MARINE MAMMAL COMMISSION
4340 EAST-WEST HIGHWAY, ROOM 905
BETHESDA, MD 20814

25 January 2006

Vice Admiral Conrad C. Lautenbacher, Jr.
Undersecretary of Commerce for Oceans and Atmosphere
National Oceanic and Atmospheric Administration
Department of Commerce
14th Street & Constitution Avenue, NW
Washington, DC 20230

Dear Admiral Lautenbacher:

The Marine Mammal Commission held its annual meeting in Anchorage, Alaska, on 12–14 October 2005. The meeting focused on Alaska marine mammals and marine ecosystems. Based in part on that meeting, the Commission believes that the opportunity and need for development of a multi-party framework for ecosystem research and management in Alaska have never been greater. Such a framework would build on the important ecosystem-related work that the National Oceanic and Atmospheric Administration (NOAA) is already undertaking and could serve as an innovative model for the nation as it strives to develop and implement ecosystem-based approaches to research and management.

Over the past several decades, Alaska marine ecosystems have experienced dramatic changes from both natural and human causes. Certain stocks of Steller sea lions, sea otters, harbor seals, northern fur seals, beluga whales, and killer whales have declined severely. The potential indirect effects of fishing on marine ecosystems and marine mammals have generated extensive debate. Assessment of those effects has been confounded by major regime shifts in oceanographic and atmospheric conditions of the North Pacific Ocean and by the potentially cascading effects of commercial whaling. Along the northern coast of Alaska, expansion of oil and gas exploration and development remains controversial. Other development activities there and in other parts of Alaska pose risks (e.g., loss or contamination of habitat) for particular species or populations, such as Cook Inlet beluga whales. And, looming over all other concerns, are the already serious effects of global climate change and the specter of severe climate-related degradation of Alaska's marine environment in the future.

Scientists and managers from a variety of agencies, organizations, and programs are attempting to address these issues. NOAA has played and must continue to play a central role in these efforts. Under your leadership, NOAA has recently adopted a matrix-management approach that includes an Ecosystem Goal Team Program. The program has already made progress toward implementation of an ecosystem-based approach to the management of living marine resources at the regional level. For example, NOAA is cooperating with regional fishery management councils to develop regional fishery ecosystem management plans. We also recognize that NOAA has a number of agencies and programs that are pursuing activities consistent with and supportive of ecosystem-based research and management. The Marine Mammal Commission welcomes this trend in emphasis and stands ready to assist NOAA in its future ecosystem-related efforts.

NOAA activities are complemented by those of many other agencies, organizations, and stakeholders. The U.S. Geological Survey and the U.S. Fish and Wildlife Service have research and management programs for a subset of the marine mammals in the region (polar bear, walrus, and sea otter). The Minerals Management Service has conducted extensive research on the potential local effects of oil and gas operations. The North Pacific Fisheries Management Council is often cited as the most progressive council based, in part, on its growing attention to ecosystem issues. The National Science Foundation sponsors extensive research through various offices and programs, most notably in the present context the Office of Polar Programs. The Arctic Research Commission sets research policy and priorities for the Arctic region, promotes research in conjunction with the National Science Foundation, and promotes interagency cooperation of research. Each year the North Pacific Research Board makes recommendations to the Secretary of Commerce concerning ecosystem-related issues in the Gulf of Alaska, Bering Sea, and Arctic Ocean. The State of Alaska contributes to research and management through its Department of Fish and Game and to research through the multiple schools and programs of the University of Alaska. Private organizations, such as the Alaska SeaLife Center, also conduct pertinent research. Alaska Natives, who are being directly affected by many of the changes mentioned earlier, are assuming a greater role in marine mammal management and research through co-management agreements with federal agencies. Their knowledge of the animals and ecosystems, gained through centuries-old subsistence traditions, represents a valuable resource. Representatives from these and other organizations participated in the Commission's annual meeting.

