


MEMORANDUM

TO: Council, SSC and AP Members  
FROM: Chris Oliver   
Executive Director  
DATE: May 30, 2006  
SUBJECT: Ecosystem-based Management

ESTIMATED TIME: 1 HOUR
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**ACTION REQUIRED**

Receive Ecosystem Committee report and take action as necessary

**BACKGROUND**

The Ecosystem Committee met on May 19, 2006, at the Alaska Fisheries Science Center. The Committee minutes are attached as Item D-4(1).

The Committee's primary agenda item was to discuss the development an AI Fishery Ecosystem Plan. The Committee recommends that the Council initiate the AI FEP at this time. As previously discussed, the FEP would be a strategic policy document, intended to guide the Council's FMP management with respect to the Aleutian Islands. The FEP would contain no management measures or regulatory authority. As the FEP is strictly a planning document for the Council, it does not require a NEPA analysis, nor does it require Secretarial review and approval.

The Committee has defined the intended purposes of the FEP, and has identified an ecosystem boundary for the Aleutian Islands. The Committee also recommends that the Council create a technical AI Ecosystem Team, to assist Council staff with the development of the FEP. A summary of the recommendations follows; the Committee's rationale is summarized in the minutes.

**Ecosystem Committee Recommendations for an AI Fishery Ecosystem Plan**

1. The Committee recommends that the Council initiate the development of a Fishery Ecosystem Plan for the Aleutian Islands ecosystem area.
2. The Council would use the FEP to focus on the Aleutian Islands geographical area. The FEP document, and associated process, is anticipated to be evolutionary in nature; the purposes are intended to be achieved over time. The purposes of the FEP would be:
  - 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: the Committee emphasizes that 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 setting management goals and objectives, and in understanding the cumulative effects of management actions
3. For the purposes of the FEP, the boundary of the Aleutian Islands ecosystem area would be identified as the Aleutian Islands west of Samalga Pass (169° W. longitude), which is approximately the area identified in the BSAI Groundfish FMP as the Aleutian Islands subarea. However, the boundary should not constrain the FEP from accounting for species moving in and out of the area, and other external inputs.
  4. The Committee recommends that the Council form an AI Ecosystem Team to work with Council staff to develop the AI FEP. As this would be a scientifically technical group, the Council may wish to consider one or more representatives from the Council's existing Plan Teams, and others with appropriate expertise. It is anticipated that the role of the team, and its membership, may change once the FEP has been developed.

## Ecosystem Committee Minutes

May 19, 2006 8:30am-4pm

Rooms A/B, Building 9, Alaska Fisheries Science Center, Seattle, WA

**Committee:** Stephanie Madsen (chair), Doug DeMaster, Dave Fluharty, David Benton, Jon Kurland, Jim Ayers (teleconference), Chris Oliver (staff), Diana Evans (staff)

**Others participating included:** Joe McCabe, Diana Stram, Kerim Aydin, Sarah Gaichas, Jennifer Boldt, Pat Livingston, Anne Hollowed, Clarence Pautzke, Jeff Napp, Phyllis Stabeno, Allen Macklin, Jim Ianelli, Dave Fraser, Kristy Despars, Thorn Smith, Carla Gore, Jennifer Kassakian, John Gauvin, David Witherell (teleconference), Jon Warrenchuk (teleconference), Ben Enticknap (teleconference)

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The Ecosystem Committee discussed development of an Aleutian Islands Fishery Ecosystem Plan, and received a number of informational presentations.

### **Aleutian Islands Fishery Ecosystem Plan**

Ms Evans introduced the Aleutian Islands Fishery Ecosystem Plan (FEP) agenda item with a short summary of the Committee's progress to date. The Committee is considering whether to develop a Fishery Ecosystem Plan for the Aleutian Islands that would serve as a strategic policy and planning document. The development of the FEP would be in the nature of a pilot case, to determine whether FEPs are a useful tool for ecosystem-based management of the Alaskan fisheries. The FEP would be a stand alone document with no regulatory authority, and containing no management measures, but it would guide the Council in its FMP management. Various national reports have suggested guidelines as to the content of FEPs, however, regional approaches look very different. FEPs have begun to be developed in different parts of the nation (and are most advanced in the Western Pacific, South Atlantic, and Chesapeake Bay). The Committee has also discussed creating an AI Ecosystem Team.

