

DRAFT

Role of the North Pacific Fishery Management Council in the development of an Ecosystem Approach to Management for the Alaska large marine ecosystems

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In February 2005, the North Pacific Fishery Management Council's Ecosystem Committee requested staff prepare a discussion paper suggesting ways for the North Pacific Fishery Management Council (NPFMC) to be involved in the development of an ecosystem approach to management (often termed EAM) for the Alaska large marine ecosystems. This paper describes the concept of an ecosystem approach to management, and the Council's current practices in ecosystem-based management in the North Pacific. The paper also presents three options for how the Council may become involved in a regional ecosystem governance structure, the benefits and disadvantages of such a role, considerations for funding, and a discussion of the process for implementing such a structure.

What is an Ecosystem Approach to Management?

The recent ocean commission reports both contain recommendations for ecosystem management. The PEW Oceans Commission report specifically suggests the Nation adopt institutional arrangements for managing marine resources on an ecosystem basis. The U.S. Commission on Ocean Policy gives a more detailed recommendation for an ocean policy that avoids "...the common practice of managing one activity or one part of an ecosystem without considering the impacts on and influence of other parts..." The report states that the Nation's ocean policy should be one that promotes ecosystem-based management of marine resources.

Implementation of ecosystem-based approaches to management may include a wide variety of considerations for governance. Of particular interest to NOAA Fisheries and the North Pacific Council is the context within which Alaskan EEZ groundfish and shellfish fisheries are managed for optimum yield. NOAA Fisheries has embarked on an approach to ecosystem-based management that promotes the sustainability of the Nation's living marine resources "... to determine the science, management and institutional requirements needed to secure the tremendous potential value from these resources..." From this initiative, NOAA Fisheries is developing guidelines for consideration by the Councils for "...rebuilding and sustaining fishery and protected species stocks to their long-term potential to help restore and sustain the long-term performance, productivity and biological diversity of marine ecosystems..."¹

NOAA proposes an Ecosystem Approach to Management, or EAM, that is broadly-conceived and includes multiple ecosystem values, resources, and stakeholders. An EAM is management that is:

- adaptive,
- geographically specified,
- takes account of ecosystem knowledge and uncertainties,

¹ Quotes from "NOAA Fisheries' Requirements for an Ecosystem Approach to Management of Living Marine Resources. U.S. Dept of Commerce, National Marine Fisheries Service, August 2004."

- considers multiple external influences, and
- strives to balance diverse social objectives.²

The EAM approach could include management of large geographic marine areas by regional ecosystem councils, but the governance structure has yet to be determined. Such councils would include all the stakeholders with interest in that region, including the fishery management councils. In Alaska, three geographic areas, or Large Marine Ecosystems (LMEs), have been proposed: the Arctic (Beaufort/Chukchi Seas), the eastern Bering Sea, and the Gulf of Alaska. The management of fishery resources in these areas would be just one of several components considered by the EAM governance body.

Ocean or Ecosystem Councils

Both the PEW Oceans Commission and the U.S. Commission on Ocean Policy have recommended the creation of regional ocean or ecosystem councils. The primary function of a regional ecosystem council appears to be the development of a regional ecosystem assessment, on which are based goals and objectives devised to protect, restore, and maintain, as necessary, the health of the marine ecosystem. NOAA has affirmed the use of regional ecosystem councils in its strategic plan for FY2005-FY2010 as a means to collaborate and coordinate with partners to achieve regional ecosystem objectives.

NOAA Fisheries has drafted a strategy that would establish ten regional marine ecosystem councils, with regions based on Large Marine Ecosystem delineations.³ The regional marine ecosystem councils would comprise federal, state, local, and tribal decisionmakers, regional fishery management councils, industry and resource users, community and non-governmental organization interest groups, academia, and the public. The ecosystem councils would be responsible for developing a regional marine ecosystem strategy that provides operational goals and objectives for the ecosystem, information on the ecosystem region, and performance metrics for assessing progress. Fishery management councils would modify their FMPs as necessary, to accord with the overarching guidance of the appropriate regional marine ecosystem strategy.

The NOAA Fisheries strategy does not necessarily comport with the U.S. Commission on Ocean Policy report, which did not promote a ‘one size fits all’ approach to regional ecosystem councils. Rather, the report recommends voluntary regional councils that build on existing partnerships and regional cooperative agreements. The regional fishery management councils have argued that the existing fishery management council process could effectively be used as a basis for establishing further collaboration with other agencies.⁴ As highlighted by the U.S. Commission on Ocean Policy, many of the key elements of a regional process are already embodied in the fishery management councils: regional councils based loosely on ecosystem boundaries, incorporation of science in management plans, and an emphasis on local public participation.⁵ Also, the Councils already include federal and state representatives from many agencies.

² NOAA. 2004. New Priorities for the 21st Century – NOAA’s Strategic Plan Updated for FY 2005-FY 2010. September 2004. <http://www.spo.noaa.gov/pdfs/NOAA%20Strategic%20Plan.pdf>

³ Holliday, M. 2004. Presentation on Guidelines for Regional Marine Ecosystem Approaches to Management. Oct 2004. http://www.nmfs.noaa.gov/sfa/reg_svcs/Council%20stuff/agendapresentations/GuidelinesforEAM.pdf

Lent, R. 2004b. Presentation on the Evolution toward an Ecosystem Approach to U.S. Fishery Management. Nov 9, 2004. www.oceansatlas.org/cds_upload/1100636687610_Lent.Ecosystem_Approach.ppt

⁴ Letter to Admiral Conrad Lautenbacher, NOAA Administrator, from the eight regional fishery management council Executive Directors, dated November 18, 2004.

⁵ US Commission on Ocean Policy. 2004. An Ocean Blueprint for the 21st Century Final Report of the U.S. Commission on Ocean Policy—Pre-Publication Copy, Washington, D.C., 2004. p. 242.

As recommended by commissions or by NOAA, the regional ecosystem councils are not intended to displace existing authorities. Instead, they would optimally provide an opportunity for managers to coordinate regional information and consider the cumulative impacts of all ongoing activities on ecosystem components. However, the development of an ecosystem policy (consisting of goals and objectives for maintaining ecosystem health) inevitably involves reconciling competing objectives. Vesting such authority in a regional ecosystem council would tend to constrain the regional fishery management councils' and NOAA Fisheries' management.

Many of the detailed questions regarding the implementation of ecosystem councils (or ocean councils; terms used interchangeably in this paper) remain to be answered. Would an ecosystem council figure in a national reporting hierarchy, and if so, how? What exactly would the ecosystem council do? And how would it accomplish its scope of work? Which stakeholders would be represented on the ecosystem council? How would funds be transferred and managed? Would the council's recommendations be binding, and if not, how would they be implemented? A brief discussion of these considerations follows.

U.S. Ocean Action Plan - Cabinet-level Structure and Administration

A consideration for an independent ecosystem council is the national hierarchy to which it would be subject (see illustration in Figure 1). President Bush has established by Executive Order a cabinet-level *Committee on Ocean Policy* "...to coordinate the activities of executive branch departments and agencies regarding ocean-related matters in an integrated and effective manner to advance the environmental and economic interests of present and future generations of Americans."⁶ The Committee, chaired by the Chairman of the Council on Environmental Quality, is charged with developing policy and working toward an ecosystem-based approach in making decisions related to land, water, and resource management. Interestingly, this Committee is to consider actions on oceans issues that address governance principles and streamline unnecessary overlapping authorities.

A subsidiary body to the Committee is an *Interagency Committee on Ocean Science and Resource Management*. Among its many responsibilities for coordination of existing coastal and ocean science and technology programs, the Interagency Committee will identify opportunities for improvements in the application of science for ecosystem-based management of ocean resources. The Interagency Committee will be advised by an Ocean Research Advisory Panel and a National Security Council Policy Coordinating Committee. Reporting to the Interagency Committee will be the *National Science and Technology Council Joint Subcommittee on Ocean Science and Policy*. This NSTC Joint Subcommittee will facilitate coordination of ocean science and technology programs, and will provide advice on science and technology for ecosystem-based management and stewardship of resources. The Interagency Committee also will be advised by an *Interagency Working Group on Ocean Resource Management*. Among its responsibilities for facilitating and coordinating the work of existing ocean and coastal interagency groups, the Interagency Working Group will identify opportunities for improvements in the application of science for ecosystem-based management of ocean resources.

As evidenced in the structure above, ecosystem-based management policies and procedures will likely be developed in several high-level committees. How these policies might trickle down from the Cabinet level to a specific EAM in the Alaskan EEZ is unclear. Ecosystem-based management principles are part of the charge of several committees based on the specific mandated focus of each. While there is a common theme of applying science and technology to ecosystem management, the process for how the Alaskan ecosystem-based resource management process connects with the Presidential-level Committee on Ocean Policy is yet to be determined.

