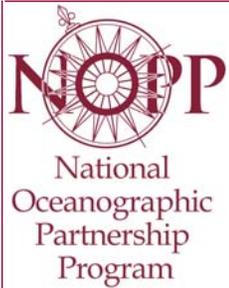


Presentation at the Third Plenary Meeting of
the Advisory Committee on Acoustic
Impacts on Marine Mammals
27-29 July 2004
San Francisco, California

This presentation is the sole product of the author(s) and does not reflect the view of the Marine Mammal Commission or the Advisory Committee on Acoustic Impacts on Marine Mammals.

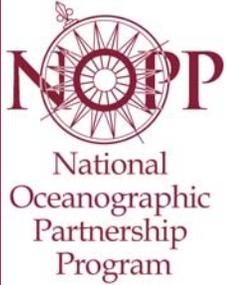


Brief Description of the NOPP Research Program in Relation to Current and Future Funding of Marine Mammal Research

Presentation to Marine Mammal Commission Advisory Committee on Acoustic Impacts on Marine Mammals

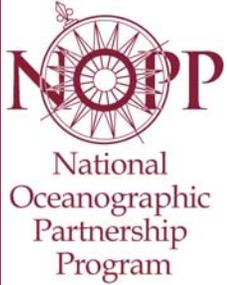
Jim Yoder, NSF
(former Chair of the NOPP
Interagency Working Group)

27 July, 2004



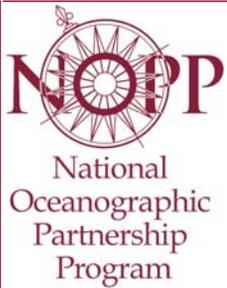
NOPP Description

- National Oceanographic Partnership Program (NOPP) is a collaboration among fourteen federal agencies to provide leadership and coordination of national ocean research and education efforts. It also has proved to be an effective mechanism for nongovernmental organizations, like the Alfred P. Sloan Foundation, to pool their dollars with federal sources and support larger, more comprehensive projects that foster community-wide goals.
- The central tenet of NOPP is partnership. Over seven years, federal agencies and private foundations have invested \$128 million in NOPP.



Research Projects Selected and Funded Through NOPP

- Competitive selection through a broad agency announcement, which can be released by any of the participating agencies.
- Peer review by an expert panel of academic, government and other scientists who adhere to confidentiality and conflict of interest standards.
- Evaluation based on relevance to NOPP objectives and operational goals, overall scientific and technical merits, quality and inclusiveness of proposed partnerships, social and economic merits of the proposal, the partners' capabilities, related experience and long-term commitment.
- Results published in peer-reviewed journals. **NOPP agencies do not require nor seek prior approval for publication of results.**

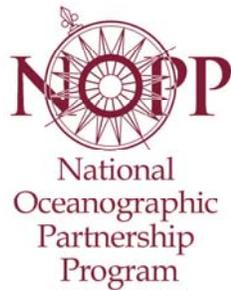


To date, NOPP has invested \$9.3 million to fund 8 projects related to marine mammals

- Digital Archival of Marine Mammal, Bird and Turtle Data for OBIS (Lead PI: Dr. Andrew Read, Duke University).
- Accelerating Electronic Tag Development to Track Free-Ranging Marine Animals at Sea (Lead PIs: Dr. Barbara Block, Stanford University and Dr. Daniel Costa, University of California Santa Cruz).
- Acoustics in the Cetaceans' Environment: A Multimedia Educational Package (Lead PI: Dr. Marc S. Dantzker, Cornell University).
- An Annotated and Federated Digital Library of Marine Mammal Sounds (Lead PI: Dr. Jack W. Bradbury, Cornell University).
- Measuring the Behavior of Beaked Whales and Their Responses to Sound Using a Digital Recording Tag (Lead PI: Drs. Mark Johnson and Peter Tyack, Woods Hole Oceanographic Institution)
- Models of Beaked Whale Hearing and Responses to Underwater Noise (Lead PI: Dr. Darlene Ketten, Woods Hole Oceanographic Institution).
- Radar-Based Detection, Tracking and Speciation of Marine Mammals from Ships (Lead PI: Dr. Douglas DeProspro, Areté Associates).
- Standardization of Electrophysiological Measures of Hearing in Marine Mammals (Lead PI: Drs. Colleen Reichmuth Kastak and David Kastak, University of California, Santa Cruz).

Future Possibilities to Consider

- Direct participation (funding, definition of research themes) in NOPP research can include non-Feds.
- Indirect participation (e.g. observe review process, suggest reviewers) is also possible by non-Feds.
- Participation on NOPP Advisory Panel (ORAP).



Background Information for the Advisory Committee on Acoustic Impacts on Marine Mammals

The National Oceanographic Partnership Program (NOPP) is an innovative program established by the U.S. Congress in 1997. It is a collaboration among fourteen federal agencies to provide leadership and coordination of national ocean research and education efforts. It also has proved to be an effective mechanism for nongovernmental organizations, like the Alfred P. Sloan Foundation, to pool their dollars with federal sources and support larger, more comprehensive projects that foster community-wide goals. The central tenet of NOPP is partnership. Through it, government, public and private sectors are brought together to share resources and expertise and conduct projects that advance ocean science, technology and education. Over seven years, federal agencies and private foundations have invested \$128 million in NOPP.

