MARINE MAMMAL COMMISSION

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National Ocean Council
722 Jackson Place NW
Washington, DC 20503

Dear Members of the National Ocean Council:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the draft National Ocean Policy Implementation Plan announced in the *Federal Register* on 18 January 2012 (77 Fed. Reg. 2514). The Commission appreciates the Administration's work in developing this plan and believes that it contains many important recommendations for improving how we use, protect, and conserve marine resources. The four overarching themes and nine priority objectives all address important research, management, and policy matters. The drafters, compilers, and editors deserve recognition and credit for their efforts.

Using marine mammals to help achieve the nine priority objectives

The Commission recognizes that the challenge before the National Ocean Council is broader than any particular type of marine life. Nonetheless, the Commission believes that the abundance, distribution, and status of marine mammal populations provide the Council and associated agencies with a range of options for measuring success with the nine priority objectives of this ocean policy.

- *Ecosystem-based management*—Marine mammals are top-level consumers (i.e., baleen whales) and predators (e.g. polar bears, killer whales). Their status and abundance reflect the structure and function of the ecosystems on which they depend. Their decline often indicates problems arising from various human activities in the marine environment (e.g., overfishing, bycatch, contaminants, transmission of disease). Relative to most types of marine life, they are easy to assess and monitor as indicator species.
- *Inform decisions and improve understanding*—Marine mammal scientists have a wealth of information that is useful for improving understanding and informing decisions about the possible adverse effects of human activities in the marine environment. Examples include assessing the potential negative effects of unsound fishing practices (e.g., the bycatch of millions of dolphins in tuna fisheries); assessing the biological significance of harmful algal blooms (e.g., manatee mortality from red tides); identifying potential adverse effects of energy development, including oil and gas (e.g., Arctic) as well as alternative sources (e.g., north and mid Atlantic); characterizing negative consequences of depositing sewage and other wastes into the coastal environment (e.g., transmittal of toxoplasmosis to California sea otters); and assessing the overall health of marine ecosystems (e.g., the 1987-88 bottlenose dolphin die-off along the U.S. Atlantic coast).
- *Observations, mapping, and infrastructure*—Marine mammal studies also have provided data needed to route commercial ship traffic (e.g., Massachusetts Bay, Bering Strait) and detect areas of special biological or ecological importance (e.g., hotspots, areas of high productivity). Instrumented marine mammals have been used to collect environmental data

that otherwise would have been far more expensive to collect using traditional methods. The rapid increase in the use of passive acoustic technology as a tool for assessing potential human impacts can reasonably be attributed to concerns about marine mammals.

- *Coordination and support*—Marine mammal studies also demonstrate the great value of coordination among agencies. The rapidly increasing understanding of the effects of sound in the marine environment is due, in large part, to collaborative studies involving the National Oceanic and Atmospheric Administration, the Navy, and former Minerals Management Service.

- *Regional ecosystems*—Marine mammals provide useful measures of the health of regional ecosystems. Examples include southern resident killer whales in Puget Sound, sea otters off California and in southeast Alaska, manatees in the inland waters of Florida, and bottlenose dolphins in the Gulf of Mexico.

- *Resilience and adaptation to climate change and ocean acidification*—The polar bear, walrus, bowhead whale, gray whale, and ice seals provide perhaps the most obvious biological indicators of the effects of climate change in the Arctic. At lower latitudes, the Hawaiian monk seal also provides a valuable indicator of changes in North Pacific productivity and the effects of rising sea levels on our nation's largest national monument (i.e., Papahānaumokuākea Marine National Monument). The debate as to whether these species should be listed under the Endangered Species Act is hinged largely on their resilience and ability to adapt to rapidly changing conditions.

- *Water quality and sustainable practices on land*—The 1987-88 die-off of bottlenose dolphins and the now-common marine mammal mortality events associated with harmful algal blooms are clear signals that we need to pay more attention to the health of our marine ecosystems and our impacts on them. Such blooms have become common along all our coasts and often are linked to reduced water quality caused by excessive nutrients from on-land practices.

- *Changing conditions in the Arctic*—As noted above, marine mammals are recognized as critical indicators of the biological and ecological effects of climate disruption on the Arctic. These indicators are particularly important to the Alaska Native communities that depend on them to maintain their subsistence-based cultures.