⁶ From "U.S. Ocean Action Plan. The Bush Administration's Response to the U.S. Commission on Ocean Policy. December 2004.

Scope of work of an ocean or ecosystem council

This section briefly touches on several elements of the scope of work for an ecosystem council. It seems logical that one of the first activities of an ecosystem council would be the development of a plan or plans for how it will function and accomplish its goals. Accompanying that planning process would be the need for an administrative structure to facilitate the planning and plan implementation process. And the ecosystem council will require a set of protocols for how it does its work.

Ecosystem Plans

It seems logical that any new body must first define its goals and objectives, and put into place a means for accomplishing those goals. This process would necessarily include a way of monitoring progress toward meeting the goals, and a mechanism for adjusting the work or changing course if progress is not satisfactory. The plan would likely include a component of agency collaboration through regular ecosystem council meetings.

The ecosystem council would initially enter a phase of preparing ecosystem plans, perhaps one plan per LME. Guidelines for development of such plans are not in place; the ecosystem council could conduct a process for developing guidelines or rely on NOAA for suggestions. Or the planning process could mirror some other past exercises similar in nature, such as the Chesapeake Bay Fishery Ecosystem Plan. This planning process would involve collecting data, seeking public comment, collaborating with cooperating agencies, and developing a process for writing and eventually implementing the plan. The ecosystem council also would have to develop a structure and process for monitoring the plan as it is carried out, and evaluating how each plan objective is being met. Measurement tools for such evaluation would be required, and a process for periodic changes to the plan would have to be developed.

Ecosystem Council Administration

An administrative structure would be required for conducting the business of the ecosystem council. This would include identifying an appropriate funding level, putting into place a fiscal management process, identifying a needed staffing complement, establishing a personnel management structure, and securing an appropriate physical plant. There could be at least two options for staffing an ecosystem council: one option would be to have minimal staff and use collaborating agency staffs, either IPA'd or otherwise assigned to the ecosystem council, or by relying on the NPFMC's staff; or a second option might be to hire all staff directly and have them work exclusively for the ecosystem council. In the latter instance, co-locating one or more ecosystem councils for the North Pacific with the NPFMC currently would not be an option unless the latter Council moved its offices. Advantages to either option are obvious – cost versus staff availability. Were the ecosystem council and the NPFMC co-located, perhaps some staff synergy could occur to the advantage of both organizations, regardless of how staff sharing protocols are established, as physical proximity fosters collaboration.

Working Protocols

The ecosystem council would likely develop some kind of cycle for conducting its business, perhaps along the lines of the fishery management councils. This would likely evolve as the organization “finds its feet” and settles into a routine. There could be annual cycles for such activities as holding meetings, collecting data, ocean indicator monitoring, and program funding.

Of particular importance, the ecosystem council would likely need some kind of process for obtaining information and for acquiring feedback on how its programs are working. This may involve developing

its own data collection and management system, if funding permits, or the ecosystem council could piggyback on other agencies' data management structure through contractual arrangements. Regardless of the process for handling data, it will be very important to the success of an ecosystem council to have in place a reliable system for collecting, evaluating, and archiving data on the LMEs under its purview. Such data might include:

- data that measure ecosystem performance,
- data collected to evaluate ecosystem council objectives, and
- new scientific data on a wide variety of ocean components (physical, biological).

One question that might be entertained in this area is the relationship between the ecosystem council(s) and the North Pacific Research Board. The Board's goals are to seek knowledge of the marine ecosystems of the North Pacific, a charge not unlike what an ecosystem council may seek to accomplish. It might be appropriate to consider a dialogue on merging the activities of the ecosystem council(s) and the NPRB at some time in the future, or at a minimum maintaining a close partnership between the entities. Similar dialogues might be entertained with the Exxon Valdez Trustee Council or with a large number of State and Federal agencies and entities that have trust responsibilities to conduct research or related interests and research efforts in the marine environment of the North Pacific. The objective of such dialogues would be to avoid duplication of effort, to identify areas for collaboration and data sharing (and perhaps staff sharing), to pool financial resources, and to coordinate implementation of policies.

Membership of an ocean or ecosystem council

An equally important consideration in determining the scope of an ecosystem council is to consider its membership. All proposals for ocean or ecosystem councils to date have promoted the importance of regional flexibility. Recognizing that representation must vary by ecosystem, the slate of participants can be drawn from the following scales: international, Federal, State, and local stakeholders.

The question of whom to include on an ecosystem council is complex. Both the council's scope of work and the use to be made of its deliberations factor in to the decision. For example, if the findings of the council commit member agencies to any action, the distinction between voting and non-voting members, and the weighting of votes to represent affected interests, becomes critical. On the other hand, if the council's findings are not binding, the council members should be in such a position as to effect change in their representative agencies, so that the output of the ecosystem council is not a mere exercise.

Other considerations include whether to limit the ecosystem council only to government representatives, or whether to broaden it to include private interests. The Ocean Action Plan developed by the Bush Administration has set up a national hierarchy of ocean committees that represent the various government departments, which are advised by a private interest committee; should such a format be applied to an ecosystem council? Additionally, even if the slate of participants is limited to government representatives, does this apply only to Federal and State government departments, or are international or local representatives also invited. The GOA LME, for example, includes waters off the coast of Canada, so an international component would seem appropriate.

The role of science is also an influence on the choice of membership. The scope of work for the ecosystem council includes both policy and scientific elements. On the one hand, the council may be charged with developing an ecosystem plan for the region that balances competing uses. At the same time, the ecosystem council may be used as a forum for collaboration and scientific exchange about ecosystem function. One way to address both uses would be to follow the example of the fishery management council process, and create a scientific committee for the ecosystem council. In Alaska,

however, this function may already be satisfied by annual forums of organizations such as the North Pacific Research Board.

Separate ecosystem councils in Alaska?

Another basic issue is whether separate ecosystem councils would be created for each ecosystem area in the North Pacific, or if a single ecosystem council entity would be responsible for ecosystem management in all areas. If the decision is to create a separate ecosystem council for each LME, the complexity obviously would increase.

From the NPFMC perspective, it seems logical to consider three ecosystem areas for ecosystem council management: the eastern Bering Sea, the Aleutian Islands, and the GOA. This follows the NPFMC's regional FMP management approach. This does not necessarily accord with the LME approach, which identifies three LMEs in Alaska, and does not consider the Aleutian Islands as a separate ecosystem area. The LME approach does, however, recognize subregions within the LMEs, which may allow the Aleutian Islands to be considered independently. The NPFMC is not involved in the Arctic LME, which is not known to contain commercially exploitable fish stocks.

But fishery considerations are not the only factors to affect the ultimate geographic management framework for the ecosystem council(s), as influences such as chronic pollution, an acute environmental disturbance, marine transportation, climate and oceanographic considerations, military activities, and scientific research may end up being important drivers for developing an ecosystem council. For example, an ecosystem council might provide critical coordination among stakeholders in an ecosystem area that experienced a recent environmental disturbance such as a large oil spill, tsunami or other tectonic event, or discovery of a significant mineral resource slated for development.

Obligatory or optional? Accomplishing the goals of the ecosystem council

A fundamental question for the ecosystem council process is whether the recommendations of the ecosystem council will have any weight or influence on activities within the ecosystem area. The primary objection to the concept of ecosystem councils, as voiced during the ecosystem approaches advisory panel at the *Managing Our Nation's Fisheries II* national conference in Washington, D.C. in March 2005, is that the councils may end by adding another layer of bureaucracy to the fishery management process, without any substantive benefits. The ability of the ecosystem councils to influence both fishery and non-fishery activities will depend on the way in which they are framed.

The options for framing the ecosystem council's recommendations are twofold:

- A binding process – the advantages are that a decision of the ecosystem council would most likely be implemented. A declaration with the force of law behind it has more likelihood of success than a non-binding recommendation. However, national discussion to date has emphasized that ecosystem or ocean councils should be voluntary, and so developing a process that results in binding recommendations may not be feasible.
- A non-binding process – this can include a range of formats, from the fishery management council process, where recommendations are non-binding but usually implemented, to an advisory body whose findings may easily be ignored.

In order to avoid becoming an entity whose only responsibility is to develop recommendations that may receive little attention, the ecosystem council will need to find mechanisms to effect its recommendations. One way to accomplish this may be through Memoranda of Understanding between the partner agencies involved in the ecosystem council. Also, the ecosystem council may increase the force of its findings by

seeking out participants who can effect change at their respective agencies (e.g., the heads of the agencies). The ecosystem council may also reinforce its recommendations through its process and protocols. Feedback loops that oblige agencies to report back to the council on their progress in achieving ecosystem objectives can be useful tools.