NOPP projects are competitively selected based on a number of criteria, including both the strength of the science and that of the proposed partnerships. To date, 84 projects have been funded. Proposals are solicited through a broad agency announcement and reviewed by an expert panel of academic, government and other scientists who adhere to confidentiality and conflict of interest standards. Reviewers evaluate the proposals based on relevance to NOPP objectives and operational goals, overall scientific and technical merits, quality and inclusiveness of proposed partnerships, the social and economic merits of the proposal, and the partners' capabilities, related experience and long-term commitment. When the projects are completed, the results are published in peer-reviewed journals. The NOPP agencies do not require or seek preliminary approval of results.

While initial efforts have focused primarily on ocean observing systems and education, NOPP has invested \$9.3 million to fund 8 diverse projects related to marine mammals:

Digital Archival of Marine Mammal, Bird and Turtle Data for OBIS (Lead PI: Dr. Andrew Read, Duke University). SEAMAP (Spatial Ecological Analysis of Megavertebrate Populations) is a 3-year initiative to better understand the biogeography and ecology of large marine vertebrates on a worldwide scale. This project is compiling geo-referenced data on marine mammal, bird and turtle at-sea surveys, movements, and colony-based observations into a coherent and standardized format. To make this global database more accessible, SEAMAP is developing a web-based system equipped with data analysis and visualization tools. The system will be publicly available and allow users to display, query, subset, and summarize data on marine vertebrate distributions in conjunction with environmental information.

Accelerating Electronic Tag Development to Track Free-Ranging Marine Animals at Sea (Lead PIs: Dr. Barbara Block, Stanford University and Dr. Daniel Costa, University of California Santa Cruz). As part of the Tagging of Pacific Pelagics (TOPP) research program, the goal of this 3-year project is to understand the migration patterns of large, open-ocean animals in the North Pacific Ocean. Using microprocessor-based satellite tagging technologies, TOPP scientists follow the journeys of tunas, whales, sharks, seals, sea turtles, and sea birds as they travel across the Pacific. The scientists hope to learn where these animals go to feed and to breed and to understand what oceanographic processes affect their migration patterns.

Acoustics in the Cetaceans' Environment: A Multimedia Educational Package (Lead PI: Dr. Marc S. Dantzer, Cornell University). Public concern has grown over rising levels of noise in

the marine environment. However, there is little comprehensive and widely available information about sound in the sea on which to base decisions about sound-related marine issues. Focusing on cetaceans, this project will create state-of-the-art multimedia outreach and education materials about ocean sound. The 2-year project will answer the need for comprehensive, top-quality outreach materials, helping to develop a more informed public.

An Annotated and Federated Digital Library of Marine Mammal Sounds (Lead PI: Dr. Jack W. Bradbury, Cornell University). This 2-year project will integrate three independent data sources: (1) a rapidly growing marine animal sound archive at the Cornell University Macaulay Library; (2) contemporary acoustic survey datasets from cetacean research programs, and (3) other existing NOPP databases (such as OBIS-SEAMAP). The researchers are designing a seamless framework that will be transparent to Internet users of the constituent databases and provide integrated and cross-referenced access to acoustic, distributional, and biogeographic data.

Measuring the Behavior of Beaked Whales and Their Responses to Sound Using a Digital Recording Tag (Lead PI: Drs. Mark Johnson and Peter Tyack, Woods Hole Oceanographic Institution). This 2-year project will develop field sites and methodologies for making reliable digital tag recordings on beaked whales, in order to perform controlled exposure experiments (CEEs) on tagged whales. The digital tag data will be combined with surface visual observations, photo-identification and genetic catalogs, and rapid fine-scale physical oceanographic measurements in the presence of beaked whales. Together they will provide a thorough characterization of the movement patterns, vocalizations, foraging styles, and preferred habitat of tagged whales. A pilot CEE study to examine the behavioral responses of beaked whales to low levels of low and/or mid-frequency sound will follow a workshop to establish safety guidelines, stimulus priorities, and target levels.

Models of Beaked Whale Hearing and Responses to Underwater Noise (Lead PI: Dr. Darlene Ketten, Woods Hole Oceanographic Institution). This 2-year project will develop biophysically based models of the acoustic power flow from the water, through the tissues of the head and middle ear, into the cochlea, and ultimately to the sensory receptor cells (hair cells). These models will allow accurate assessments of how marine mammals may be affected by anthropogenic noise in the oceans, without the need for experimentation on whales.

Radar-Based Detection, Tracking and Speciation of Marine Mammals from Ships (Lead PI: Dr. Douglas DeProspero, Areté Associates). The objective of this 2-year project is to establish the ability of current or planned ship-based radars, augmented by specialized signal processing, to detect, discriminate and track (geo-locate) a number of different marine mammal species (e.g., great whales, schooling dolphins, etc.) under a variety of representative sea environments (e.g., Atlantic, Pacific, Mediterranean, etc.).

Standardization of Electrophysiological Measures of Hearing in Marine Mammals (Lead PI: Drs. Colleen Reichmuth Kastak and David Kastak, University of California, Santa Cruz). This 1-year project will answer fundamental questions about auditory evoked potential (AEP) measurement in pinnipeds and examine the feasibility of using AEP techniques to measure hearing sensitivity and noise impacts in three species. The primary objective is to standardize techniques so that they can be used to directly compare electrophysiological and behavioral hearing assessments within individuals. A second objective is to compare the results obtained with pinnipeds to those obtained in dolphins using similar electrophysiological approaches.