### Presentations

The Committee received three presentations on the FEP from AFSC staff. Dr Boldt gave a summary of the information relating to the Aleutian Islands that is available in the Ecosystem Considerations chapter of the annual SAFE report, of which she is the chief editor. Dr Boldt also identified the ecosystem objectives evaluated in the annual ecosystem assessment, along with associated indicators and thresholds. The Committee clarified with Dr Boldt that the indicators are rated significant or insignificant based on their status in relation to the threshold; no prescriptive action is currently required based on the indicators.

Dr Aydin provided an overview of ecosystem modeling with respect to the Aleutian Islands, including the different types of ecosystem models that are being developed at the AFSC, and the type of data available for the Aleutians. Dr Aydin commented that unlike stock assessment models, the data driving ecosystem models do not respond on an annual basis. He suggested that if the FEP is based on models, an appropriate schedule for revising the FEP document might be every 3 to 5 years, rather than on an annual basis. Dr Aydin compared the three ecosystem areas, the Bering Sea, Gulf of Alaska, and Aleutian Islands, and noted that the Aleutian Islands ecosystem area is the least predictable. In discussion with the Committee, he explained that while we may know more about the Bering Sea to develop a FEP, we are more likely to pick up warning signs of changes in the Bering Sea ecosystem in our existing stock assessment process. However, the variability of the Aleutian Islands ecosystem is more likely to require innovative approaches to help us identify and react more quickly when problems occur.

Ms Gaichas presented her doctoral research on modeling of the GOA ecosystem, with the object that similar methods might be employed to understand the AI ecosystem. Ms Gaichas has identified the network structure of the GOA food web, and tested hypotheses in order to understand its sensitivity to ecosystem reorganization. Her conclusions indicate that the ecosystem seems to be robust to light or moderate levels of fishing, but impacts to identifiable key species are likely to dramatically affect the whole ecosystem.

### Discussion with AFSC

Following the presentations, the Committee engaged in a discussion with the AFSC staff present at the meeting. The discussion focused on ways to make the FEP useful, rather than a repackaging of existing information that would provide little added value to the Council. Performance metrics were identified as a useful tool, especially as a way to evaluate where we are relative to goals. Such performance metrics are identified to some extent in existing reports, including in the Groundfish PSEIS. This would involve identifying thresholds and prescriptive measures to take effect when thresholds are exceeded. It is not clear, however, that our confidence in existing ecosystem models is sufficient to use them as prescriptive tools. Instead, these models are useful for understanding interactions, such as which species in an ecosystem are critical, or how to identify indicator species. The importance of building climate variability into the ecosystem models was also discussed, which would improve their forecasting ability.

Many of the ideas and suggestions discussed by AFSC staff are ones that they are already working on. The conclusion of the discussion seemed to be that the utility of the FEP could be as an interface between the ongoing science and the Council. Knowing that much of the ecosystem research is progressing rapidly, the FEP can help the Council stay current with the status of the Aleutian Islands ecosystem, and hopefully react more quickly to any problems that may be developing.

### Committee Recommendations

The Committee's recommendations for proceeding with an Aleutian Islands FEP are listed in the text box. The Committee recommends that the Council initiate development of an AI FEP. Earlier discussion with AFSC staff about the need for innovative approaches in an unpredictable system supports selecting the Aleutian Islands as the appropriate pilot ecosystem area for testing the utility of an FEP.

The Committee identified five purposes for the FEP. Some of these items can be achieved by the FEP immediately; others, such as relying on ecosystem modeling to help set harvest levels, will take longer to accomplish. The ability of the FEP and its associated process to serve all of these purposes is intended to evolve and improve over time.

Committee members discussed how to proceed with the FEP without duplicating existing work and/or requiring extensive staff work. The Committee emphasized that it is not looking for an encyclopedic collection, but instead a user-friendly, simple, and succinct understanding of ecosystem processes in the Aleutian Islands, that will be informative and useful to the Council.

The Committee identified Samalga Pass as the appropriate boundary for the Aleutian Islands ecosystem, referencing the ecological evidence cited in the discussion paper. As this approximates the BSAI Groundfish FMP AI subarea, whose eastern boundary falls at 170° W. longitude, this is also an appropriate logistical boundary. Much of our data is collected using this line, and the ecosystem models currently use the 170° W. longitude cut off. The boundary should not, however, constrain the FMP from providing an adequate understanding of ecosystem processes, including interactions that occur inside and outside of the area.