The relationship, yet to be determined, between the ecosystem council and the newly created Committee on Ocean Policy may also influence the stature of the ecosystem council's recommendations.

The North Pacific Council and an Ecosystem Approach to Management

The North Pacific Council has an opportunity to shape how EAM will be implemented in the region and for fisheries management. Current Alaska EEZ groundfish and shellfish fishery management plans, regulations, and policies are geared primarily toward complying with the Magnuson-Stevens Act, which specifies management for optimum yield. In doing so the Council must comply with ten National Standards, most of which comport with the concept of ecosystem-based management. But the Council is still mandated to obtain optimum yield from the various shellfish and groundfish resources of the North Pacific. Ecosystem considerations in that process, to some, may be secondary to maximizing fishery production.

The Council currently employs many “ecosystem management” initiatives in the annual process of fishery management:

- an “Ecosystem Considerations” chapter in the annual SAFE documents,
- preparation of Environmental Assessments or Environmental Impact Statements for nearly every action taken,
- approval and implementation of a programmatic EIS for the groundfish fisheries that contains specific ecosystem considerations and guidelines the Council will employ in its fishery management process,
- a suite of management measures to protect ecosystem components: these measures include precautionary and conservative catch limits, limits on bycatch and discards, MPAs, and marine mammal and seabird measures⁷,
- a new program for reviewing GOA and BSAI ecosystem issues during the June meeting, thus providing an ecosystem-based backdrop to the process of setting fishery quotas at the October and December meetings,
- redesigned GOA and BSAI FMPs that have goals and objectives built around ecosystem components,
- a new initiative to explore more focused ecosystem-based management of fishery resources in the Aleutian Islands, and
- the appointment of a restructured and active Ecosystem Committee to relate to the national dialogue and resultant initiatives on ecosystem-based management.

Given the U.S. Commission on Ocean Policy's recommendations, the President's response and strategy for implementing those recommendations, and NOAA's initiatives to comply with these mandates, the Council is now faced with an opportunity to take a next step in developing an approach for ecosystem-based management in the North Pacific.

⁷ Witherell, D., C. Pautzke and D. Fluharty. 2000. An ecosystem-based approach for Alaska groundfish fisheries. *ICES Journal of Marine Science* 57:771-777.

Fishery management is but one component in an ecosystem approach to management. Other components in the North Pacific region include oil and gas exploration and development, marine transportation, military activities, marine and coastal research and education, pollutant management, other industrial uses, recreation, and cultural considerations. Implementing NOAA's EAM in the North Pacific may involve appointment of one or more regional ecosystem councils that could be comprised of the North Pacific Fishery Management Council, State and Federal agencies, communities, Native interests, industry and marine resource users, conservation groups, the Pacific States Marine Fisheries Commission, and other stakeholders. The regional ecosystem council would then develop a governance structure, a strategy, and implementation plans for conserving the many resources and services the North Pacific and its ecosystem areas provide.

The Council has a clear responsibility for encouraging healthy, productive, and biologically diverse marine ecosystems in which Federal fishing is managed, in order to maintain the sustainability of the Federal fisheries. Participating in regional ocean or ecosystem councils may be beneficial to the NPFMC to the extent that these ecosystem councils may help the NPFMC to better manage Federal fishery resources.

How the North Pacific Council will "fit" into the EAM is an important issue for the Council. The Council may even take the lead in developing how the EAM evolves for the region. NOAA has stated that implementing the EAM will be "incremental and collaborative", involving voluntary participation, collaboration among the many interests, and consensus-based decision making. The fishery management council process routinely employs these criteria, and thus the suggested process is familiar and already practiced in the North Pacific.

This section describes the several options available to the Council with regard to regional ecosystem councils. The three main courses of action are described below: modify the NPFMC to function as an ecosystem council; set up an independent ecosystem council with NPFMC administrative support; or allow ecosystem councils to be developed by another agency, with the NPFMC merely a participant. Each of these options could be developed in many different ways; the discussion below provides only a general description of what each option might entail. A summary of the three options is illustrated in Figure 2.

Option 1: The NPFMC functions as an ecosystem council

As mentioned above, the Council process already includes many of the collaborators who would be involved in an ecosystem council. Represented on the Council itself are NOAA Fisheries, USFWS, the Coast Guard, representatives of the fishery management agencies for the States of Alaska, Washington, and Oregon, and fishing industry representatives. The Advisory Panel includes industry, community, Native, and environmental representatives, and the Scientific and Statistical Committee includes academics and agency scientists. Many other groups participate in the process through regular testimony to the Council.

Other state and federal government representatives that might be involved in management of the ecosystem areas are other divisions of NOAA, other divisions of the State of Alaska, the Departments of Homeland Security and Defense, and the Marine Mammal Commission. International participants might be the International Pacific Halibut Commission and representatives of Canada or the Province of British Columbia. Other participants might represent communities, fishing groups, environmental groups, or representatives from academia. A draft example of the range of interested parties, in this case for the Aleutian Islands, is included as Table 1.

In order for the Council to take on the role of an ecosystem council, the Council's current process would need to be modified. One way to do this might be to create an ecosystem council as a standing committee

of the NPFMC. The ecosystem council would include a broad membership, and would perform the functions of an ecosystem council as envisioned by NOAA, except that as a NPFMC committee, their authority would be to make recommendations to the NPFMC. They would develop goals and objectives for the ecosystem area(s), prepare a comprehensive information base about the area, and determine performance metrics for assessing the health of the ecosystem against the goals and objectives. These products would then be brought before the NPFMC and adopted for the ecosystem area. Once the initial ecosystem plan is developed, the ecosystem council would continue to meet on a regular basis, as often as necessary, to update the plan and to provide a forum for information exchange among the various agencies.

The development of goals and objectives for ecosystem areas can be competitive as the trade offs among activities are reviewed to realize maximum ecosystem benefits. In order to be effective, the NPFMC would have to come to an understanding with the partner agencies participating in the ecosystem council, about reconciling competing objectives, and about the implementation of any recommendations of the ecosystem council.⁸ This is complicated by the fact that the ecosystem council would be set up such that its recommendations need to be approved by the NPFMC. One way to address this might be to invite representatives of those agencies who are not already on the NPFMC to a specially convened session and allow them to participate in the approval of the ecosystem plan. Invited agencies would include those with jurisdiction over activities, such as non-fishery activities, that form an important part of the ecosystem plan, and whose implementation of the plan is critical to its success.

One issue to resolve in implementation of this option is the geographical scope of areas under the oversight of the ecosystem council. The NOAA Fisheries strategy for ecosystem councils suggests creating one for each LME, of which there are three in Alaska. Two of these are areas in which the Council manages fishing activities, namely the eastern Bering Sea and the Gulf of Alaska.⁹ The NPFMC has no current involvement in the Arctic. If LMEs are determined to be the appropriate vehicle, the NPFMC could set up separate ecosystem councils for each, or perhaps set up a single ecosystem council, with BSAI and GOA working groups. Many of the participants who would be involved in the ecosystem council would be the same, at least for the BSAI and GOA. The NPFMC would need to decide whether it is the appropriate vehicle to foster the development of an ecosystem plan for the Arctic.

There are many benefits to the NPFMC of creating an ecosystem council. First, the opportunity to increase collaboration and exchange with other agencies that impact management of fisheries is beneficial to the NPFMC. The NPFMC does not directly interact with all of the agencies that affect federal fisheries, for example the International Pacific Halibut Commission; and with others, such as the USFWS, a forum for improving the common understanding of the ecosystem may also be desirable. Although the NPFMC has an indirect connection to other agencies through NOAA Fisheries, it may benefit the NPFMC to be directly informed and consulted about actions that affect the federal fisheries. The ecosystem council could serve this function.

Additionally, whether through Magnuson-Stevens Act reauthorization, other national oceans legislation, or through NOAA and NOAA Fisheries policies and guidelines, ecosystem-based management will continue to be developed and perhaps eventually required. NOAA Fisheries' FY2005-FY2010 strategic plan commits the Agency to issuing guidance for ecosystem approaches to fishery management. As expressed in the NOAA strategic plan, this management is likely to promote delineation of marine ecosystems and development of indicators to monitor ecosystem health, particularly in those regions, such

⁸ See also de la Mare, W. K. 2005. Marine ecosystem-based management as a hierarchical control system. *Marine Policy* 29. pp. 57-68.

