implemented in 1982. It covers more than 80 species of groundfish, many of which are caught together on a variety of fishing gears that are used to target groundfish. Groundfish are also caught incidentally in fisheries for non-groundfish species such as pink shrimp and California halibut. As of June 1, 2004, eight <sup>1/</sup> groundfish species are considered overfished. These are darkblotched rockfish, canary rockfish, lingcod, yelloweye rockfish, bocaccio rockfish, cowcod (also a rockfish species), widow rockfish, and Pacific ocean perch (another rockfish). Each of the overfished species is subject to a rebuilding strategy that constrains fishing for that species.

A 1996 amendment to the Magnuson-Stevens Act, the Sustainable Fisheries Act, created numerous new requirements for fishery management plans. Among the new requirements was a requirement that fishery management plans “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.” 16 U.S.C. § 1853(a)(11). The Magnuson-Stevens Act defines the term bycatch to mean “fish which are harvested in a fishery, but which are not sold or kept for personal use, and includes economic discards and regulatory discards. Such term does not include fish released alive under a recreational catch and release fishery management program.” 16 U.S.C. § 1802(2).

To meet the new requirements imposed by the Sustainable Fisheries Act, the Pacific Council prepared Amendment 11 to the Groundfish FMP. Amendment 11 included bycatch provisions, but these were disapproved by NOAA Fisheries as inadequate, and returned to the Pacific Council for further work. The Pacific Council subsequently prepared, and NOAA Fisheries approved, another bycatch amendment (Amendment 13) to the Groundfish FMP. Amendment 13 attempted to comply with the bycatch requirements by providing that NOAA Fisheries could implement an observer program to gather data on bycatch, and could also take a variety of listed measures to reduce bycatch. Amendment 13 and its accompanying Environmental Assessment (EA) were subsequently disapproved by the federal district court as inadequate in Pacific Marine Conservation Council v. Evans, 200 F.Supp.2d 1194 (N.D. Calif. 2002) [hereinafter PMCC].

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1/ A recent stock assessment concluded the Pacific whiting stock has fully rebuilt, and NOAA Fisheries has declared the stock is no longer overfished.

In PMCC, the court made several rulings with respect to the adequacy of the Amendment 13 bycatch revisions and the EA. The court held that Amendment 13 failed to establish a standardized reporting methodology because it failed to establish either a mandatory or an adequate observer program. Further, it failed to minimize bycatch and bycatch mortality because it failed to include all practicable management measures in the FMP itself. The court also found a lack of reasoned decisionmaking because four specific bycatch reduction measures (fleet size reduction, marine reserves, vessel incentives, and discard caps) were rejected without consideration on their merits. With respect to NEPA, the EA prepared for Amendment 13 failed to address adequately the ten criteria for an action's significance set forth in the CEQ regulations at 40 CFR 1508.27(b), and also failed to analyze reasonable alternatives, particularly the immediate implementation of an adequate at-sea observer program and bycatch reduction measures.

This *ENVIRONMENTAL IMPACT STATEMENT* (EIS) has been prepared as a programmatic document to assist the Pacific Council and NOAA Fisheries in taking the next steps necessary to meet the bycatch requirements of the Magnuson-Stevens Act and to address the specific legal deficiencies identified by the court in the PMCC decision. When the EIS is final, the Council is expected to immediately undertake preparation of a new FMP amendment that will include the conservation and management measures necessary to minimize bycatch and to minimize the mortality of bycatch that cannot be avoided, to the extent practicable. This EIS is intended to provide the analytical underpinnings for that effort. In addition to other bycatch mitigation tools, it includes consideration of fleet size reduction, marine reserves, vessel incentives, and discard caps, as required by the PMCC decision.

With respect to the requirement for a standardized reporting methodology, the Council and NOAA Fisheries adopted a mandatory observer program in Amendment 16-1 to the Groundfish FMP. Amendment 16-1 was approved by NOAA Fisheries on November 14, 2003. Pre-existing regulations implementing the FMP already required fishing vessels to carry observers at the request of NOAA Fisheries. A mandatory observer program was begun under these regulations in August 2001 under the auspices of the Fishery Resource Analysis and Monitoring Division, Northwest Fisheries Science Center, NMFS, Seattle, Washington. This program has continued and has been expanded since that time. The Science Center has reported the data gathered during the first two years of the observer program. The most recent information obtained through the observer program is contained in the observer program's "Initial Data Report and Summary Analyses" dated January 2004, details of which are included in this FEIS. The full report is provided as Appendix A.

### 1.5.1 Defining Bycatch

The Magnuson-Stevens Act generally defines “bycatch” as fish that are discarded for regulatory or economic reasons. The term “fish” is defined to include nearly all types of marine life except marine mammals and seabirds. However, most fishery managers also use the term in a broader sense. The broader meaning sometimes includes fish, marine mammals and seabirds that are caught incidentally while fishing for a different species. It can also include fish of the same species that are small or inferior quality, or fish that simply co-occur in a particular fishing location and are caught together. Fish caught under these circumstances may either be kept or discarded. Problems presented by the overfished groundfish species, which frequently co-occur with other species, or are caught incidentally, are particularly difficult to solve. Consideration of these problems is also included in this EIS.

The Proposed Action is to establish bycatch management policies and program direction consistent with the Magnuson-Stevens Act. Certain bycatch mitigation measures have been established; additional measures may be established based on decisions related to this PEIS. New bycatch mitigation measures may require additional NEPA analysis.

