

How are the Council's EBFM management goals and objectives currently articulated?

Groundfish Workplan (revised in 2007, from Alternative 1b in PSEIS)

- Preserve Food Web
 - Encourage and participate in development of key ecosystem indicators
 - Reconcile procedures to account for uncertainty and ecosystem considerations in establishing harvest limits, for rockfish and other species
 - Develop pilot Fishery Ecosystem Plan for the AI
- Reduce and Avoid Impacts to Habitat
 - Evaluate effectiveness of existing closures
 - Consider Bering Sea EFH mitigation measures

Groundfish PSEIS (finalized in 2004)

Each of the alternatives is informed by ecosystem-based policies. The NOAA Fisheries Ecosystem Principles Advisory Panel (NMFS Ecosystem Principles Advisory Panel 1999) describes ecosystem-based management for marine fisheries as follows:

Ecosystem-based management can be an important complement to existing fisheries management approaches. When fishery managers understand the complex ecological and socioeconomic environments in which fish and fisheries exist, they may be able to anticipate the effects that fishery management will have on the ecosystem and the effects that ecosystem change will have on fisheries. However ecosystem-based management cannot resolve all of the underlying problems of the existing fisheries management regimes. Absent the political will to stop overfishing, protect habitat, and support expanded research and monitoring programs, an ecosystem-based approach cannot be effective.

A comprehensive ecosystem-based fisheries management approach would require managers to consider all interactions that a target fish stock has with predators, competitors, and prey species; the effects of weather and climate on fisheries biology and ecology; the complex interactions between fishes and their habitat; and the effects of fishing on fish stocks and their habitat. However, the approach need not be endlessly complicated. An initial step may require only that managers consider how the harvesting of one species might impact other species in the ecosystem. Fishery management decisions made at this level of understanding can prevent significant and potentially irreversible changes in marine ecosystems caused by fishing. (PSEIS 2.6, pages 2-46 and 2-47).

Aleutian Island Fishery Ecosystem Plan (finalized in 2007)

1.1 Purpose of the Fishery Ecosystem Plan

The Council has summarized the goal of the FEP with the following statement:

The goal of this FEP is to provide enhanced scientific information and measurable indicators to evaluate and promote ecosystem health, sustainable fisheries, and vibrant communities in the Aleutian Islands region.

The Aleutian Islands (AI) ecosystem is complex, and the least predictable of the ecosystems in which the Council manages. This FEP is intended to be an educational tool and resource that can provide the Council with both an 'early warning system', and an ecosystem context to fishery management decisions affecting the Aleutian Islands area. This document should help the Council respond to changing conditions in a proactive rather than reactive mode.

Council purpose statement

The FEP document, and associated process, is anticipated to be evolutionary in nature; the purposes listed below are intended to be achieved over time. The purposes of the FEP are:

a. to integrate information from across the FMPs with regard to the Aleutian Islands, using existing analyses and reports such as the Groundfish PSEIS, the EFH EIS, and the Ecosystem Considerations chapter

NOTE: this integration should be user-friendly, i.e., short, simple, and avoiding redundancy

b. to identify a set of indicators for the Aleutian Islands to evaluate the status of the ecosystem over time

c. to provide a focal point to develop and refine tools, such as ecosystem models to evaluate the indicators

d. to identify sources of uncertainty and use them to determine research and data needs

e. to assist the Council in (1) setting management goals and objectives, and (2) understanding the cumulative effects of management actions

Arctic Fishery Management Plan (adopted in 2009)

2.2 Management Policy for Arctic Fisheries

The Council recognizes the different and changing ecological conditions of the Arctic, including warming trends in ocean temperatures, the loss of seasonal ice cover, and the potential long term effects from these changes on the Arctic marine ecosystem. More prolonged ice-free seasons coupled with warming waters and changing ranges of fish species could together create conditions that could lead to commercial fishery development in the Alaskan Arctic EEZ. The emergence of unregulated, or inadequately regulated, commercial fisheries in the Arctic EEZ off Alaska could have adverse effects on the sensitive ecosystem and marine resources of this area, including fish, fish habitat, and non-fish species that inhabit or depend on marine resources of the Arctic EEZ, and the subsistence way of life of residents of Arctic villages.

The Council views the development of an Arctic FMP as an opportunity for implementing an ecosystem based management policy that recognizes these issues in the Alaskan Arctic EEZ.

The Council's management policy for the Arctic EEZ is an ecosystem-based management policy that proactively applies judicious and responsible fisheries management practices, based on sound scientific research and analysis, to ensure the sustainability of fishery resources, to prevent unregulated or poorly regulated commercial fishing, and to protect associated ecosystems for the benefit of current users and future generations. This management policy recognizes the need to balance competing uses of marine resources and different social and economic goals for

sustainable fishery management, including protection of the long-term health of the ecosystem and the optimization of yield from its fish resources.