⁹ As discussed in the previous section, the Aleutian Islands fit awkwardly between the two LMEs, but for the purpose of this discussion, they will be considered with the Bering Sea.

as Alaska, where appropriate data are available. The Alaska Fisheries Science Center is already working on developing the science to support this type of management, and their products are already used in annual stock assessments and the analysis of Alaska fishery actions that come before the NPFMC. An ecosystem plan might allow the NPFMC to apply on an ecosystem scale many of the management precepts that have already been developed for the groundfish fisheries in the revised management policy. The NPFMC would be setting an example of best practices which could assist other regions, or NOAA Fisheries nationally, to develop a standardized process for an ecosystem approach to management.

Logistically, there is also an advantage to creating an ecosystem council within the NPFMC process. The NPFMC office is already set up to facilitate NPFMC and committee meetings, and is experienced in successful meeting planning.

Yet there are also disadvantages to creating an ecosystem council within the NPFMC context. The NPFMC is committed to maintaining sustainable fisheries, which require healthy ecosystems. However, the NPFMC's jurisdiction and mandate remains federal fisheries management. Getting overly involved in non-fishery issues, in terms of NPFMC and staff time and resources, may redirect staff effort and resources from fishery management activities. The NPFMC already has a full workload, and lower-priority issues are on hold pending staff time to address them. The NPFMC will need to weigh the tradeoff between the benefit of being involved in an ecosystem council and the hindrance of shifting effort from basic fishery issues.

In addition to staff time, the NPFMC also needs to consider the cost of spearheading an ecosystem council in Alaska. If the ecosystem council is a standing committee of the NPFMC, the NPFMC is responsible for funding the ecosystem council. This may include the logistical costs of hosting a committee meeting and staff travel expenses; it may include travel expenses of other participants, time spent by staff both logistically and substantively planning the meeting, and preparing reports for the NPFMC, and the cost of hosting a special NPFMC session with invited participants to discuss the ecosystem council's recommendations. Unless additional funding is sourced, these costs would all come out of already-allocated NPFMC funding.

Variations on Option 1

There are many ways in which this option could be developed.

- The discussion above describes an ecosystem council that is set up as a standing committee of the NPFMC, which meets regularly during the year. The NPFMC would, in turn, convene a special session periodically, perhaps with additional participants invited to represent other agencies, to act on the ecosystem council/committee's recommendations.
- Another variation would be for the NPFMC to simply "become" the ecosystem council, without the intervening stage of a standing committee. This could be considered either as an interim measure while a different structure was developed, or a longer term strategy. In such a scenario, the NPFMC might first take steps to more formally and visibly demonstrate that it intends to begin a process of ecosystem management within the framework of its continuing responsibilities for ecosystem-based fishery management. The NPFMC could do this more intentionally by, for example, convening an annual special NPFMC meeting devoted entirely to ecosystem management. The NPFMC may consider inviting to the meeting representatives of those agencies with marine ecosystem responsibilities, with whom it does not regularly interact for fishery management purposes. The NPFMC could receive a series of reports on the "state of the oceans" within which it manages fisheries, and establish a frame of reference it subsequently would use when setting TACs for the coming year and for making other management decisions in the coming year. This meeting could generate a special "ecosystem report", either prior to or

subsequent to the meeting, that would replace the ecosystem considerations appendix to the annual SAFE documents. The report would be more of a synthesis and a statement of NPFMC policy for incorporating ecosystem management principles in its annual decision making process. Under this scenario, the NPFMC would essentially expand its role and work load. However, this might be a more expeditious way of moving into intentional ecosystem management with potentially a smaller cost and under a shorter time line.

Option 2: An independent ecosystem council is created, with administrative assistance from the NPFMC

Another option would be to create an independent ecosystem council, that is administratively supported by the NPFMC. This could be set up as an Alaska ecosystem council, with subcommittees for the BSAI, GOA, and Arctic ecosystem areas (if LME delineations are utilized), or as three separate ecosystem councils. The ecosystem council would have responsibilities as outlined above, to develop and update an ecosystem plan, to monitor ecosystem health with respect to the performance metrics outlined in the plan, and to provide a forum for information exchange among users and managers of activities within the ecosystem.

The ecosystem council could be set up to mirror the NPFMC structure and process. Seats could be designated for Federal and State agencies, local and Native authorities, user groups, and academics. Some groups could be accommodated as non-voting members, if necessary. The ecosystem council could perhaps be equated to the management arm of the North Pacific Research Board. The ecosystem council members would need to be senior position-holders, such as the Chair of the NPFMC, and the Regional Administrator of NMFS Alaska Region, with the authority to commit their agencies to the findings of the ecosystem council.

Administratively, the ecosystem council would benefit greatly from NPFMC support. As discussed under Option 1 above, the NPFMC is set up to support and staff a council process. Financially, the NPFMC is also in a position to receive and manage funding channeled through NOAA Fisheries to support an ecosystem council. However, the ecosystem council would have staffing requirements that are unlikely to be met by the existing NPFMC staff. At least one or more dedicated ecosystem council staff would likely be required, and the scope of the enterprise would determine whether the NPFMC Executive Director would be able to oversee the ecosystem council and staff, or whether a separate Executive Director would be required.

Due to costs involved, the creation of the ecosystem council may be dependent on a funding source becoming available. Some of the administrative support of the ecosystem council could be borne by the NPFMC. Questions to be resolved would include whether ecosystem council members are compensated, the frequency of meetings, and staffing for the ecosystem council.

Many of the benefits of an ecosystem council, as discussed in Option 1 above, would also accrue by the creation of an ecosystem council. The close staffing relationship of the ecosystem council and the NPFMC would foster a strong partnership, and the NPFMC would participate on the ecosystem council thus benefiting from agency collaboration and increased ecosystem awareness. At the same time, the focus of the NPFMC remains on fishery management, and staff or resources would not be as diverted as they would be under Option 1.

The ecosystem council would benefit from increased impartiality, as its findings would not be subject to the approval or disapproval of a fishery-focused NPFMC. This may be some disadvantage to the NPFMC, as it has no control over the findings of the ecosystem council, other than through its participation. The

NPFMC would still provide staffing and administrative support to the ecosystem council, which would tax the NPFMC's resources to some extent, but to a far lesser degree than in Option 1.

Variations on Option 2

There are many ways in which this option could be developed, along the lines of the discussion above.

- The ecosystem council could be set up as an ecosystem council, but with designated co-chairs. The co-chairs could be the Chair of the NPFMC and the Commissioner of the State of Alaska Department of Fish and Game (or their representatives). Developed as such, this option would have much in common with Option 1. As designated co-chairs of the ecosystem council, fishery interests would have an important voice on the ecosystem council. Administratively and analytically, the burden of supporting the ecosystem council could be shared between the NPFMC and ADF&G. As a separate entity, the ecosystem council would be representative of all parties involved in the management of the Alaskan marine ecosystems, without having to modify the NPFMC process to accommodate other agencies. However, because of the fishery co-chairmanship, the ecosystem council may not be vested with the same degree of impartiality as under other scenarios.
- A different type of partnership might lead to an option that looks more like Option 3. The NPFMC could explore setting up an ecosystem council in conjunction with NOAA Fisheries and the National Ocean Service. Again, a partnership that would spread the burden of administrative and analytical support would alleviate pressure on NPFMC staff and resources. Partnering with NOAA Fisheries would ensure a strong consideration of fishery interests in the deliberations of the ecosystem council. This variation on Option 2 would allow the NPFMC some control in the initial development of the scope of the ecosystem council, in terms of representation and mandate, but other interests, including non-fishery interests, would also play an important role.
- A melding of these variations was discussed by the Council's Ecosystem Committee, and is illustrated in Figure 3. This variation proposes a partnership among the NPFMC, NOAA Fisheries, and the State of Alaska to develop an ecosystem council.

Option 3: Another agency sets up an ecosystem council

The NPFMC may also choose not to be proactive in the development of an ecosystem council. What would it mean for the NPFMC if another agency were to set up an ecosystem council? In this case, the ecosystem council or councils (depending on whether one is created for each LME) would likely be set up as an overarching, voluntary governance authority. Members would include the same participants as in the cases above. It is likely that the organizer of the ecosystem council would be a NOAA agency, since the NOAA strategic plan addresses the creation of councils; however, this agency may not necessarily be NOAA Fisheries. The NPFMC would likely participate as a member of the ecosystem council, but would not have any additional authority over its findings. However, as part of their national guidelines on an ecosystem approach to management, NOAA Fisheries or NOAA could choose to oblige the fishery management councils to comply with the ecosystem council's ecosystem plan.