The bycatch management policies, reporting methodologies, and reduction measures make up a bycatch management program. “Bycatch,” as the term is defined in the Magnuson-Stevens Act, refers specifically to fish. “*FISH*” is defined broadly to include nearly all species of marine organisms except seabirds and marine mammals; however, these non-target marine animals may also be affected by federally-managed fisheries, and impacts on them must also be considered in order to be consistent with other federal laws. Therefore, for the purposes of this *ENVIRONMENTAL IMPACT STATEMENT* (EIS), the term bycatch will mean discarded catch of any living marine resource, plus any unobserved mortality that results from a direct encounter with fishing gear.

The groundfish fishery off the West Coast of the United States is executed from the Canadian to Mexican borders. Multiple vessel types participate in this fishery. They range in size from 8' kayaks to 120' trawlers and fish in nearshore to offshore waters. The vessels use various types of gear, including bottom trawls, midwater trawls, pots (traps), longlines, and other hook and line gear to catch over 80 species of marketable fish. Trawlers take the majority of groundfish. The catch can be incredibly diverse in species and fish size, and overall catch size can vary widely as well. In many cases, a portion of the catch is retained and another portion of the catch, that may be of the wrong size, species, or is over management quota limits, is discarded at sea.<sup>2/</sup>

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2/ In addition, some fish may be rejected as sub-quality by a fish buyer/processor when a commercial vessel delivers its load. Such

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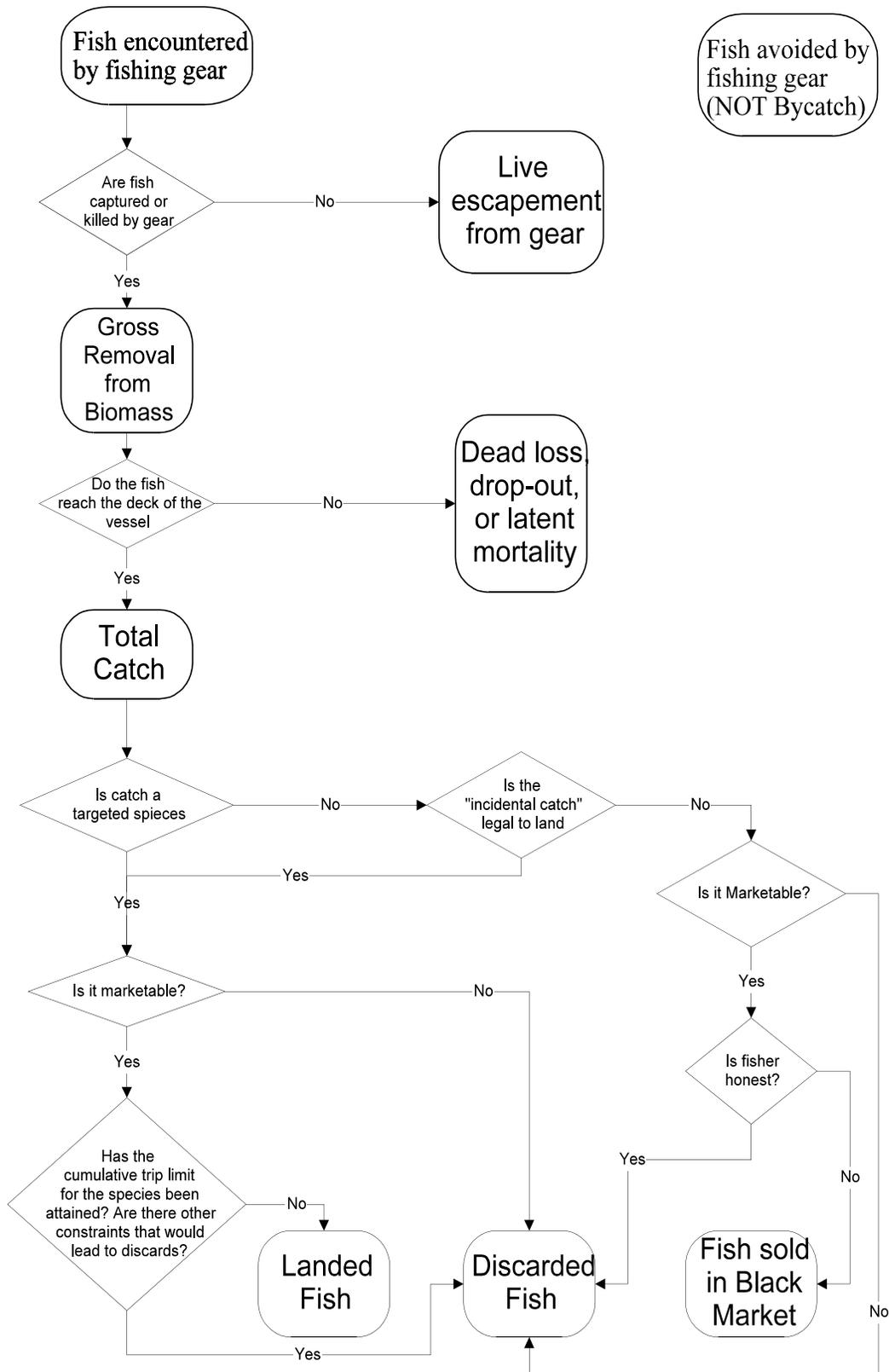
Figure 1.1 illustrates the meaning of bycatch and other catch-related terms as they are defined and used in the Magnuson-Stevens Act and Pacific Coast Groundfish FMP. Some fish encounter fishing gear but escape alive. However, there will almost always be some unobserved mortality resulting from injury when fish encounter fishing gear, especially mass-contact types of gear, such as trawl gear. The latent or pass-through mortality of fish escaping from a trawl net may be quite high, depending on the design and manner in which the gear is fished as well as its mesh size (Henry 1990). Additional delayed mortality may occur after fish escape gear. This type of mortality may be related to the stress of capture and physiological injuries which subsequently turn out to be fatal (Davis and Ryer 2003). There may also be mortality associated with gear that is lost or abandoned — the bycatch resulting from this *GHOST FISHING*. NOAA Fisheries considers this unobserved fishing-related mortality included in the definition of bycatch because it constitutes a harvest of fish that are not sold or kept for personal use (63 FR 24235 May 1, 1998).