### **Ecosystem Committee Recommendations for an AI Fishery Ecosystem Plan**

1. The Committee recommends that the Council initiate the development of a Fishery Ecosystem Plan for the Aleutian Islands ecosystem area.
2. The Council would use the FEP to focus on the Aleutian Islands geographical area. The FEP document, and associated process, is anticipated to be evolutionary in nature; the purposes are intended to be achieved over time. The purposes of the FEP would be:
  - 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: the Committee emphasizes that 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 setting management goals and objectives, and in understanding the cumulative effects of management actions.
3. For the purposes of the FEP, the boundary of the Aleutian Islands ecosystem area would be identified as the Aleutian Islands west of Samalga Pass (169° W. longitude), which is approximately the area identified in the BSAI Groundfish FMP as the Aleutian Islands subarea. However, the boundary should not constrain the FEP from accounting for species moving in and out of the area, and other external inputs.
4. The Committee recommends that the Council form an AI Ecosystem Team to work with Council staff to develop the AI FEP. As this would be a scientifically technical group, the Council may wish to consider one or more representatives from the Council's existing Plan Teams, and others with appropriate expertise. It is anticipated that the role of the team, and its membership, may change once the FEP has been developed.

The Committee anticipates that the development of the FEP will proceed through the normal Council process. The document will be developed and vetted through the Scientific and Statistical Committee and the Advisory Panel, which will provide guidance to the Council for their deliberations. Public comment on the FEP will be accepted at all of these hearings. The Council, acting on this advice, will be the final arbiter of the FEP document. The FEP is not subject to Secretarial review, as it is exclusively a planning document for the Council.

The task of the AI Ecosystem Team is to help with developing the FEP. The Committee suggests that the Team include representatives of the existing FMP Teams. This group will be akin to a staff working group, except perhaps with additional outside expertise as appropriate. The Committee suggests asking the SSC for advice about the specific membership.

In particular, the AI Ecosystem Team may be instrumental in developing purpose (b), as listed in the text box above. While there are a number of objectives and indicators identified generally for the Alaskan fisheries (e.g., in the Groundfish FMPs, and in the annual Ecosystem Assessment), it may be useful to refine and regionalize them for the Aleutians. Dr Boldt's model of identifying objectives, indicators, and thresholds, will be a useful starting point for this exercise. The Ecosystem Team will work with the SSC and the Council in developing appropriate indicators for the AI.

The Ecosystem Team is not intended to serve the purpose of advising the Council, as outlined in the options in the staff discussion paper. As the FEP evolves, there may be a need for a Council advisory group, at which time the Ecosystem Team may be reconstituted with different membership and objectives.

The Committee also discussed Dr Aydin's suggestion of a 3-5 year timeline for the revision of the FEP document. This accords with recommendations by the external Ecosystem Task Team (see summary of report below). The Committee deferred making a recommendation on the timeline at this time.

### **Other Initiatives**

The Committee received a presentation on **EcoFOCI** from Dr Stabeno and Dr Napp, of the Pacific Marine Environmental Laboratory (PMEL), NOAA Office of Atmospheric Research. EcoFOCI is a combination of two existing coordinative efforts between AFSC and PMEL, the North Pacific Climate Regimes and Ecosystem Productivity (NPCREP) program, and the Fisheries-Oceanography Coordinated Investigations (FOCI) program. Various large scale climate models have been developed for the Alaska ecosystem areas, and it is hoped that the results from these models will be able to be used to add climate variability parameters into fishery models. Many of the indicators monitored and developed by this research are used in the Ecosystem Considerations chapter and other reports.

Ms Livingston presented a summary of the NPRB- and PICES-sponsored **Bering Sea Ecological Indicators project**. The intent of the project is to develop a set of operational objectives for the south Bering Sea ecosystem area, and investigate and identify indicators to measure these objectives. A workshop has been planned for early June, gathering regional, national, and international scientists. It is anticipated that the outcome of this project will be useful for developing the AI FEP. Ms Livingston also provided a summary of a recent **NRC report on Ecosystem Effects of Fishing**, entitled *Dynamic Changes in Marine Ecosystems: Fishing, Food Webs, and Future Options*. The report contains a number of recommendations for improving ecosystem approaches to management.

Dr Fluharty summarized the recent **Preliminary Report of the external Ecosystem Task Team**, a report to the NOAA Science Advisory Board. The report suggests some changes to NOAA's organization, including creation of regional coordination groups that would extend across NOAA line offices within a region, and would development integrated ecosystem assessments (IEAs). The development of an AI FEP may in some way tie in with these IEAs.