

## **Introduction**

An important step to addressing the issue of impacts of anthropogenic sound on marine mammals is to develop outreach, education, and communication goals that are part of strategic planning and adaptive management efforts. In addition to mitigation, management and scientific research recommendations, which can directly affect the production of sound or its impacts on marine mammals, education and outreach efforts can inform all stakeholders of important issues that may affect them directly or indirectly. The inclusion of communication objectives in the Committee's report would provide opportunities for the development of creative solutions to regulation and invite the involvement of public entities in the process of decision-making. Effective communication processes will enable all interested stakeholders, including the general public, at local, regional, national and international levels, to participate in designing management strategies based on accessible information. In turn, collaboration and commitment would become part of the process and consensus would build more rapidly. Because the impact of human-produced sound on marine mammals is a widely debated issue, it is vital that the best applicable information and education be made available. Having plans in place to disseminate information when critical events occur can help to alleviate controversy and combat negative images while building support from the public. Proactive engagement of constituents encourages trust and enables action.

## **Specific Recommendations**

1. Establish a Marine Mammal Protection Act course at the National Conservation Training Center, taught by specialists from the National Marine Fisheries Service and the U.S. Fish and Wildlife Service, for the purpose of educating regulators and the interested public in implementation of the Act.
2. Conduct outreach to the shipping industry for the purpose of providing information on marine mammals and acoustics, discussing regulations, and researching alternatives in shipping design and construction.
3. Support the U.S. Commission on Ocean Policy recommendation to establish an ocean curriculum through the creation of a textbook chapter or section on noise in the oceans and impacts to marine mammals and the ecosystem, including K-12 and college texts.
4. Expand the dissemination of educational materials on acoustics to a wider range of media outlets, such as the National Association of Science Writers. One possible outcome is the writing of a piece for the New York Times Tuesday science section (and similar forums) on the composition and purpose of the Advisory Committee.
5. Provide opportunities for a variety of interagency and international job exchange programs within the fields of acoustics and marine mammals.

6. Consider and support the recommendation from the National Research Council on Ocean Noise and Marine Mammals to address the need for communication between the public and scientific community regarding fundamental acoustic concepts.
7. Expand NMFS lecture series to a greater number of sites and communities in the United States after consultation with various constituents and interest groups. Build on the connections established through the series so far and expand the email distribution announcements generated from the lectures.
8. Strengthen the role of zoos, aquaria and other non-formal entities for the purpose of conservation education, including acoustic impacts to marine mammals. One example is to enhance the capacity of the National Aquarium at the US Department of Commerce to deliver public education programs by training staff, attracting and increasing visitor numbers, and providing funds for the development of traveling exhibition on sound and marine mammals. Develop marketing opportunities.
9. Establish a centralized locale (*e.g.*, a web site) for the creation, coordination, and dissemination of public information regarding noise and marine mammals, with input from relevant stakeholders and interest groups.
10. Collaborate with the media to produce Advisory Committee-endorsed publications and articles targeted to inform the public of report recommendations and related issues.

In addition, the Advisory Committee should support other recommendations from the U.S. Commission on Ocean Policy Report, 2004, as follows:

***Recommendation 8–15.*** *The Office of Naval Research (ONR) should reinvigorate its support of graduate education in ocean sciences and engineering. This could be accomplished, in part, by increasing the number of ocean-related awards made under ONR’s National Defense Science and Engineering Graduate Fellowship Program. (USCOP)*

***Recommendation 25–6.*** *The National Oceanic and Atmospheric Administration and the National Science Foundation should lead an expanded national ocean exploration program, with additional involvement from the U.S. Geological Survey and the U.S. Navy’s Office of Naval Research. Public outreach and education should be integral components of the program. (USCOP)*