- *Coastal and marine spatial planning*—Two of the most illustrative examples of marine and coastal spatial planning involve the north Atlantic right whale and the routing of commercial ship traffic in Massachusetts Bay, and managing the timing and location of seismic studies in the Arctic to avoid conflicts with marine mammals (primarily bowhead whales) and subsistence hunting by Alaska Natives.

Marine mammals are highly charismatic and valued indicators of the health of marine ecosystems. They are generally readily detectable and therefore relatively easy to study, they are top-level consumers and predators that reflect the status of their ecosystems, their life histories and vital rates are relatively easy to measure, scientists have a wealth of technologies for studying them, and the information on them often covers decades or even centuries. The Marine Mammal Commission therefore encourages the National Ocean Council to consider and use them for that important purpose.

Deeper Concerns

Indeed, the wealth of information linking marine mammals to ecosystem health compels the Commission to question whether (1) the policy and implementation plan accurately reflect the state of marine ecosystems and current and future threats to them, and (2) the implementation plan will support the vision and lead to the outcomes set forth in the National Ocean Policy. The questions at the heart of the Commission's concerns are whether (a) the policy and implementation will address the true underlying threats to marine ecosystems and (b) our society will accord sufficient priority to marine ecosystems in the midst of multiple other social, economic, and ecological crises.

Nature, rate, and scope of change

The National Ocean Policy and draft implementation plan do not describe the full nature, rate, and scope of change in marine ecosystems. The earth is in the midst of a massive extinction crisis. Not only are we driving individual species extinct, but we also are degrading the very physical, chemical, biological, and ecological processes that sustain life as we know it, no less in the sea than on the land. Changes to the Arctic Ocean because of climate warming and associated amplification effects are obvious because of the loss of sea ice and the potential loss of whole groups of fauna and flora. Similar and equally alarming negative changes are occurring in the rest of the world's oceans. One need only review the recent literature on coral reefs to see how we are degrading beyond recognition one of the great ecosystem types on the planet. The loss of those ecosystems almost certainly will have severe cascading effects throughout tropical, subtropical, and temperate waters. Ocean acidification from increasing levels of CO_2 may be of even greater overall significance, as it may alter the fundamental nature of virtually all marine ecosystems. These and other problems likely will have adverse consequences beyond those currently anticipated and must be addressed with foresight and bold commitment.

Recognition of the full nature, rate, and scope of change also is essential because it provides the most appropriate standard for judging the efficacy of our research and management strategies—are we gaining or losing ground? Examples of such measures include the number of fish stocks overfished; rate of loss of coastal wetlands; number, extent, and severity of anoxic zones; number and biological significance of harmful algal blooms; rate of loss of coral reef ecosystems; contaminant loads in major estuaries; number of species at risk of extinction or likely to become so in the foreseeable future; number of beach closures from sewage outfalls; and occurrence of disease in marine ecosystem indicator species (e.g., California sea lions). The Commission does not doubt that the National Ocean Council appreciates the seriousness of our marine-related challenges and, therefore, urges the Council to develop clear, comprehensive measures of the nature, rate, and scope of human-related changes in marine ecosystems and the efficacy of our management and recovery efforts. Although it may not be feasible to include them in the implementation plan, the development and publication of such measures will provide a valuable means for assessing the status and trends of marine ecosystems. Without such measures, we run the risks of perpetuating uncertainty or a false sense of security, failing to respond to problems before they become expensive and difficult crises, and adopting an ever-declining standard (i.e., a sliding baseline) for what constitutes a healthy marine ecosystem. The Environmental Protection Agency and the U.S. Geological Survey have developed similar measures of terrestrial ecosystems and conservation efforts.

Root causes

Neither the policy document nor the implementation plan addresses, in a full and forthright manner, the root causes of marine ecosystem degradation—that is, growth in human populations and per capita consumption, economic expansion, and their attendant adverse consequences. Instead, both documents focus on the various manifestations of those changes, including overfishing; the consequences of climate disruption; ocean acidification; habitat destruction; the introduction of contaminants, sound, disease, and invasive species; coastal development; and the discharge of wastes and debris. This approach is similar to treating the symptoms of an ailment without attending to its underlying cause. It appears to assume that any changes required to prevent biodiversity loss and ensure sustainability can be managed simply by developing the right tools or technology and therefore can be relegated to government agencies without concurrent changes in our social customs (i.e., those leading to population growth) and economic systems (i.e., dependence on increasing consumption). This approach also appears to assume that the above and other problems can be managed without an increase in the resources committed to research and management.