Reports we heard at the meeting demonstrated that nearly all the major elements of an ecosystem-based framework are present in Alaska: major ecosystems are well defined; a number of key issues have been identified that require comprehensive research and management; and numerous well-established, progressive agencies, organizations, and stakeholders are addressing those issues. Perhaps the single most important element yet to be developed is a structured mechanism for coordinating and integrating these efforts into a comprehensive framework that is understandable to, and serves the collective needs of, all pertinent agencies, organizations, and stakeholders. Just as you have developed a matrix framework for NOAA planning, funding, and operations, a similar organizing structure is needed for research and management of Alaska marine ecosystems. To that end, the Marine Mammal Commission recommends that you continue to promote ecosystem-based research and management efforts generally and, more specifically, that NOAA take the lead in the development of an ecosystem-based framework for research on and management of marine ecosystems in Alaska. Among other things, that framework should

A. Develop and validate specific, measurable, and robust management standards to achieve the conservation goals of the Marine Mammal Protection Act, the Endangered Species Act, the Magnuson–Stevens Fishery Conservation and Management Act, the National Environmental Policy Act, and other pertinent legislation;
B. Integrate research and management efforts at a scale consistent with NOAA's large marine ecosystem concept. This will require coordination at international, national, regional, and local levels;
C. Ensure collection of data necessary to understand natural ecosystem dynamics;
D. Provide a stronger basis for distinguishing between natural and anthropogenic influences on Alaska marine environments;

E. Ensure that population and ecosystem assessment programs are sufficient to inform managers as they try to address current and future threats;
F. Support large marine ecosystem-scale, interdisciplinary research programs that reflect ecosystem complexity and integrate information over complex food webs, from physical factors driving productivity to top predators (including marine mammals);
G. Recognize and take into account the cumulative effects of multiple anthropogenic risk factors that interact with natural environmental phenomenon;
H. Provide greater predictive capability essential for development of prevention measures to address significant adverse human effects, particularly those related to climate change;
I. Create a more rational basis for distribution of research and monitoring funds to ensure that studies are broadscale and long-term and that appropriate attention is given to arctic ecosystems as well as those of the Bering Sea and Gulf of Alaska; and
J. Facilitate the formation of partnerships to pool funding and resources.

We provide a more detailed rationale for these framework elements in the attachment. We recognize that considerable work is already underway in the Bering Sea and Gulf of Alaska. Further work is needed, especially in the Beaufort and Chukchi Seas where sea ice and other climate-related changes are occurring. As noted above, we believe that (1) the circumstances have never been more conducive to the development of an integrated research and management framework for Alaska marine ecosystems, (2) such a framework is essential for addressing the major issues in a comprehensive and effective manner, and 3) such a framework in Alaska could serve as a model for meeting similar needs elsewhere.

The Marine Mammal Commission believes that its vision for an ecosystem-based framework for marine ecosystems in Alaska is similar to the organizing vision you have brought to NOAA. Commission Chair John Reynolds, Scientific Program Director Tim Ragen, and I would appreciate an opportunity to meet with you and your staff to discuss our respective ideas about ecosystem-based management and means for implementing them. I will contact your office soon to arrange a meeting.

Sincerely,

David Cottingham
Executive Director

Attachment

Attachment—Rationale for the elements of an ecosystem-based framework for research and management of Alaska marine ecosystems

A. Establish and implement specific, measurable, robust management standards

Controversies in the management of marine ecosystems, including those in Alaska, are exacerbated by uncertainty about management objectives and standards under the prevailing statutes. Statutory goals are indicative of broad intent, but the achievement of those goals often is confounded by a lack of specificity in the objectives or the standards that guide management policy and activities. The resulting uncertainty increases the risk of management error, possibly leading to levels of protection that are either excessive or inadequate.

Some standards have been specified and are measurable. Under the Marine Mammal Protection Act, the National Marine Fisheries Service (NMFS) has defined the terms "optimum sustainable population," "depleted," and "negligible incidental take" in a manner that allows a clear determination of whether those standards are being met. Problems are encountered in the implementation of these standards more as a result of the lack of information for assessing stocks against the standards than because of vagueness in the standards themselves.

Other standards, such as those established by the Endangered Species Act, require greater specificity if they are to be used effectively and consistently for the conservation of species and ecosystems. Additional work is needed to assure that standards such as "jeopardy," "adverse modification of critical habitat," "recovery criteria," "risk classification," and "threat evaluation" are specified, objective, and measurable in a manner consistent with the broader goals of the governing legislation.

Development of specific standards for ecosystem-based management (as opposed to single-species management) will be a challenge because those standards likely will need to incorporate measures of ecological interactions. Some such measures are available and others could be developed, but they may be difficult to characterize and quantify. Nonetheless, developing measures that can be used as standards is essential to guide management and measure its success, thereby providing assurance that management efforts will sustain healthy marine ecosystems into the future.