The consequences for the NPFMC of an external ecosystem council depend largely on the way in which the ecosystem council is formed, the relative voice of the NPFMC and/or of fishing interests, and the degree to which findings of the ecosystem council are binding to NPFMC management. Participating in the ecosystem council might realize the same benefits to the NPFMC as discussed in Option 1, without the attendant costs. The NPFMC would be able to participate in a collaborative forum of information exchange, which would complement its existing efforts to consider ecosystem interactions in fishery management. Merely participating in the ecosystem council, rather than 'running' it, reduces the amount of Council and staff time and resources that would be co-opted.

At the extreme, the NPFMC could be a small voice on the ecosystem council, but be bound by its output. The Council is likely to be more adversely impacted by under-representation than other agencies. The marine environment is difficult for humans to control; most ecosystem drivers are beyond our ability to affect. Should action be necessary to counteract imbalance in the ecosystem, there are only a few ways in which to effect change by modifying human activities. Homeland security or military activity is unlikely to be curbed by an ecosystem council. Pollution, whether sourced on land or from ocean traffic, is also more difficult to control. Fishing comprises much of the marine activity in Alaskan waters, and has a successful management structure that can easily effect change. Therefore, changes to accommodate ecosystem imbalance are likely to be absorbed by the fisheries.

As yet, it is unknown how such an ecosystem council would develop.

Schedule and Budget Considerations for Implementing an Ecosystem Council Process in the North Pacific

To date, the North Pacific Council has been involved in discussions internally about the possible alternative processes and ways in which EAM might be initiated in the North Pacific. These efforts have included a draft discussion paper and presentations to the Council's Ecosystem Committee.

If the development of an ecosystem council or ocean council continues, and if the North Pacific Council wishes to continue to promote and develop initial conceptual plans for an ecosystem council, two important considerations will have to be addressed: a time line for development and eventual implementation of an ecosystem council process (also illustrated in Figure 4), and a budget to support that process.

Time Line

The *ad hoc* conceptual development currently under way by North Pacific Council staff, guided by the Council's Ecosystem Committee, could continue but in a more deliberative manner. This more deliberate process might be termed "Concept Development" and would proceed in a manner not unlike the development of other North Pacific Council programs. The process would be an iterative process, involving the public and other marine stakeholder representatives, with a series of draft concepts vetted through the North Pacific Council process which would most likely involve iterative reviews by the AP, SSC, the Council, and the public. One issue to consider is whether the North Pacific Council should have the review and/or approval role in this process? How open should this process be? If the Concept Development process is similar to North Pacific Council meetings, would special meetings be required or would additional time be built into already-planned future meetings?

Another necessary component of the development of an EAM for the North Pacific is the involvement of other potential stakeholders. Many entities are involved in use of the physical or biological resources in the marine environment, in marine research, in monitoring programs for oceanographic and weather prediction, or other interests. These entities include other Federal and State agencies, marine transportation companies, undersea cable data transmission and communication interests, the military and Homeland Security, coastal communities, larger Alaskan and other Pacific Rim human population and commerce centers, universities, and international marine resource management and research collaboratives (PICES, INPAFC, PSC, IPHC, etc.). What entities would be seated on the ecosystem council; how would they be invited? What might be the process for involving stakeholders – what incentives would be necessary to ensure full participation in this important planning process?

As mentioned above, would the North Pacific Council have not only a review role but also an approval role? Figure 5 illustrates the need for a decision-making body to coordinate stakeholders and collaborating agency input. Would the North Pacific Council guide and direct, or have a lesser role of encouraging and suggesting? To what degree will this Concept Development process require legal advice, and from what entity – NOAA GC or other legal counsel entity? As the planning process proceeds, decisions will need to be made – who makes them, to what degree might these decisions be binding? And what entities would they be binding upon? If merely a planning group, then the ecosystem council could still operate as a coordinating body, and perhaps could evolve into an effective organization for coordinating ocean research, ocean uses, and ocean policy development.

The development of an EAM for the North Pacific has some of its origins within NOAA. Thus it will be necessary to continue to involve the larger NOAA agency in the Concept Development process. A process for “keeping NOAA in the loop” will be necessary. Similarly the President’s Ocean Policy Council will have keen interest in monitoring how the EAM Concept Development process matures for the North Pacific. Would the North Pacific Council take the responsibility or initiative to provide a feedback loop to the Ocean Policy Council, or would that better be accomplished by NOAA itself?

As the above process continues, perhaps over a 6 month to 1 year (or more) period of time, the concept would evolve to a point where more specific alternative processes and structures for the ecosystem council would emerge. The initial concept for a North Pacific ecosystem council, or multiple ecosystem councils, would require staff, administrative structure, funding, working protocols, and a physical location. Co-location with the North Pacific Council would be logical and possibly desirable, but currently the North Pacific Council would likely be unable to house a significant additional staff complement. Regardless where housed and how administrated, the key issue is how the selected ecosystem council concept performs and what its working relationships with the North Pacific Council would be. The initial activities and deliberations of the ecosystem council would continue to be “tuned” in an iterative process, with frequent reassessment through a public and stakeholder review process.

With a suite of alternatives gaining favor, a next step would likely be an effort to focus on a preferred alternative. Perhaps the North Pacific Council would have before it either well-defined specific alternatives, or a matrix of options under a series of alternative structures. The iterative process described above would continue until an alternative emerges that appears to have stakeholder, public, and NOAA/Ocean Policy Council support, resulting in a longer-term structure that most would eventually agree will serve the goals of an EAM process in the North Pacific.

With a more long-term structure, the ecosystem council would have in place a working protocol and annual cycle of activities that would be considered more permanent. As it proceeds to follow the protocols developed in the above process, the ecosystem council would likely need to be guided by:

- Ecosystem Plans – developed in-house or through contract, or both
- Advisory Committees – perhaps from different stakeholder groups
- Science Panels – continued and adaptive input of new scientific information will be critical to the functioning of the Ecosystem Council
- LME Committees – one per LME to act like a Plan Team?
- Budget and Finance Committee –
- Data Management Panel – could be integrated with the Science Panel, perhaps; need linkages to other agency and stakeholder data bases and a means to manage data and informational products developed in-house

With an ecosystem council and its working protocols in place, the EAM process for the North Pacific would then proceed in an adaptive manner, addressing issues and changing course as dictated by new information or new policies developed through its stakeholder and public input. Feedback loops would be part of the adaptive process whereby new scientific information, changes in climate regime, new user groups, major events such as an oil spill, or other changes in the North Pacific ecosystem would be addressed by the ecosystem council. The ecosystem council would evolve from this adaptive process, and hopefully be structured such that it can adapt and change as necessary to meet new future challenges.

Other considerations required in the above process:

- To what degree will this process require conformation with NEPA? If the ecosystem council creates a new activity that affects the human environment, then yes – but is the mere development of the concept of EAM in the North Pacific also under NEPA?
- What level of legal advice will be required? Or legal protection?
- What might be the future synergisms between the ecosystem council and the North Pacific Council in co-location, staff sharing, combined meetings, and other efficiencies to save time and cost in performing EAM? Should this process have as a component an alternative to merge operations, or should EAM at its outset clearly exclude any possible merger?
- How will EAF relate to EAM? Currently the North Pacific Council is investigating a possible EAF in the Aleutian Islands. Clearly EAF would necessarily be a North Pacific Council program, but to what degree might the Concept Development of EAM be adapted for EAF, or *vice versa*?
- Is a sunset provision desirable? That is, should the process and initial work of an ecosystem council have a defined end point at which time its performance is evaluated and decisions made about continuing?

Financial

Currently, the EAM Concept Development process is funded by the North Pacific Council through commitment of staff resources and the time and efforts of the North Pacific Council's Ecosystem Committee. To date, little cost has been involved. But as the North Pacific Council proceeds with Concept Development as described above, and perhaps more deliberately chooses to enter into a more formal process of Concept Development and begin the iterative process required to evolve the ecosystem council for the North Pacific, dependable funding will be required. Sources of funds could either come from within the North Pacific Council's annual budget, from within NOAA Fisheries or a higher level NOAA budget appropriation, or from a special appropriation from Congress.

An advantage to having the North Pacific Council fund the process, at least initially, is that it demonstrates fairly clearly this fishery management council's seriousness about implementing EAM. It also advantages this council as it would be taking the lead, which may have policy advantages. The North Pacific Council may have to realign its operating budget, and commit staff or hire new staff, to work more deliberately on Concept Development. Decisions would be required on which staff and what ongoing workloads would be affected.

Level of budget required for Concept Development would depend on how much effort the North Pacific Council and NOAA choose to invest. Funds would be required to support a lead manager of this effort, dedicated staff, working space, travel, stakeholder involvement, rent, secretarial support, and record keeping. Costs would vary depending on the number of Council meetings involved, the number of months or years the Concept Development process would require, the number of stakeholders involved and their funding needs, geographic locations for Concept Development meetings and the associated travel and

logistics required, and the nature of documents, public notices, reports, or proceedings generated by the process.