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fish, called weigh backs, are disposed of on land or returned to the vessel for disposal at sea. These fish fall outside most definitions of bycatch but are still considered to be wasted.

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Figure 1.1. Diagrammatic representation of bycatch and other catch-related terms.



*TOTAL CATCH* is that harvest taken by the fishing gear and which reaches the deck of the fishing vessel. It is sometimes useful to subdivide total catch into “targeted catch” and “non-targeted catch” (also referred to as *INCIDENTAL CATCH*), bearing in mind that a species can move from one category to another depending on size, market demand, season or other criteria.<sup>3/</sup>

A fish captured by a commercial fisher can be retained and sold or discarded; a fish captured by a recreational fisher can be retained or discarded, but may not be sold. In both cases, discards are that portion of total catch thrown away at sea (for one reason or another). The remainder is the *LANDED CATCH* or *RETAINED CATCH* (i.e., that which is brought ashore).

There are circumstances in which fishermen will discard fish even though they are marketable or desirable. Discarding these fish may be the result of *FISHERIES MANAGEMENT MEASURES* directly, such as *PROHIBITED SPECIES* regulations or incentives created by management measures (e.g., a cumulative trip limit or quota constraint). Discarding may also occur for economic reasons (e.g., to make room in the vessel hold for more valuable catch) or for other non-regulatory reasons (e.g., recreational fisher doesn’t like it). In most cases, fish that are not marketable because they are an undesirable species, size, sex, or poor quality are discarded. Fish that are illegal to land (due to restrictions imposed by fisheries management) are in most cases discarded, although some of this fish may be retained by a recreational fisher or retained and sold on the black market by commercial fishers (or recreational fishers), if these fishers are dishonest.

U.S. fishery policy in the 1970s and 1980s focused primarily on development of American fishing and processing capacity so the entire harvest could be used by U.S. citizens. Bycatch was considered to be mainly a social and economic issue; the main concerns were bycatch of *SALMON*, Pacific halibut, and high value groundfish taken by foreign *TRAWL* fishing operations targeting Pacific whiting,

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3/ The definition of bycatch in NOAA Fisheries’ “*Managing the Nation’s Bycatch*” includes “retained incidental catch.” The term “incidental catch” is often used as a synonym for “non-target species.” The groundfish FMP allows capture and retention of all species of groundfish; thus, all groundfish species up to the specified limits may be considered target species. However, because strict limits are placed on overfished groundfish, some people believe they should be considered non-target. This creates conflicting definitions. If overfished species are to be considered as retained incidental catch, the FMP and regulations should be amended to define them as such. However, it is appropriate to consider non-groundfish species as incidental or non-target species, and therefore bycatch, whether or not those fish are retained.

and catch of salmon and halibut taken by American trawl fishers. Foreign catch of Pacific ocean perch was considered a conservation issue because this species had been severely depleted by earlier foreign fishing. Bycatch of salmon and Pacific halibut by U.S. trawl fishers was also considered a problem because it could reduce the target fishery quotas for these species. (The International Pacific Halibut Convention prohibits the use of trawls to harvest halibut; harvest of salmon with trawls is also prohibited in U.S. and Canadian waters. Dungeness crab is another prohibited species in most *COMMERCIAL* groundfish fishing operations.)

When certain salmon populations were listed as *THREATENED* or *ENDANGERED* under the *ENDANGERED SPECIES ACT* (ESA), NOAA Fisheries evaluated the impact of groundfish fisheries on these populations and prepared a series of *BIOLOGICAL OPINIONS*. Amendment 7 to the groundfish FMP acknowledged that groundfish fishing may directly impact non-groundfish species and authorized implementation of measures to control groundfish fishing to share conservation burdens to protect those stocks.

### **1.5.2 Groundfish Management and NEPA**

The groundfish resource includes over 80 species of *FINFISH* that inhabit a wide variety of marine habitats. Many of these species occupy the same *HABITATS* and are caught together, either intentionally or unintentionally. While some species may be more desirable from a commercial or *RECREATIONAL* standpoint, fishing methods are rarely selective enough to catch only the most desirable species. Other *GROUND FISH* species are typically caught incidentally, and many are considered valuable for human consumption, bait or other uses. This *INCIDENTAL CATCH* has always been considered a part of fishing, and fishers typically keep what they can use; bycatch (*DISCARD*) of groundfish is the portion of the catch that cannot be used, whether due to regulations, markets, or edibility (or palatability). Incidental catch and bycatch in the groundfish fishery were initially considered an unavoidable cost of doing business. The main concerns were the cost of sorting the catch, damage to more valuable fish, lack of storage space, or lack of markets. In fact, the original FMP defined the *OPTIMUM YIELD (OY)* to exclude all groundfish discarded by U.S. fishermen and fishing vessels. A single OY was established for the entire groundfish resource, defined as “all the groundfish that can be taken under the regulations, specifications, and management measures authorized by the FMP and promulgated by the *SECRETARY* (of Commerce).” This OY was not a predetermined or specified numerical amount, but rather whatever harvest (landed catch) resulted under the regulatory program and economic conditions. As U.S. harvesting capacity grew and exceeded sustainable harvest levels, retention limits were established for commercial fishing vessels to prevent excessive harvest of certain groundfish species. These vessel limits, called *TRIP LIMITS*, initially limited the amount of fish a vessel could catch and retain during a single fishing trip. Later, trip limits were applied to a period of time such as a week or two-week period; more recently the time periods were extended to