B. Integrate ecosystem research and management at international, national, regional, and local levels

A first step at integrating efforts into a comprehensive, effective ecosystem-based strategy is to identify all of the relevant agencies and organizations and their activities, and then to make sure that all of the important issues are being addressed with minimal redundancy. Integration is needed both within and between multiple levels of organization or jurisdiction – international, national, regional, and local. Integration of science and management at the international level is essential because marine ecosystems and many marine mammal populations span national borders. Thus, important tasks (e.g., stock assessment, prevention and mitigation of human-related threats) require shared knowledge and coordinated protection measures.

Coordination also is needed at the national, regional, and local levels. The Interagency Bering Sea Task Force, created by the Alaska Fisheries Science Center in concert with the U.S. Fish and Wildlife Service and U.S. Geological Survey, North Pacific Research Board, Alaska Ocean

Observing System, Alaska Department of Fish and Game, University of Alaska Fairbanks, Alaska SeaLife Center, and Arctic Research Commission, is an example of such coordination. Other examples include co-management agreements between Alaska Native organizations with the National Marine Fisheries Service or the Fish and Wildlife Service, and cooperative arrangements for research on harbor seals and killer whales. All of these efforts are commendable, and they demonstrate the utility and efficacy of cooperation. We hope that they are indicative of a trend, as such cooperation helps to ensure that limited funding can be used to maximal benefit. Here, again, an explicit framework for communication and collaboration within and among different agencies and organizations would help promote ecosystem research, management, and conservation.

C. Understand natural ecosystem dynamics

Over the past three decades our perception of ecosystems has shifted from one of a single, stable equilibrium (i.e., the balance-of-nature paradigm) to one of multiple, more-or-less stable equilibria marked by periodic transitions or "regime shifts" or, in some cases, nearly constant change. In fact, ecosystems change over a range of temporal and spatial scales. Such change includes variation about central tendencies as well as short- and long-term shifts in those central tendencies themselves. Assessment of ecosystem change requires long-term, broad-scale studies designed to elucidate physical, chemical, biological, and ecological patterns and to understand both the factors causing such change and the consequences for ecosystem components and processes. A better understanding of the forces that drive population trends in marine mammals and other species is required so that those forces can be taken into account in management strategies.

Greater appreciation of the need for research into ecosystem dynamics is evident in the increasing number of research programs to establish long-term data series of oceanographic and atmospheric conditions and to relate observed physical and chemical patterns to biological and ecological changes. Commendable examples include the efforts of the Alaska Fisheries Science Center to annually update and publish such indices in the Ecosystem Considerations chapter of the Stock Assessment and Fishery Evaluation Reports. More studies and publications of this type are needed if we are to improve our understanding of ecosystem dynamics and, in turn, establish realistic management goals that distinguish between natural phenomena and those driven by human activities.

D. Distinguish between natural and anthropogenic changes

Distinguishing between natural and human-caused phenomena in the marine environment is one of the great challenges for ecosystem-based management. Nowhere has the intensity of this debate been more evident than in the controversy over the role of human activities in driving climate change. But distinguishing between natural and anthropogenic effects also has been the central issue in the Steller sea lion controversy, which has involved competing hypotheses about the effects on sea lions of climate change, killer whale predation, and fishing. More generally, the need to distinguish between human effects and natural phenomena underlies the intent of Congress when it passed a suite of laws in the 1960s and 1970s to establish standards for managing the conflict between human activities and conservation of the environment.

The distinction between natural and human-caused phenomena is confounded by at least three things. First, natural ecosystem dynamics create a complex background for human activities, sometimes severely confounding efforts to identify, characterize, and quantify human effects. Second, essential baseline information on natural ecosystems is rarely collected before they are perturbed, thereby precluding the opportunity to compare and contrast their characteristics and patterns under natural and perturbed conditions. Instead, human activities often are well established before any serious effort is made to collect the information needed to evaluate potential effects. Precautionary, adaptive approaches requiring the collection of baseline information to provide a basis for evaluating effects before they become serious or irreversible are all too often rejected out of a sense of economic urgency or apparent conflict with other priorities. Fisheries are a classic example, where the information needed to assess potential effects on fished and bycaught stocks often is not collected, assembled, and analyzed until years after the fishery has begun. By that time, the fishery is so well established that collection of baseline information is virtually impossible and adaptive manipulation to assess human impacts is vigorously resisted. Third and finally, there has been a reluctance to address and manage the underlying factors causing changes in the marine environment. The U.S. Census Bureau estimates that by 2050 the U.S. population will increase by about 125 million and the world population will increase by 2.5 to 3.0 billion. In recent years, world fisheries catch has been stable (with notable overfishing) at about 80-85 million metric tons. Thus, the gap between supply and demand will almost certainly grow, creating greater pressure to increase fishing effort in spite of adverse effects on the affected marine ecosystems. Under such pressure, the need to distinguish between natural and perturbed ecosystem states may become secondary to fisheries production, thereby undermining the aim of maintaining healthy marine ecosystems. Each of the above obstacles must be overcome if we are to monitor and manage the myriad anthropogenic effects in such a way as to maintain healthy ecosystems.