Eventually the ecosystem council will require a separate budget of sufficient magnitude to accomplish the policy objectives set out for it. Would this budget be a pass-through using the North Pacific Council? Or would annual funding be effected through a line item in NOAA Fisheries' budget or perhaps NOAA's budget? And as previously mentioned, what benefit might a close relationship to the North Pacific Research Board process provide to the development of a funding strategy? Table 2 lists some of the considerations for funding an ecosystem council.

Next steps

Should the Council decide to proceed with any of the options for developing ecosystem councils, there may be more support for a more middle of the road approach – one that establishes an independent ecosystem council but still couples it to the existing NPFMC structure. This connection could be geographic and administrative only, or it could involve a closer policy connection.

Regardless of the general relationship between the councils, there likely would be some kind of a close connection between the NPFMC and the ecosystem council, since fishery management would be perhaps one of the largest activities occurring in the North Pacific and its ecosystem areas.

The process for developing an ecosystem council involves much planning and decisionmaking. Many basic questions have to be resolved, and there is no clear guidance on the way forward. The stages of planning that could be required to implement a variation of Option 1 or Option 2, are discussed in the previous section and illustrated in Figures 4 and 5.

A key element that needs to flow through all stages of planning, however, is the importance of public participation. The literature to date on ecosystem management insists on the importance of a collaborative and transparent process in developing new mechanisms for management. Should the Council consider pursuing a variation of either Option 1 or Option 2 as described in this paper, many of the questions regarding the ecosystem council's geographic jurisdiction, scope of work, and membership could appropriately be worked out in the public forum. The ecosystem council will have the maximum credibility, and arguably, utility, if it is developed in a transparent process with iterative stakeholder input.

The planning and implementation of an ecosystem council is likely to be a complex process, involving many stakeholders and collaborating agencies. There is, as yet, no national guidance on the creation of ecosystem councils, and only few regional examples of similar collaborations. Given that Alaska encompasses three LMEs, and diverse stakeholders and jurisdictions, it may be appropriate to move forward with a pilot program, rather than attempting from the outset to create a council structure for the whole of Alaska. Selecting a distinct subarea as a pilot case would allow developing and testing of the structure, protocols, work products, and utility of such an ecosystem council, in an area with a smaller pool of interested parties.

The Aleutian Islands may be an appropriate subunit for such a pilot case. As discussed above, although the Aleutian Islands are not identified as a Large Marine Ecosystem, the LME approach includes consideration of distinct subareas within the LMEs. The Aleutian Islands area-specific management discussion paper, currently under NPFMC review, provides ample justification to support consideration of the Aleutian Islands as a distinct ecosystem area.

Figure 1. Coordinated ocean governance structure proposed in the U.S. Ocean Action Plan

