

## **Chapter 3**

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## **Chapter 3    Affected Environment**

This chapter describes the physical, biological, and socioeconomic resources of the Bering Sea/Aleutian Islands (BSAI) and Gulf of Alaska (GOA) and the ecosystems of the eastern Bering Sea (EBS) and northeastern North Pacific Ocean. These descriptions present the relevant history, natural history, and current status of the groundfish resources and their environments and are intended to establish an environmental baseline that will serve as a starting point for the direct, indirect, and cumulative effects analysis to come in Chapter 4.

We begin the chapter by explaining the approach and methods that have been used in gathering and presenting this information and by discussing the methodology used to analyze the environmental and socioeconomic effects of past amendments to the current BSAI and GOA groundfish Fishery Management Plans (FMPs).

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## **3.1 Approach and Methods**

The current status of any given resource is the result of the interplay between many natural events and human actions and influences over time. An analysis of cumulative effects on a resource must necessarily begin by identifying the events and actions that have affected the resource in the past and continue to exert an influence in the present. To this end, the present chapter describes each resource, reviews historical trends, and conducts a past/present effects analysis of the actions and events that have altered the resource from its original, pre-development condition. These descriptions, reviews, and analyses combine to form a baseline that represents current conditions of the resources and environment of the groundfish fisheries in the Exclusive Economic Zone (EEZ) off Alaska. This baseline will serve as the starting point for the direct, indirect, and cumulative effects analyses to come in Chapter 4.

The methods described below comply with Council on Environmental Quality (CEQ) guidance for scoping and organizing processes associated with cumulative effects analyses (CEQ 1997), as well as United States (U.S.) Environmental Protection Act (EPA) guidance for the consideration of cumulative effects (EPA 1999). The reader should refer to Section 4.1.4 for a comprehensive description of how the past/present effects analyses feed into the direct, indirect, and cumulative effects analyses in Chapter 4.

### **3.1.1 Scoping**

Scoping defines the issues, actions, and geographic and chronological boundaries for the past/present effects analyses. The scoping process for the analyses of this chapter has entailed the following:

- Reviewing public and agency comments;
- Identifying the issues and events connected with the groundfish fisheries since their implementation;
- Identifying internal Magnuson-Stevens Fishery Conservation and Management Act (MSA) management actions and their potential effects (see Section 3.2 for a discussion of this analysis)
- Identifying issues and events (natural and human-influenced) external to the groundfish fisheries; and
- Identifying management actions external to the MSA process and their potential effects.

The overall geographic scope of the analyses has been broadly defined as the Bering Sea and North Pacific Ocean. This broad geographic scope was necessitated by the transboundary movements of a number of fish species. Such a broad area, however, is not relevant to all resource categories discussed in this section. When the overall geographic scope is not applicable to a given resource, a relevant geographic sub-area in the analysis of that particular resource is defined. Likewise, when events outside the overall geographic scope have strongly influenced the baseline condition for a given resource, such as with some migratory seabirds and marine mammals, we define an extended geographic scope for analysis of effects on that resource.

EPA guidance (1999) recommends establishing a chronological reference point to mark the beginning of a historical review, or past effects analysis. For our present purposes, that environmental reference point in time is defined as 1740, one year prior to first contact of non-indigenous people. This assumes that at that time the BSAI and GOA ecosystems existed in an ecologically sustainable condition; hence, the environmental reference point of 1740 is a logical starting point for the ecosystem discussion. The overall time frame for

the past/present effects analyses thus spans the period from 1740 to 2002. For many of the resources under consideration here, however, the lack of data requires that the discussion use a later point in time as a starting point. In these cases, we define the relevant environmental reference point in each particular analysis.

### **3.1.2 Organizing**

The organizing step characterizes and consolidates the issues and actions defined during the scoping process. The following steps have been taken to organize the information of this chapter accordingly:

- Identifying the relevant physical, biological, and socioeconomic resources;
- Reviewing the literature, personal communications with resource specialists, and documentation of available information on identified resources (i.e., descriptive, trend, and impact information);
- Identifying indicators for direct/indirect effects that could cause population and/or ecosystem level effects to occur;
- Conducting a past/present effects analysis; and
- Defining a baseline condition for identified resources.

### **3.1.3 Identifying Effects, Events, and Actions**

A cumulative effects analysis takes into account the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions (40 Code of Federal Regulations [CFR] 1508.7). For the purposes of this Programmatic Supplemental Environmental Impact Statement (SEIS), the definition of other actions includes human-controlled, natural, and climatic events.

To identify direct/indirect effect indicators and external events and management actions, we have produced a comprehensive checklist for each resource category. Information presented in the checklists was obtained from reviewing environmental impact statements (EIS), reports and resource studies, peer-reviewed literature, and from conferring with expert contributors to the Programmatic SEIS. The checklists have been entered into the administrative record.

#### **Direct/Indirect Effect Indicators**

Direct/indirect effect indicators are specific to each resource category and are presented in the past/present effects analysis for each resource.

#### **Past/Present External Events and Actions**

The detailed checklists identify the following human-controlled external event and action categories and natural and climatic events relevant to the past/present effects analysis:

- Past and present foreign fisheries (inside the U.S. EEZ prior to the MSA and, after passage of the MSA in 1976, outside the EEZ). Appendix B of this document provides a detailed discussion of the historical foreign fisheries and pertinent management actions;

- Fisheries managed by the International Pacific Halibut Commission (IPHC).
- Fisheries managed by the State of Alaska.
- Native subsistence fisheries.
- Commercial harvesting of marine mammals and seabirds.
- Subsistence hunting of marine mammals and seabirds.
- Pollution and toxic contamination, including the *Exxon Valdez* Oil Spill (EVOS).
- Introduction of mammalian predators to seabird colonies.
- Natural events and phenomena.
- Long- and short-term climatic events.