E. Develop assessment programs that inform management regarding all current and future threats

The agenda for the Commission's meeting struck a balance between discussions of ecosystem-scale issues and discussions of species or populations whose conservation status is of special concern. Three patterns emerged from the discussions. First, marine mammal populations in Alaska, and marine ecosystems in general, are subject to threats that can be expected to increase if they are not appropriately managed. Climate change, fisheries, toxic contamination, disease, coastal development, and oil and gas activities all pose increasing risks to marine ecosystems.

Second, the distribution of research and management effort among all the potentially affected marine mammal species has been markedly uneven. Of the 34 stocks included in the Alaska region stock assessment reports, no abundance estimates are available for about one-third, and coefficients of variation (i.e., measures of precision) are available for only about one-half of those with abundance estimates. Many of the populations could decline by 50 percent or more without a trend having been detected using the current stock assessment approach. For some species, like ringed seals, spotted seals, bearded seals, and ribbon seals, virtually no data are available for stock assessment, in spite of the fact that those species are experiencing major environmental changes due to warming and reduction of sea ice in the Arctic. It is plausible that some or all of those species have already experienced significant declines.

Third, in view of the many threats to marine mammals in Alaska, the current approach to assessment is not adequate to ensure that the populations are being conserved as significant, functioning elements of healthy marine ecosystems, which is the stated goal of the Marine Mammal Protection Act. Because of their relevance to fisheries, ecosystem and marine mammal issues in the Bering Sea and Gulf of Alaska receive far greater consideration than similar issues in the Arctic. We recognize that there are times when unanticipated situations force managers to focus on specific issues or species. But with a forward-looking research and management strategy in place, such "crises" should be exceptional rather than typical. Here, again, we believe that integration of research and management into a comprehensive, ecosystem-based framework would help to anticipate and avoid crises.

F. Establish interdisciplinary programs that integrate information on complex food webs

Many of the threats to marine mammals and marine ecosystems in Alaska involve ecological interactions that cascade or are transmitted through food webs. Two threats that were discussed at our meeting illustrate the need for interdisciplinary studies that integrate information over entire food webs. Climate change in the Arctic is being driven largely by physical factors, such as rising temperatures and melting ice. Those physical changes likely will have profound effects on the timing, location, nature, and magnitude of primary production in the Arctic. Changes in production associated with a retreating ice edge will have secondary and tertiary (and so on) consequences for consumers—from zooplankton to invertebrates and fish to marine mammals, including top predators such as killer whales and polar bears. Understanding how changes in the physical environment will be transmitted through arctic food webs will require expertise from a broad range of scientific disciplines.

Fisheries provide a second example. The management strategy for a commercial fishery can involve reduction of the standing biomass of the target stock by 60 percent or more as a result of harvesting. Such a reduction of the aggregate biomass of groundfish stocks may have profound consequences for the food web, including changes in species diversity and reduced abundance of dependent marine mammal and seabird populations. The structure and dynamics of fished ecosystems are complex. It will require expertise from a number of scientific disciplines to resolve uncertainties regarding the effects of fishing against a backdrop of natural environmental change.

We recognize that NOAA agencies are developing a growing number of interdisciplinary marine research programs, and we support those programs. However, it is not clear that they are sufficiently comprehensive in scope and participation. The Fisheries Oceanography Coordinated Investigation (FOCI) program of the Pacific Marine Environmental Laboratory and the Alaska Fisheries Science Center is an example of an important program designed to examine the ecology of pollock stocks in the North Pacific. Although this program has provided important information for fisheries management, it also could have provided opportunities for broader ecological studies (e.g., of the links between ocean conditions and pollock recruitment and of the links between pollock biomass and pollock predators). These opportunities were not realized, apparently due primarily to the lack of funding but also due to a lack of communication and coordination among a broader range of scientific disciplines. Our point here is that the essence of ecosystem-based research is the investigation not only of the individual components, but also of their interactions. The study of such

interactions requires interdisciplinary research, which should be encouraged whenever possible. We believe a large marine ecosystem-based framework for research and management would facilitate the communication needed for such interdisciplinary work. We recognize that NOAA is moving in this direction, but more needs to be done or critical opportunities related to climate change and fishery impacts will be lost.