monthly or two-month periods. Much of the management process each year is focused on monitoring the rate of commercial landings and adjusting trip limits to maintain a relatively consistent product flow throughout the year. This system requires commercial vessel operators to cull (discard) any catches that exceed specified limits. The system worked relatively well as long as trip limits were so large (tens or hundreds of thousands of pounds) that few vessels reached those limits. However, as various species biomasses were fished down, trip limits were reduced correspondingly to the point where many vessels frequently reached the limits. Trawl gear designed to catch large amounts of fish often captures too much, especially late in a period when the vessel is trying to catch just enough to fill its limit. This problem became more acute as trip limits were established for more species, and as trip limits became smaller (for example, a few thousand pounds). Since 1999, with development of *REBUILDING PLANS* for *OVERFISHED* groundfish species, some trip limits have been reduced to a few hundred pounds. Fishers must now avoid these species as much as possible, although they may be allowed to keep some overfished species up to their limits.

NEPA stands for the National Environmental Policy Act. This federal law requires every federal agency to prepare an analysis of environmental effects before it takes a major action that may affect the environment. The agency must “specify the alternative or alternatives ... considered to be environmentally preferable” and “whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not.”

Federal agencies are required to comply with the *NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)* when a major federal action may be taken by an agency. Federal decision-makers are to use NEPA to assist them with making the appropriate decision for a *PROPOSED ACTION*, including fishery management plans and regulations. NEPA requires agencies, in this case the Council and NOAA Fisheries, to consider reasonable alternatives to achieve the identified purpose and need, to evaluate the environmental consequences of the alternatives, and to provide for public participation in the decision-making process.

The proposed action is to amend the FMP and its implementing regulations to comply with section 303(a)(11) of the Magnuson-Stevens Act. Changes to the bycatch program may require revisions to the catch and bycatch reporting and monitoring systems and/or to conservation and management measures. In considering this

action, the Council and NOAA Fisheries will evaluate the effects of bycatch on other non-target species to ensure that fishery management does not result in conflicts with other legal mandates. This action is being undertaken to ensure the FMP complies with the conservation and management requirements of the Magnuson-Stevens Act, *MARINE MAMMAL PROTECTION ACT (MMPA)*, *MIGRATORY BIRD ACT*, Endangered Species Act (ESA) and other applicable federal laws.

This PEIS addresses the issue of bycatch and other incidental catch in the Pacific Coast groundfish fishery. Specifically, this EIS analyzes the expected environmental *IMPACTS* of various alternative methods to reduce bycatch taken by commercial and recreational fishers fishing for groundfish and associated species and methods of collecting bycatch information.

Effective fishery management programs include several smaller programs, such as stock assessment, policy and regulation development, decision-making, monitoring, information collection, and enforcement. These sub-programs must be designed, matched, and integrated to achieve the overall program goals and objectives. The fishery management program established by the groundfish FMP is one of the most complex and complicated in the Nation, covering over 80 species over the entire West Coast of the U.S. Thousands of commercial fishing vessels harvest groundfish each year, and many more thousands of recreational fishers fish for many of the same species. The catching capacity (fishing power) of each of these sectors far exceeds the capacity of many species to sustain themselves under that fishing pressure. Thus, regulations to limit catch have become more stringent and complex.

Eight groundfish stocks are classified as overfished, and efforts to rebuild them require that harvest be minimized to the extent practicable. Along with this, it is critical that rebuilding efforts be closely monitored to ensure the regulations are effective and catches are reduced as intended. In addition, effects of fishing on other fish, birds and marine mammals should be monitored and mitigated as appropriate.

Groundfish species are important components of the marine *ECOSYSTEM* off the Pacific Coast of North America, and fishing for groundfish affects other components of the marine environment. Non-groundfish species may be captured and/or killed directly by groundfish fishing gears or fishing methods. Even some groundfish species may be subjected to additional mortality, such as being captured and released. Groundfish fishing may reduce food sources (*FORAGE*) for other marine animals. In some cases, groundfish species may be the forage. In other cases, the forage may be other species that are affected by groundfish fishing.

*HARVEST* includes all fish that are captured, whether intentionally or not, and all fish that are killed, whether retained by the fisher. Fish that are captured and released or discarded are called bycatch. Bycatch also includes fish that are injured or killed but not captured (for example, dropouts and fish that become unhooked) and fish killed by lost and discarded gear (ghost fishing). In addition, groundfish fishing could directly or indirectly affect other marine animals such as marine mammals, seabirds and turtles. The EIS evaluates certain potential effects and could indicate the need for management measures to *MITIGATE* such impacts.

The current bycatch program includes a mix of indirect measures to control bycatch and a combination of methods to report and assess catch and bycatch amounts. Some management policies and measures tend to increase regulatory bycatch. Overall, the current bycatch program provides little individual bycatch accountability or opportunity or incentives for individuals to reduce bycatch.