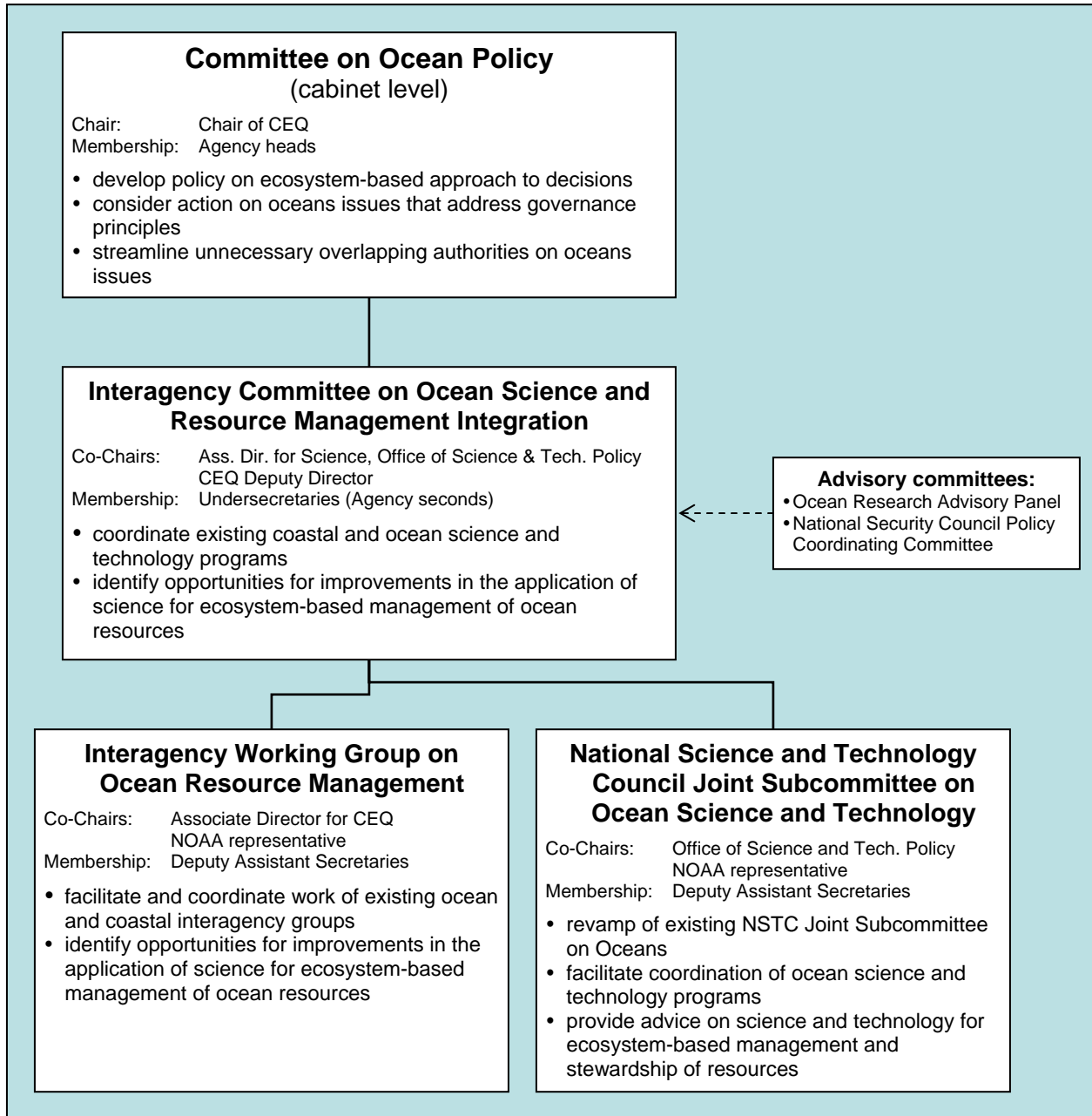


Figure 2. Three options for NPFMC participation in ecosystem councils

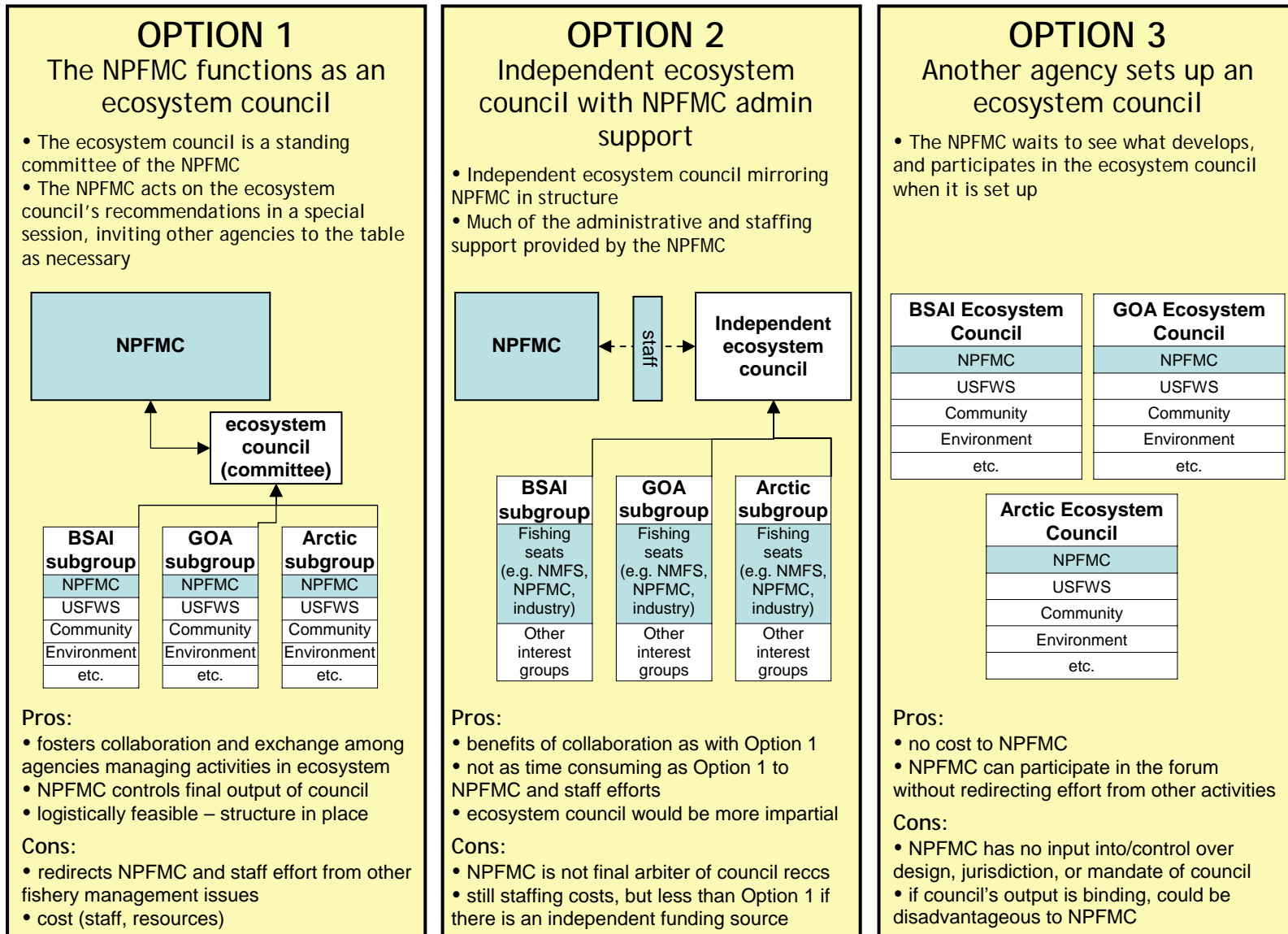


Figure 3. Variation of Option 2: setting up an ecosystem council with support from the NPFMC, NOAA Fisheries, and the State of Alaska