The Commission does not agree. All natural systems have limits and, to be sustainable, the demands of human social and economic systems must fall safely within those limits. That does not appear to be the case within U.S. waters and throughout much of the world's oceans. Indeed, the draft implementation plan makes little reference to the need for strong international cooperation in managing ocean resources. The Commission does not see how any nation (or group of nations) can build a prosperous future with healthy ecosystems when its (their) social customs and economic systems rest on unsustainable precepts and practices. We need a more forthright discussion of issues such as increasing ocean acidification; the growing number of harmful algal blooms and anoxic or hypoxic zones in coastal waters; the deterioration of coral reefs; and the introduction of contaminants, sound, and disease, and how these are related to our social customs and economic practices. The Marine Mammal Commission urges the National Ocean Council to reconsider the National Ocean Policy and draft implementation plan and take a deeper look at the root causes of marine ecosystem degradation and the fundamental changes needed to address them.

Rationalization

In the 1960s and 1970s Congress responded to national concerns that we were driving species extinct and degrading natural ecosystems by "economic growth and development untempered by adequate concern and conservation" (section 2(a)(1) of the Endangered Species Act). It passed a suite of legislation (i.e., the Endangered Species Act, National Environmental Policy Act, Marine Mammal Protection Act, Fishery Conservation and Management Act, Clean Water Act, Clean Air Act, Coastal Zone Management Act), recognizing the value of healthy natural ecosystems and our dependence on them. These Acts established standards for managing our effects on the environment and—as a nation—we have had mixed success in meeting those standards for the past four decades. But we now appear to have entered a different mindset.

Our new national ocean policy and the draft implementation plan are rife with terms that, at best, are of uncertain meaning and, at worst, could be misleading. Terms such as sustainable economic growth, balance, adaptation, and resilience imply a measure of control over processes and

outcomes that we either have not or cannot establish. Unless we define these terms and their conservation implications explicitly, they can easily become a form of rationalization and obfuscation. What is meant by "sustainable growth"? And if it can be maintained only by increasing resource consumption, how can it be deemed "sustainable" on a planet with finite resources? What does it mean to "balance" economic and conservation objectives when human population numbers and economic demands are ever-increasing? What does it mean to suggest that an Arctic ecosystem must simply adapt in the face of climate disruption? Polar bears and walruses cannot simply adapt their life or natural histories to compensate for a rapidly changing climate—the time frame is simply too short. Polar bears likely will largely or maybe totally disappear and walruses will be reduced to small numbers. And how do we make ecosystems more resilient in the face of ever-growing demands for extractive use and adverse side-effects of increasing human activities? What measure of control can we claim to have if we drill for oil in the Arctic when our ability to respond to a large spill in icy winter conditions is so uncertain? What measure of control do we have when harmful algal blooms and hypoxic or anoxic zones appear to be increasing exponentially in coastal waters? What measure of control do we have if we have been aware for decades of the grave risks posed by climate disruption, yet we still have no national strategy for dealing with that issue other than simply to cope or adapt? Can we justify building a national ocean policy based on such terms of uncertain meaning, or are we rationalizing to imply that we can meet the demands of an ever-growing human population while still maintaining control over the status and future of marine ecosystems? The Marine Mammal Commission urges the National Ocean Council to define these terms explicitly, explain the nature of the challenges associated with them, and explain how we, collectively, will measure our success at addressing those challenges.

Commitment

Finally, the insufficiency of resources for implementation of the National Ocean Policy is unfortunate. The Commission appreciates that fiscal resources and agency budgets are stretched and are insufficient for meeting all marine responsibilities. But the inadequacy of funding to address the most critical issues indicates that national priorities will not change in a meaningful way. Can we achieve and maintain healthy marine ecosystems if our ocean research and management efforts continue to fall so low on our list of priorities? If infrastructure, technology, and personnel requirements are falling short now, how can this situation be changed in the foreseeable future without additional resources? The question before the National Ocean Council is not whether we can use the best available science, for that will always be the case. The question is whether that science will be good enough to support an ocean policy that assures healthy marine ecosystems. This question has not really been addressed, but the National Ocean Council has the opportunity to at least try to do so. The Marine Mammal Commission urges the National Ocean Council to seek greater support for the implementation plan—support sufficient to ensure a serious, sustained effort to restore and maintain healthy marine ecosystems.

Sincerely,

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