## 1.6 Scoping: Key Issues and Development of Alternatives

NEPA mandates that “[t]here shall be an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action.” This process, termed scoping, allows the public to comment on what the EIS should cover in order to help determine possible alternatives, issues and impacts to be analyzed. The overall purpose of the scoping process is to identify the affected public, identify public and agency concerns, define issues that will be examined, and assign EIS preparation tasks.

The scope of this EIS has been refined since NOAA Fisheries initially identified a need for action, and NOAA Fisheries conducted two scoping processes relating to this EIS. The first scoping process, from April 10, 2001 through June 12, 2001, focused on the need for a Programmatic EIS (PEIS) on the entire Pacific Coast groundfish fishery management program. NOAA Fisheries published an initial scoping report in August 2001, which provided a summary of all comments received and key issues identified during the scoping process. Bycatch was a major issue identified during scoping, along with protection of essential fish habitat (EFH) and several other issues. NOAA Fisheries immediately began working with the Council to develop alternatives to address the purpose and need for the PEIS. In February 2002, NOAA Fisheries determined there was a need to address EFH issues independently and began preparation of a separate EIS focusing specifically on designation of essential fish habitat (EFH) and associated management measures, including measures to reduce effects of fishing on EFH. This separation was intended to improve public understanding and participation in the NEPA process, to make each EIS more useful in future management decisions, and to more clearly distinguish between programmatic groundfish fishery management and specific EFH issues. On May 16, 2003, NOAA Fisheries published a notice of its intent to further revise the scope of the PEIS; the intent was to focus more specifically on issues relating to bycatch reduction and monitoring.

The Council established an ad hoc Groundfish EIS Oversight Committee (Committee) to advise the drafting team and help develop a range of programmatic alternatives for managing the Pacific Coast groundfish fishery.

### ***Pacific Coast Groundfish EIS Scoping Hearings***

#### **2001**

<b>CITY</b>	<b>DATE</b>
Newport, OR	May 22
Astoria, OR	May 23
Eureka, CA	May 29
Los Alamitos, CA	May 30
Seattle, WA	June 5
Burlingame, CA <i>(at Council meeting)</i>	June 12

#### **2003**

Foster City, CA <i>(at Council meeting)</i>	June 16
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The Committee, at its third meeting (April 22-23, 2003), reviewed the status of the PEIS, the alternatives under consideration, and events subsequent to the initial scoping period. Based on its perception that conditions and needs had changed and on NOAA Fisheries comments, the Committee recommended the scope of the EIS be focused more narrowly on the more pressing issue of bycatch reduction and reporting. The Committee prepared a revised set of alternatives to encompass the range of approaches to reduce bycatch and to address incidental catch monitoring and reporting issues. NOAA Fisheries reopened scoping and conducted an additional scoping meeting on June 16, 2003 in conjunction with the Council meeting in Foster City, California. These alternative were presented to the Council at its meeting, along with a summary of comments received during the second scoping period. The Council provided comments in concurrence with the revised scope and suggested improvements to the alternatives its committee had prepared. NOAA Fisheries has adopted those alternatives in this PEIS.

### **1.6.1 Key Issues Identified During Initial Scoping Period**

#### *Time/Area Management*

- Year-round fishery policy versus partial year fishery
- Traditional single-species management versus an ecosystem-based approach

#### *Fleet Capacity*

- Capacity reduction consistent with number of fish available
- Geographic distribution of vessels under capacity reduction
- Active reduction of the fleet versus establishing methods for the industry to reduce itself
- Overcapacity is too narrow an issue for an option in EIS analysis
- Effects of capacity reduction on the value and need for MPAs

#### *Resource Allocation*

- Promote IFQs/ITQs
- Consider whether flexibility of ITQs will harm coastal communities
- Keep effort/people spread along coast
- Consider port quotas, like CDQs and Cooperatives, for West Coast communities
- Allow permit transfers between gear types in the limited entry program
- Allocate resource equitably between recreational and commercial sectors
- Coordinate inshore species allocation for recreational and commercial sectors with States
- Consider gear impacts and efficiency during allocation (favor low impact, less efficient gear)
- Allocate catch to particular vessels rather than gear types based on clean fishing practices (low bycatch, minimal habitat disturbance by gear)

#### *Bycatch/Discards*

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- Bycatch and discards created by regulations
- Analyze year-round fishery for bycatch/discards
- Verify effectiveness of time/area management as a bycatch reduction measure
- Higher limits would reduce discards
- Standardize a reporting method for bycatch by having fishers provide bycatch information in logbooks
- Lack of data on discards (number, type, mortality)
- Lack of research on bycatch-friendly gear; hook-and-line fishery has no bycatch
- Create incentives to reduce bycatch
- Reduce waste: use bycatch/discard overages instead of throwing them away
- Recreational fishery should increase efforts to help discarded fish survive, especially undersized fish
- Reevaluate bycatch estimates for fisheries
- Use bycatch caps to close target fishery
- If it's legal for you to sell, it's not bycatch
- Ocean ecosystem linked tighter than land ecosystem, therefore if protein taken out, effects felt elsewhere

#### *Gear*

- Lack of data on relative selectivity of gear
- Favor more selective gear types
- Evaluate gear performance standards vs. design standards

#### *Gear restrictions:*

- Create incentives/penalties rather than mandating gear changes/restrictions
- Do not ban gear
- There must be a better way to protect red rockfish than requiring small footropes
- Prohibit rockhopper gear
- Evaluate effectiveness of small footrope requirement

### **1.6.2 Key Issues and Comments During Second Scoping Period**

The second scoping period focused primarily on whether to refine the scope to focus more narrowly on bycatch or to continue with the broad scope of the entire groundfish fishery management program. Support for the broad scope was expressed, along with need for specific bycatch reduction measures at the end of this NEPA process. Methods to improve bycatch avoidance were stressed, along with development of incentive-based measures. While increased observer coverage was widely endorsed, concerns about cost and cost-effectiveness were also expressed. No new issues were identified beyond those identified in the initial scoping process.