Recognizing that potential changes in productivity may be caused by fluctuations in natural oceanographic conditions, fisheries, and other non-fishing activities, the Council intends to continue to take appropriate measures to insure the continued sustainability of the managed species and to prepare for possible fishery development in the Arctic (Lellis 2004). This policy will use and improve upon the Council's existing open and transparent process of public involvement in decisionmaking. Given this management policy, the Council's fishery management goals for the Arctic EEZ are to provide sound conservation and sustainability of fish resources, provide socially and economically viable commercial fisheries for the well-being of fishing communities, minimize human-caused threats to protected species, maintain healthy habitat for marine resources, and incorporate ecosystem-based considerations into management decisions. This policy recognizes the complex interactions among ecosystem components, and seeks to protect important species utilized by other ecosystem component species, potential target species, other organisms such as marine mammals and birds, and local residents and communities.

In implementing the management policy and objectives, the Council will consider and adopt, as appropriate, measures that prevent unregulated or poorly regulated fishing; apply ecosystem-based management principles that protect managed species from overfishing and protect the health of the entire marine ecosystem; where appropriate and practicable, include habitat protection and bycatch constraints; authorize and regulate commercial fishing in the Arctic EEZ consistent with the objectives of the management policy should commercial fishery development be proposed in the future; and apply the Council's precautionary, adaptive management approach through community-based or rights-based management. All management measures will be based on the best scientific information available.

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The purpose of the third section, Ecosystem Status and Management Indicators, is to provide detailed information and updates on the status and trends of ecosystem components as well as to provide either early signals of direct human effects on ecosystem components that might warrant management intervention or to provide evidence of the efficacy of previous management actions.

Ecosystem-based management indicators should also track performance in meeting the stated ecosystem-based management goals of the NPFMC, which are:

1. Maintain biodiversity consistent with natural evolutionary and ecological processes, including dynamic change and variability
2. Maintain and restore habitats essential for fish and their prey
3. Maintain system sustainability and sustainable yields for human consumption and nonextractive uses
4. Maintain the concept that humans are components of the ecosystem

Since 1995, the North Pacific Fishery Management Councils (NPFMC) Groundfish Plan Teams have prepared a separate Ecosystem Considerations appendix to the annual SAFE report. Each new Ecosystem Considerations appendix provides updates and new information to supplement the original appendix. The original 1995 appendix presented a compendium of general information on the Bering Sea, Aleutian Island, and Gulf of Alaska ecosystems as well as a general discussion of ecosystem-based management. The 1996 appendix provided additional

information on biological features of the North Pacific, and highlighted the effects of bycatch and discards on the ecosystem.

The 1997 appendix provided a review of ecosystem-based management literature and ongoing ecosystem research, and provided supplemental information on seabirds and marine mammals. The 1998 edition provided information on the precautionary approach, essential fish habitat, effects of fishing gear on habitat, El Nino, local knowledge, and other ecosystem information. The 1999 edition again gave updates on new trends in ecosystem-based management, essential fish habitat, research on effect of fishing gear on seafloor habitat, marine protected areas, seabirds and marine mammals, oceanographic changes in 1997/98, and local knowledge. In 1999, a proposal came forward to enhance the Ecosystem Considerations appendix by including more information on ecosystem indicators of ecosystem status and trends and more ecosystem-based management performance measures. The purpose of this enhancement was to accomplish several goals:

1. Track ecosystem-based management efforts and their efficacy,
2. Track changes in the ecosystem that are not easily incorporated into single-species assessments,
3. Bring results from ecosystem research efforts to the attention of stock assessment scientists and fishery managers,
4. Provide a stronger link between ecosystem research and fishery management, and
5. Provide an assessment of the past, present, and future role of climate and humans in influencing ecosystem status and trends.

The 2000-2009 Ecosystem Considerations appendices included some new contributions in this regard and will continue be built upon. Evaluation of the meaning of the observed changes needs to be in the context of how the indicator relates to a particular ecosystem component. For example, particular oceanographic conditions such as bottom temperature increases might be favorable to some species but not for others. Evaluations should follow an analysis framework such as that provided in the draft Programmatic Groundfish Fishery Environmental Impact Statement that links indicators to particular effects on ecosystem components.

In 2002, stock assessment scientists began using indicators contained in this appendix to systematically assess ecosystem factors such as climate, predators, prey, and habitat that might affect a particular stock. Information regarding a particular fishery's catch, bycatch and temporal/spatial distribution can be used to assess possible impacts of that fishery on the ecosystem. Indicators of concern can be highlighted within each assessment and could be used by the Groundfish Plan Teams and the Council to justify modification of allowable biological catch recommendations or time/space allocations of catch. (Introduction pages 34-35).

Other documents and reports with EBFM considerations

- Northern Bering Sea Research Plan
- Bering Sea Bottom Trawl Gear Modification
- Longline seabird avoidance gear
- Five year research priorities