G. Address the interactive, cumulative nature of environmental issues and risk factors

Ecosystems are subject to a range of concurrent or geographically overlapping influences that themselves may interact. Thus, the intellectual framework for studying ecosystem dynamics and managing human effects on them must be expanded to address cumulative effects of multiple factors rather than the less complex effects of individual factors. In statistical terms, this means expanding from a univariate to a multivariate mindset; in ecological terms the expansion is from population dynamics to community ecology.

Discussions at our annual meeting provided many examples of the need for such intellectual expansion to address management issues in Alaska. Animals exposed to contaminants may have weakened immune systems that are less resistant to diseases, which in turn may be more prevalent because of increased exposure to disease vectors associated with climate change. Natural regime shifts in ocean parameters may reduce prey for sea lions or fur seals, thereby making them more vulnerable to competition from fisheries and, if they spend more time at sea foraging, more vulnerable to predation by killer whales.

Investigating, understanding, and mitigating such impacts will require powerful research approaches suitably scaled to assess spatial and temporal variability and account for the many factors that may be influencing marine ecosystems. Just as marine wildlife must integrate and adjust to all of these factors, we also must adjust our research approaches if we are to develop a basis for managing marine ecosystems. Here, again, we believe that more holistic research approaches will emerge naturally from a framework that integrates multiple issues and brings together a diversity of scientists, managers, and stakeholders for collective problem-solving in an ecosystem context.

H. Enhance predictive capacity to anticipate and prevent adverse effects

Future generations will judge ours, in part, by how well we conserve marine ecosystems. Efforts to avoid significant adverse impacts on marine ecosystems can be divided into those intended to prevent impacts and those intended to minimize or mitigate them as or after they occur. Prevention is essential where minimization or mitigation are limited in their effectiveness. Our ability to prevent adverse impacts depends largely on our ability to predict them; thus, effective management requires predictive capability.

Climate change illustrates the need for prediction and prevention where possible. The expected loss of arctic sea ice will have profound consequences for arctic ecosystems generally and marine mammals specifically. A number of marine mammal populations could be extirpated throughout large portions of their range. If such consequences cannot be addressed by after-the-fact mitigation efforts—and we do not believe they can—and we are truly intent upon avoiding those consequences, then preventive measures are essential.

Threats to arctic ecosystems could result not only from climate change *per se* (e.g., loss of ice), but also from new human activities as a result of changing arctic conditions (e.g., increased shipping, oil and gas operations, fishing, tourism, and coastal development). Here, too, the extent to which adverse effects are controlled will depend on whether we predict those effects in advance and take the actions needed to prevent them.

I. Develop and implement a more rational basis for distribution of limited funding

Funding for research and management is an important indicator of the value that society places on ecosystem health. The distribution of funding may, in turn, indicate the overall structure and coherence of the research and management strategies of NOAA and other responsible organizations. At its annual meeting, the Commission discussed the allocation of research and management funds in Alaska. Three major patterns emerged.

First, the distribution of research funds is markedly uneven among the large marine ecosystems in Alaska waters. The vast majority of ongoing research is directed at increasing our knowledge of the Bering Sea and Gulf of Alaska, particularly for the purposes of fisheries management. The results of that research are greatly improving the scientific understanding of how various components of those ecosystems interact, but the heavy emphasis on fisheries-related matters has been at the expense of other important conservation issues, particularly in the Beaufort and Chukchi Seas. The need for research in the Beaufort and Chukchi Seas specifically, and the Arctic generally, has been highlighted by the growing evidence of climate change and its current and expected profound effects on marine mammals, marine ecosystems, and the subsistence cultures that depend on them. Many of the marine mammal stocks in those regions are expected to experience severe declines in the coming decades. Based on the loss of ice habitat that has already occurred, it is reasonable to hypothesize that those declines are already underway. But existing assessment methods and information are insufficient to provide the essential baselines needed to describe such changes. The need for information on arctic regions will only increase in the future, and a more rational basis is needed for distributing the limited available funds for research and management among the major ecosystems in Alaska waters.