## 1.7 The Groundfish Fishery Management and Bycatch Mitigation Program

Active management of the domestic groundfish fishery began in the early 1980s with the establishment of numerical Optimal Yields (OYs) for several managed species and trip limits for widow rockfish, the *SEBASTES COMPLEX*, and sablefish. The objective of trip limits was to slow the pace of landings to maintain year-round fishing, processing, and marketing opportunities. Since the 1980s, management regulations generally have evolved to the use of cumulative 2-month catch limits.

Under the original groundfish FMP, most groundfish were included in a non-numerical OY that excluded bycatch. The non-numerical OY 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 U.S. Secretary of Commerce. This non-numerical OY is not a predetermined numerical value, but rather the harvest that results from regulations...” In short, OY included all groundfish legally caught and landed. This definition was based on the understanding the groundfish fishery is a multi-species fishery, with multiple fishing strategies and target strategies. Almost all domestic groundfish bycatch in the early years of groundfish management was market-induced discards, where fishers were throwing away unmarketable species or unmarketable sizes of targeted species. Domestic fisheries management did not account for these groundfish discards; targets for landed catch were set equal to the *ACCEPTABLE BIOLOGICAL CATCH (ABC)*. For the foreign and joint venture fisheries, the Council set incidental catch limits for non-target species.

Over time, foreign and joint venture fisheries dwindled, and the Council introduced trip limits for a greater number of species taken in the domestic fisheries. *EFFORT* increased in the domestic fishery, and trip limits became more restrictive to control harvest rates. The Council realized that managing a variety of species under trip limits could lead to increased rates of discards for some species. Bycatch and discards can result from a regime of multiple trip limits because a fisher might target gear on a complex of species, and then find that in order to catch the full limit on one species, he has to exceed the limit on other species, and then discard that excess. To address this issue, the Council shifted away from per trip limits for most species and towards monthly cumulative limits. Cumulative limits were preferable to per trip limits because a fisher could accumulate species at different rates over different trips, without having to discard fish each trip because of exceeding per trip limits. Once the Council had seen that monthly landings limits would continue to allow a year-round fishery, it introduced two-month cumulative limits to again reduce the likelihood that fishermen would have to discard overages of particular species within a multi-species complex fishery.

In addition to modifying the use of trip limits to reduce discards, the Council used other regulatory measures to reduce incidental catch of *JUVENILE* fish that would be discarded as unmarketable, and to reduce bycatch of protected salmon species. During the mid-late 1980s, the Council endorsed two research projects that addressed bycatch in the groundfish trawl fishery and potential mesh changes that might reduce bycatch of certain groundfish.<sup>4/</sup> The research included voluntary observer programs, primarily on trawl vessels fishing off Oregon. In the early 1990s, the Council began responding to the preliminary results by requiring larger (4½ inch minimum) trawl mesh in net *CODENDS* and then requiring the larger mesh throughout *TRAWL* nets. By 1995, all bottom trawl nets were required to have a minimum of 4½ inch mesh, the use of chafing gear was restricted, and double-walled (lined) codends were prohibited (60 FR 13377, March 13, 1995, codified at 50 CFR 660.322). All of these measures were intended to give smaller-size fish the opportunity to escape from the trawl net, reducing the likelihood that those fish would be caught and discarded.

Reducing bycatch of threatened and endangered salmon species was particularly important to the Council as American fishers replaced the foreign whiting fishery in the late 1980s. The Council brought salmon and whiting fishers together to address salmon bycatch in the whiting fishery. In 1993, the Council established Klamath River and Columbia River salmon conservation zones and Eureka area trip limit restrictions to prohibit or reduce whiting fishing in areas of high salmon interception rates (58 FR 21261, codified at 50 CFR 660.323). The whiting fleets now also work to keep their chinook salmon interception below a voluntary threshold of 0.05 chinook salmon per metric ton of whiting.

Growth of the West Coast groundfish fisheries and inadequate scientific information combined to frustrate efforts to stabilize the management program and maintain stocks near MSY levels. While the Council was experimenting with these methods to reduce bycatch, domestic fishing capacity in the groundfish fleet was growing and outstripping resource productivity. We now also know that stock assessment information in the 1980s and early 1990s was not adequate to draw a clear picture of West Coast rockfish productivity. Harvest rates based on scientific information available at the time are now considered too aggressive to sustain harvest of the low productivity West Coast rockfish stocks (Myers, et al., 1999; Ralston et al., PFMC, 2000). The combination of increasing fishing capacity and decreasing OYs led to ever more restrictive cumulative landings limits. The Council's *GROUND FISH MANAGEMENT TEAM (GMT)* became concerned about the effects of a restrictive cumulative landings limit regime on rates of bycatch and discard, and announced in April 1990 its plans to begin to factor

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4/ Pikitch et al., 1988; Pikitch 1990; Bergh et al., 1990: Two voluntary observer programs (1985-1990) assessed discard causes and the impact of potential changes in codend mesh-size and shape.

discards into setting ABCs for the 1991 fishing year (PFMC GMT, 1990). In August 1990, the Council finalized Amendment 4 to the FMP, which introduced the practice of distinguishing between ABCs and *HARVEST GUIDELINES* to, among other things, account for fishing mortality beyond landed catch numbers (PFMC, August 1990.)