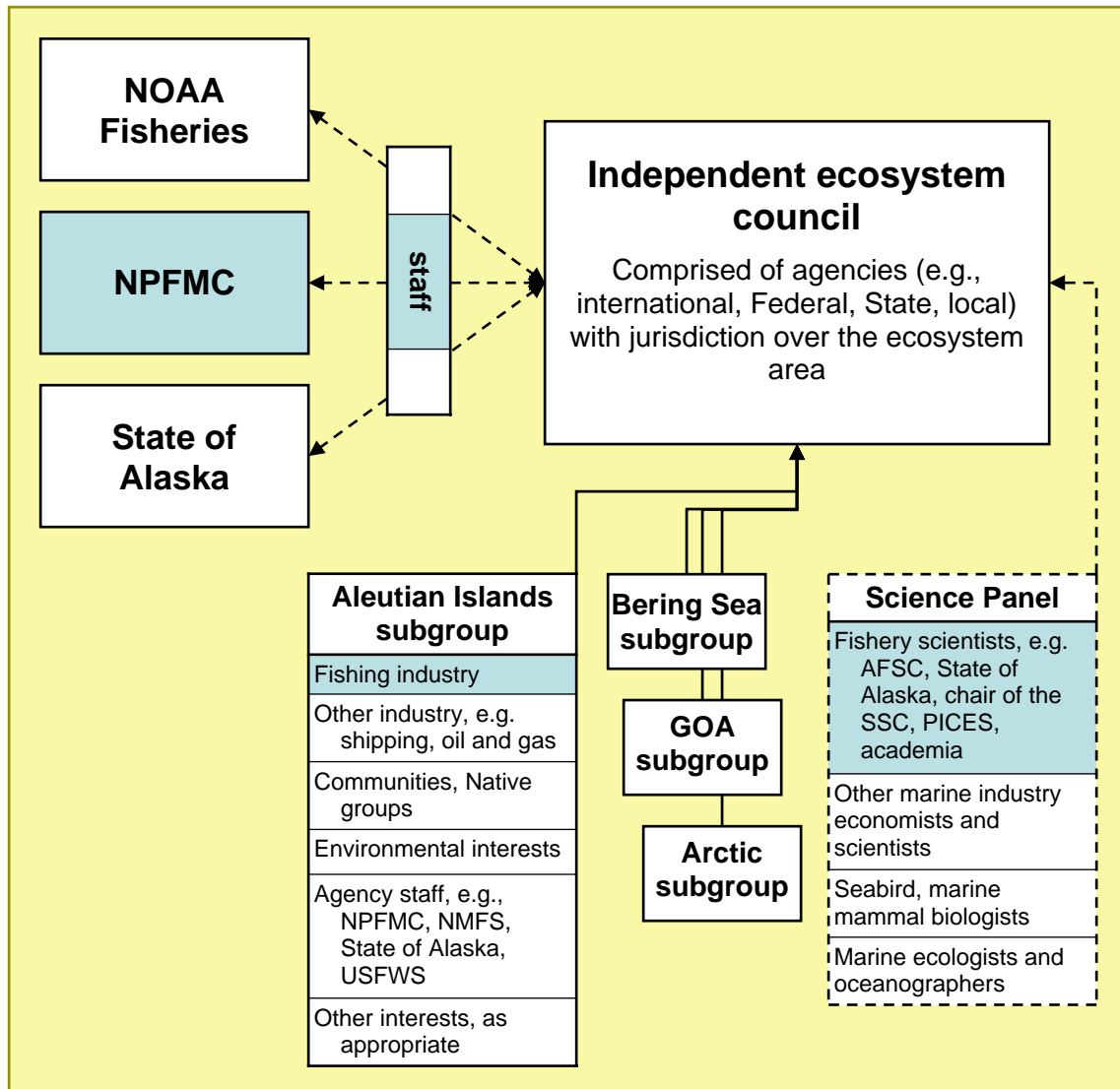


Figure 3. Illustration of a process of implementing an ecosystem council

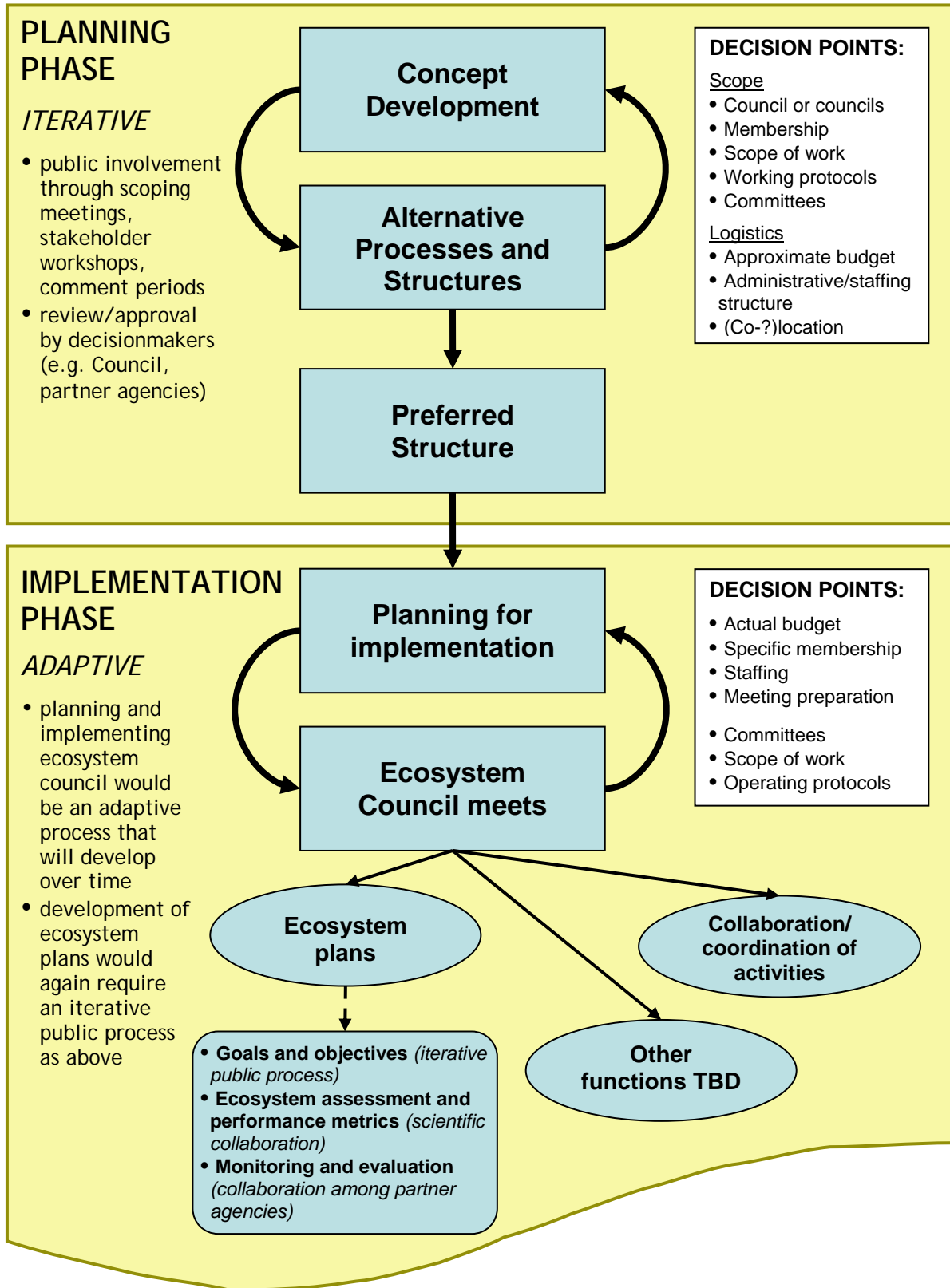


Figure 4. Illustration of the structure of a planning process and ecosystem council

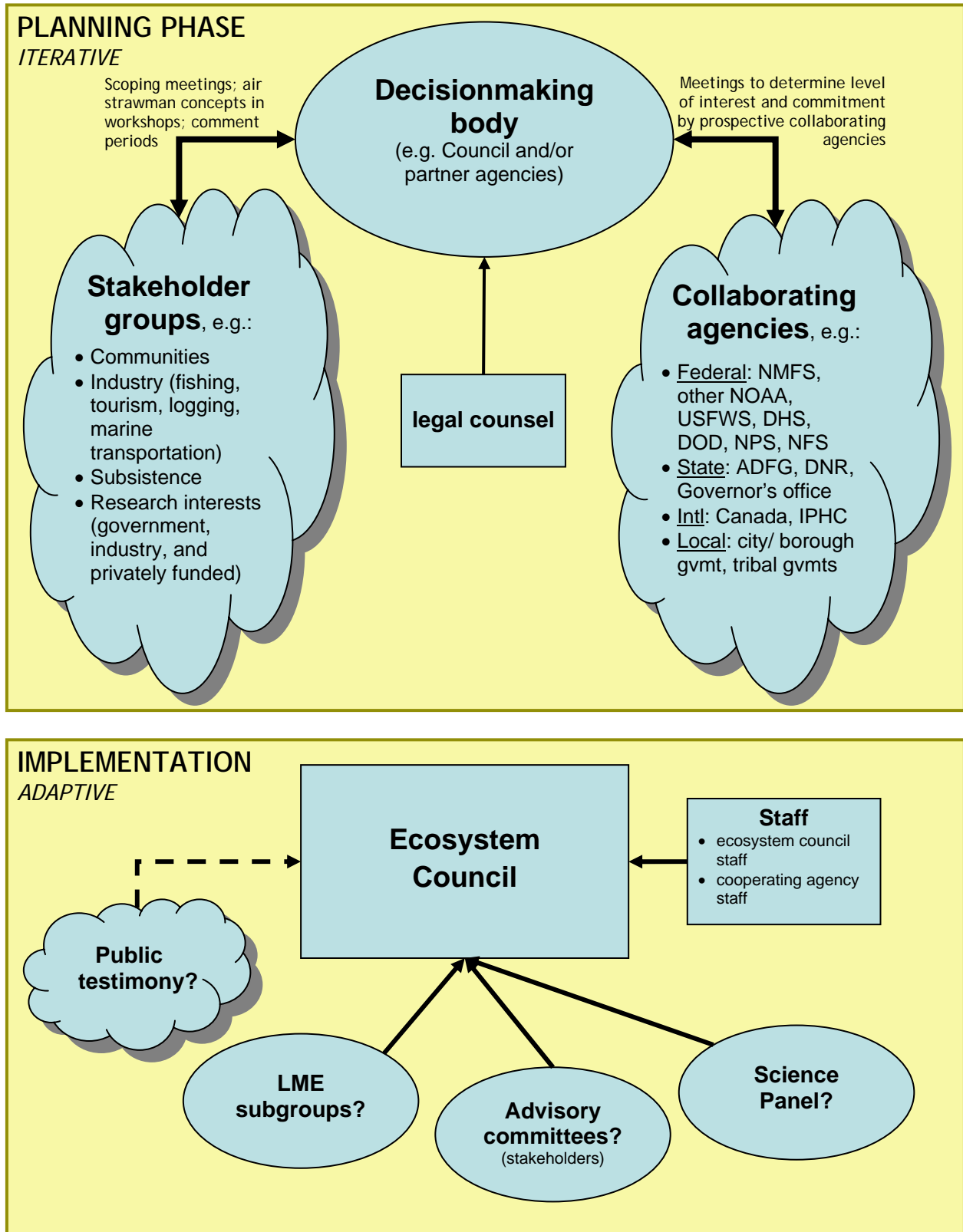


Table 1. List of Activities/Collaborators in the Aleutian Islands (NOTE: this is a draft, and is not intended to be viewed as an exhaustive list)

Activity		Responsible Party	
Fishing	Federal management	NPFMC NMFS	
	State management	ADF&G	groundfish, salmon, crab
	enforcement	NMFS Coast Guard State of Alaska	
	groups	APICDA Aleut Enterprise Corporation	
	seabird and marine mammal protection	NMFS Protected Resources USFWS	
	international cooperative management	IPHC North Pacific Anadromous Fish Commission Donut Hole Commission Pacific Salmon Commission/Treaty	
Military	homeland security	Department of Homeland Security	Shemya, Attu?, listening ship in Adak
	military site restoration	US Air Force US Navy	Environmental cleanup
	undersea cable installation and maintenance	?	
Energy	Amchitka	Department of Energy (old Atomic Energy Commission)	Compensation for nuclear fallout, radioactivity in the environment
	oil and gas	Minerals Management Service	Planning area, some reserves but no exploitation
Transportation	shipping	City of Dutch Harbor Coast Guard Port authorities?	Tacoma, Seattle, Portland, Kodiak, Asia
	aviation	?	
Tourism	cruise ships, ecotours		
	sport fishery	City of Dutch Harbor	
Research	offshore	NOAA NMFS ADF&G USFWS UAA/UAF PICES – North Pacific Marine Science Organization	AOOS surveys and research surveys surveys and research Amchitka, oceanographic
	land-based	USFWS	Volcanic monitoring
Land ownership	refuge	USFWS	
	other	State of Alaska DNR Aleut Corporation	
	communities	Adak Atka Nikolski, Unalaska/Dutch Harbor, Akutan, False Pass	depending on the boundary of the AI

Table 2. Preliminary considerations for funding an ecosystem council

Stage	Funding Considerations	Conditioning factors
Planning	<ul style="list-style-type: none"> • Staff time to conceptually develop the plan • Stakeholder meetings/workshops • Collaborative meetings with prospective partners • Analysis of options 	<ul style="list-style-type: none"> • Length of the planning process • Number of iterations between decisionmakers and stakeholders
Implementation	<u>Meetings of the council</u> <ul style="list-style-type: none"> • Number of participants on council • Number of standing committees (e.g., AP, SSC, LME subgroups) • Whether members are compensated (e.g., salary, travel and expenses) 	<ul style="list-style-type: none"> • Number of meetings annually • Number of Federal government versus other government or private members (for Federal government members, costs could be distributed across agencies) • Will the council pay expenses for desirable members who otherwise would not attend? • Location and length of meeting, including distance traveled by members
	<u>Staff</u> <ul style="list-style-type: none"> • Director • Analytical staff (prepare meeting materials; write, monitor, and evaluate ecosystem plan) • Administrative staff (including meeting planning, office management, and secretarial support) 	<ul style="list-style-type: none"> • Number of staff • Support from other agencies • Scope of work of council • Number of meetings
	<u>Office requirements</u> <ul style="list-style-type: none"> • Overhead (rent, office supplies, etc.) 	<ul style="list-style-type: none"> • Number of staff • Co-location with other agency (e.g., NPFMC)
Ballpark example of costs based on NPFMC experience	Cost of meeting in Anchorage - \$80,000 / meeting <ul style="list-style-type: none"> - including cost of room rental; travel and expenses for North Pacific Council, SSC, AP; Council member compensation; copying of meeting materials Cost of office space for 2 staff - \$30,000 / year <ul style="list-style-type: none"> - including office rental, supplies, utilities, etc. 	