### **Internal Events and Actions**

These include post-MSA foreign fisheries inside the U.S. EEZ, Joint Venture (JV) fisheries, and domestic fisheries. Management actions include the BSAI and GOA FMPs and associated amendments. Also included are the Endangered Species Act (ESA) Section 7 consultations (Biological Opinions [BiOps]) of National Marine Fishery Service (NMFS or National Oceanic and Atmospheric Administration [NOAA] Fisheries) and the U.S. Fish and Wildlife Service (USFWS), and the resulting Reasonable and Prudent Alternatives (RPAs) that have been implemented to protect endangered or threatened species. Appendix B of this document provides a detailed discussion of the evolution of the fisheries management plans in use today and an analysis of FMP amendment actions.

#### **3.1.4 Past/Present Effects Analysis**

There are two reasons for describing and evaluating past and present effects on the environment. First, this process is necessary to build the picture of the baseline—the status as of 2001 or 2002—for each resource component (for example, walleye pollock, Steller sea lion, the ecosystem, per capita income). In other words, *it helps to explain how the baseline got to be the way it is*. And second, the past/present effects analysis identifies past effects of human actions and natural events that may persist in the present *and continue to exert an influence in the future*.

To evaluate the significance of potential impacts, it is necessary to establish a baseline, or benchmark, against which the predicted direct, indirect, and cumulative effects of the alternatives can be compared. For comparative purposes, the baseline is a slice through time, a snapshot, that represents the affected environment at a fixed point in time. The description of the comparative baseline was prepared utilizing data available through 2001 or 2002, depending on the type of data. With the exception of socioeconomic and seabirds, the comparative baseline for environmental factors utilize data through 2002. For the socioeconomic comparative baseline and socioeconomic model used for analysis in Chapter 4, 2001 data were used because 2002 were not available prior to the release of the 2003 Draft PSEIS. These years were chosen because they were the most recent years for which a wide range of fishery-related and other resource data were available

to the analysts preparing the draft document. The National Environmental Policy Act (NEPA) does not contain a standard rule that prescribes how the baseline should be defined, but the standard practice is to select the most recent year for which nearly complete environmental data are available when starting the analyses. In Chapter 4, the authors have updated some impact analyses between the draft and final documents in cases where new data that might affect the significance determinations were available. As a practical matter, the document preparation and review process makes it infeasible to move the baseline continuously forward in time, and the use of 2001 and 2002 as the baseline remains relevant and appropriate to the baseline characterization and impact assessments as of 2004.

The baseline characterization of current conditions is more, however, than simply a snapshot through time. It takes into account past human actions and natural events that have influenced resources in various ways, leading, for example, to population declines or increases, or changes in distribution. To characterize such dynamic processes, it is necessary to identify trends that began in the past and have continued to affect resources through the years leading up to the baseline. This allows the baseline description to distinguish features that are continuously changing from those that are static, an important factor in assessing the potential environmental impacts of the alternatives. In addition, the identification of trends is necessary to make future projections regarding a particular resource component, because trends from the past and present may continue into the future. This aspect is especially relevant to the cumulative effects analyses in Chapter 4, because those assessments must take into account past, present, and reasonably foreseeable future human actions and natural events that might add to or interact with the predicted direct and indirect effects of the alternatives (CEQ 1997).

Accordingly, the text descriptions of the affected environment for each of the resource components described in this chapter take past effects and trends into account. A two-tier table structure is used for summarizing the written discussions and for organizing the information used in the cumulative effects analyses. For each resource, a first table organizes the information from the past/present effects analysis used in defining baseline conditions for a resource. This baseline information then feeds into a second table, which is the cumulative effects table. Chapter 4 provides a detailed discussion of the cumulative effects tables. The first-tier, past/present effects tables are explained below.

The main column headings in the past/present effects analysis table are as follows:

**Direct/Indirect Effects:** Effects identified for each resource that have the potential to cause population and/or ecosystem level effects are listed, as follows.

- **Past/Present Events:** Events that produce or have the potential to produce the identified direct/indirect effects, listed in relation to direct/indirect effects listed in the first column. This column heading is further divided into two sub-columns:
  - External: Natural, climatic, and human controlled events and actions not directly associated with management of the groundfish fisheries.
  - Internal: Events and actions directly associated with management of the groundfish fisheries.
- **Past/Present Management Actions:** Management actions that regulate the events, listed in relation to the direct/indirect effects listed in the first column. This column heading is further divided into two sub-columns:



- External: actions self-imposed by management and industry related to the direct/indirect effects listed in the first column and not directly associated with management of the groundfish fisheries)
- Internal: Management actions related to the direct/indirect effects listed in the first column and directly associated with groundfish fisheries management

In addition, a text box is provided with each past/present effects table that summarizes the comparative baseline of a resource. All of the information in the past/present effects tables is also discussed in each resource category sub-section.

By using this approach the Programmatic SEIS provides two ways of viewing the analyses, in text and tabular formats. The information in the tables is supported by the text, so that the reader can refer to the text description to get more information on any aspect of a table. Conversely, the reader can use the tables to gain a quick summary of the conclusions in the text. To facilitate this, the text discussions and related tables are cross-referenced.

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