Amendment 4 set the Council's bycatch policies for the early-mid 1990s, accounting for discards by setting landed catch limits below ABC levels. Initially, only sablefish and Dover sole were managed with reduced landed catch limits. Over time, however, the Council treated a suite of rockfish and groundfish in a similar fashion by assuming a certain level of discard and subtracting that discard off allowable total harvest levels for each species. For rockfish species, discards were assumed to be 16% of the ABC. This assumption was based on a 1988 study (Pikitch, et al., "An evaluation of the effectiveness of trip limits as a management tool") that observed a 16% discard of widow rockfish in the trawl groundfish fishery (57 FR1654, January 15, 1992).

From 1995 to 1998, Oregon Department of Fish and Wildlife (ODFW) administered the Enhanced Data Collection Project (EDCP) in cooperation with the states of Washington and California. The primary goal of the EDCP was to collect data on discard rates for groundfish species and to determine bycatch rates for prohibited species (salmon and Pacific halibut). Trawl catcher vessels participated in this program on a voluntary basis, carrying observers and/or logbooks. Trawlers used the logbooks to record discard and landed catch data, while observers additionally monitored quantities and rates of discards, species composition of discards, halibut viability information, and conducted some biological sampling.

NOAA Fisheries declared three species overfished in 1999 – bocaccio, lingcod, and Pacific ocean perch (POP.) The first groundfish rebuilding measures were implemented as part of the 2000 harvest specifications and management measures. These measures included: time/area closures to protect lingcod during their spawning/nesting season; limiting directed fishing effort on healthy species that co-occurred with overfished species to times and areas when the healthy stocks were most concentrated, or when bycatch of other species was expected to be low; setting cumulative landings limits to move fishing effort away from the deeper continental shelf, the primary habitat of several overfished species; and, setting differential landings limits for trawlers operating with different trawl gear configurations (bottom trawling with *FOOTROPES* greater than 8 inches in diameter, bottom trawling with footropes smaller than 8 inches in diameter, and *MIDWATER* or *PELAGIC TRAWLING*.) Trawling with footropes that have roller gear or other devices designed to bounce over rough rock piles affords those vessels greater access to prime rockfish and lingcod habitat. Therefore, landings of *SHELF* rockfish were prohibited if large footrope trawls (roller gear) were used. Small amounts of shelf rockfish bycatch were allowed to be landed if small footrope

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trawls were used, and targeting healthy shelf rockfish stocks was encouraged only if midwater trawls were used.

In addition to these initial measures to reduce bycatch of overfished species, the Council began to incorporate information from analyses of the EDCP data into its management program for deepwater species. Methot et al. (2000) had used the data to estimate discard of sablefish, Dover sole, and thornyheads. Wallace and Methot (2002) also applied the data to estimate Pacific halibut bycatch mortality in IPHC Area 2A. Sampson (2002) applied the data to estimate average discard rates for the major species and determine the factors contributing to variability of discard rates. These analyses were used to set trawl cumulative landings limits for the *DTS COMPLEX*, which were based on catch ratios between the four species in the complex—Dover sole, thornyheads (shortspine and longspine), and sablefish.

Over 2000-2002, NOAA Fisheries declared six additional species as overfished – canary rockfish and cowcod (2000), darkblotched and widow rockfish (2001), Pacific whiting,<sup>5/</sup> and yelloweye rockfish (2002). West Coast groundfish management has been radically changed by the need to manage a group of multi-species fisheries to protect eight overfished groundfish species. Reducing incidental take of overfished species has been one of the major goals of the rebuilding programs for overfished species. The Council's current bycatch mitigation program is separable into three major objectives: improving the monitoring of bycatch, improving the models used to quantify bycatch, and implementing management measures to reduce bycatch.

Three major objectives of the current bycatch mitigation program are: (1) improving the monitoring of bycatch, (2) improving the models used to quantify bycatch, and (3) implementing management measures to reduce bycatch.

To improve bycatch monitoring, NOAA Fisheries began placing observers onboard vessels participating in the shore-delivery groundfish fisheries in August 2001. This observer program, the West Coast Groundfish Observer Program (WCGOP,) is distinct from the observer program for at-sea whiting fisheries, but both are managed out of the NOAA Fisheries Northwest Fisheries Science Center. The focus of WCGOP is to collect total catch and discard data (including protected resources and seabirds) from

commercial groundfish trawl and non-trawl gear (longline, pot, hook-and-line, net gear) vessels. Observers in this program sample species composition of the discard, and data on target fisheries interactions with species of concern. This observer program initially targeted the trawl and non-trawl limited entry fleets for observer coverage. The program plans to expand its data collection efforts to assess catch and bycatch in the open access fisheries that target groundfish. The

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5/ As of May 2004, whiting is no longer considered overfished.

WCGOP is described more fully later in this document; Appendix A of this PEIS provides the results of the first two years of the program: *Northwest Fisheries Science Center West Coast Groundfish Observer Program - Data Report and Summary Analyses*, January 2004.