Second, within each ecosystem, long-term, broad-scale research is needed to examine patterns of temporal and spatial variation and trends in the physical, chemical, biological, and ecological changes causing and resulting from ecosystem change. Until recently, funding strategies for research have been based largely on projects that were relatively short-term (one to three years) and were limited in geographic scope. The primary motivation for much of this approach has been to provide fisheries managers with the information necessary to set annual limits on removals from target, non-target, and protected stocks. In contrast, ecological trends and processes in marine ecosystems often occur over much longer periods and across broader geographic ranges. In recent years, we have seen more expansive programs (many of which are carried out or sponsored by NOAA) to investigate these temporal and spatial patterns. Such programs must be encouraged if we are to have any hope of developing long-term measures of ecosystem status and variation, elucidating natural bottom-up and top-down forcing mechanisms, and assessing the long-term effects of anthropogenic forcing. This will require a more stable funding base. Changes in research strategy and funding require adjustments in infrastructure (e.g., availability of ships), technology (e.g., construction and testing of electronic equipment), and personnel (e.g., convening or hiring sufficient

numbers of staff with the requisite skills and experience). Highly variable and unpredictable funding can increase the likelihood that resources will be wasted, and diminish the program's overall effectiveness, particularly for long-term, broad-scale research. Reluctance to commit funds for long-term research is understandable to an extent, given the inherent uncertainty in federal funding at the departmental or agency level. However, such reluctance often appears to stem from a misunderstanding that these studies are simply a form of monitoring that does not warrant support. We believe that long-term, broad-scale research is more than monitoring: it is essential if we are to understand the characteristics of healthy marine ecosystems and changes in those characteristics over time and space. The National Science Foundation formalized this concept when it initiated its Long-Term Ecosystem Research program in 1980, but more work of this kind is needed, especially by agencies with responsibilities for research and management of marine mammals.

Third, the distribution of research and management effort for various marine mammal species also has been markedly uneven. For example, the recent annual funding for Cook Inlet beluga whales, which number about 350 animals, is less than $100,000 (barely enough to conduct a single aerial survey), while funding for the western population of Steller sea lions, which numbers more than 30,000, has been in the millions to tens of millions of dollars per year over the past decade, primarily because of implications of the sea lion decline for fisheries. Similar contrasts in the scale of funding can be drawn between the Steller sea lion and various other pinnipeds (e.g., ice-associated seals) and cetacean (e.g., harbor porpoise, Dall's porpoise) that receive little attention but may be at significant risk from human activities. In the case of the North Pacific right whale, species extinction is at issue. We believe a more thoughtful, broader rationale must be developed to support needed research and management for all species, and that such a rationale would be facilitated by integrating research and management into a comprehensive ecosystem-based framework.

The matrix-based approach implemented in NOAA for planning, programming, and budgeting exemplifies what is needed for Alaska marine ecosystems. Using such a structure may encourage the Office of Management and Budget and the Congress to provide needed support. A well-defined ecosystem-based framework with a matrix-based structure for funding should promote the organization, communication, and collaboration of participating agencies, organizations, and stakeholders, thereby guiding research on marine ecosystems, the use of ecosystem resources, and management efforts aimed at ensuring that such use is sustainable.

J. Create functional partnerships

One of the great benefits of a comprehensive framework is that it should provide a forum for the development of partnerships aimed at addressing shared goals and objectives. Such partnerships both promote and depend on effective communication, and they optimize the likelihood that common goals and objectives will be developed and attained even in the face of limited or transient resources. NOAA generally and NMFS specifically have exhibited leadership through the development of research and management initiatives. At the same time, however, the Service has sometimes been perceived as espousing an approach that limits the opportunities of others with whom effective partnerships might otherwise be established or strengthened. The end result is that well qualified and experienced people are sometimes displaced and disgruntled as the Service takes over projects and uses its own, sometimes less-experienced, people.

In such instances, we believe the Service undermines the utility of partnerships and compromises its own ability to achieve effective ecosystem-based research and management. We believe that the Service will gain by developing and supporting partnerships with other agencies, Alaska Natives, and private organizations that can contribute to NOAA's mission over time. Such partners often operate with less cost, and they help minimize the waste that occurs when opportunities for research and management are missed or activities are unnecessarily redundant due to ineffective communication. The research and management activities underway in the marine ecosystems of Alaska are not independent and the overall effort will be greater than the sum of independent efforts if positive interactions and synergies can be realized. We believe that partnerships should be viewed as investments in effective long-term stewardship of marine ecosystems. In other words, we believe that the Service's leadership should include both cutting-edge work by Service personnel and the development of mutually supportive partnerships and networks.