To better quantify bycatch, the Council needed updates to historical bycatch models. In late 2001, NOAA Fisheries developed a model for estimating incidental catch rates and amounts of several overfished stocks taken in the trawl fishery. Because data from the new observer program was not yet assembled and available for use in the bycatch model, the initial bycatch model relied upon trawl logbooks and data from the EDCP program to estimate co-occurrence ratios between overfished and more abundant stocks. In 2002, NOAA Fisheries expanded its bycatch model to facilitate Council consideration of depth-based management restrictions. The first year of WCGOP data (August 2001 - August 2002) was available by January 2003 and the bycatch model underwent a formal review by the Council's Scientific and Statistical Committee. During 2003, NOAA Fisheries revised the bycatch model to address the SSC's concerns and presented the updated model to the Council in June 2003 for use in developing its 2004 harvest specifications and management measures. This latest version of the bycatch model estimates discards of both overfished and more abundant stocks. NOAA Fisheries expects to further refine the model during 2004 to incorporate the second year of observer program data (September 2002 - August 2003), which had a greater focus on the limited entry non-trawl fisheries than the first year of the program.

NOAA Fisheries has implemented numerous management measures to reduce bycatch since 2000, most of which have been intended to protect and rebuild overfished species. NOAA Fisheries and the Council have supported full retention or full utilization Exempted Fishing Permit (EFP) programs for the Washington arrowtooth flounder trawl, yellowtail rockfish trawl and longline dogfish fisheries, and for the California flatfish trawl fishery. Shorter-than-year-round fishing seasons have been set for various species and sectors of the groundfish fleet in order to protect different overfished groundfish species. Amendment 14 to the FMP implemented a permit stacking program for the limited entry fixed gear fleet that reduced the number of vessels participating in the primary sablefish fishery by about 40%. In 2003, NOAA Fisheries implemented a buyback of limited entry trawl vessels and their permits, reducing the groundfish trawl fleet by about 35%. As discussed above, NOAA Fisheries has implemented gear modification requirements that restrict the use of trawl gear in rockier habitat and other requirements to constrain the catching capacity of recreational fishing gear. Higher groundfish landings limits have been made available for trawl vessels using gear or operating in areas where overfished species are less likely to be taken. And, since late 2002, the Council's bycatch mitigation program has included a series of marine protected areas known collectively as groundfish conservation areas or rockfish conservation areas (RCAs). These large time/area closures affect the entire West Coast and are

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specifically designed to reduce the incidental catch of overfished groundfish species in fisheries targeting more abundant stocks. (RCAs). These were initially described in detail in the *Final Environmental Impact Statement for the Proposed Groundfish Acceptable Biological Catch and Optimum Yield Specifications and Management Measures: 2003 Pacific Coast Groundfish Fishery*.

## **1.8 The Council Preferred Alternative**

The Council reviewed a preliminary draft of this PEIS at its November 2003 meeting. The Council reviewed the Draft PEIS during the comment period and identified its preferred alternative at its April 2004 meeting. At that meeting, the Council considered how each alternative addresses the purpose and need for action (see sections 1.1, 1.2 and 1.3). The Council evaluated the expected or potential benefits and costs of each alternative. They determined that by combining elements of three alternatives, they would achieve a better balance than any of the original six alternatives. Analysis shows that the preferred alternative, Alternative 7, will reduce bycatch to the extent practicable and, for bycatch that cannot be avoided, will reduce bycatch mortality to the extent practicable. The Council additionally believes that Alternative 7 will better mitigate anticipated negative effects of implementing new bycatch monitoring and reduction measures.

## **1.9 Contents of this Document**

This EIS follows the standard organization established by the CEQ regulations. Chapter 1 has identified the issue of bycatch reduction and reporting as the focus of the proposed action and describes why action is needed. Previous Council and NOAA Fisheries actions relating to bycatch are described to help set the context for the proposed action.

Chapter 2 presents the seven alternatives to reduce bycatch and bycatch mortality, and to establish a standardized reporting methodology. It describes how the alternatives were developed, and provides a summary of the anticipated environmental impacts of the each alternative. It briefly describes the management tools available to the Council and NOAA Fisheries for reducing bycatch and for monitoring the effects and effectiveness of the various tools, and how the alternatives apply the tools. It identifies the direct, indirect and cumulative impacts so the decision-makers can make a reasoned and informed decision, and the public can understand the conclusions and how they were reached.

Chapter 3 describes the affected environment as it pertains to incidental catch, bycatch, bycatch mortality, and catch reporting/monitoring. The following factors related to bycatch are identified and described: co-occurrence in time and

space; species behavior; fish body size and shape; and types of fishing gears and methods used. Chapter 3 describes the current human environment as it relates to incidental catch, bycatch and bycatch mortality. The current condition of particularly important groundfish and other species of marine animals are described, and how they are directly affected (that is, bycaught) in groundfish fisheries. The social and economic conditions relating to bycatch, bycatch reduction methods, and bycatch monitoring are also described.

Chapter 4 presents the analysis of environmental impacts. This chapter describes the capture methods of the various fishing gears, including selectivity features and placement factors (that is, where and in what conditions they can be used). Potential mitigation tools are analyzed, that is, the available management measures and adjustments to control incidental catch and bycatch and to achieve other objectives. Regulations not related to fishing gears are identified and described: harvest specifications, allocation, retention limits, catch/ mortality limits, time/area management, limiting access (reducing fleet size), and data reporting/monitoring requirements. Collectively, these management measures are identified as the bycatch mitigation toolbox. Potential effects of each tool are analyzed and the effects and effectiveness of each tool are ranked. Next, the particular application of each tool, as it is used in each alternative, is ranked. This stepwise process provides the basis for modifying any alternative to better achieve the intended goals, taking into account the costs associated with any changes. Effects of each alternative on groundfish, other important fish, seabirds and mammals are analyzed.

Chapter 5 reviews the consistency of the alternatives with the goals and objectives of the groundfish FMP and the National Standards of the Magnuson-Stevens Act.

Chapter 6 describes the relationship between the proposed action and other federal laws and policies.