



CENSUS OF MARINE LIFE

Consortium for Oceanographic Research and Education, Secretariat

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Admiral James D. Watkins, USN (Ret.)
Chairman
U.S. Commission on Ocean Policy
1120 20th Street, NW
Suite 200 North
Washington, D.C. 20036

Dear Mr. Chairman:

In December 2002, the U.S. National Committee for the Census of Marine Life met for the first time in La Jolla, CA. The Committee is a diverse group of marine scientists and other experts who represent ocean community interests, understand the importance of policy-relevant research and recognize the potential of the Census for improving our understanding of ocean ecosystems and marine biodiversity.

The Committee's primary task is to develop and implement a U.S.-focused program of biodiversity research within the context of the overall vision and goals of the global Census program. Toward that goal, the members discussed how the Census could contribute to strengthened U.S. ocean policies and satisfy national scientific priorities.

Following the meeting, the Committee members and staff prepared a short issue paper on Census efforts to address issues related to marine biodiversity, ecosystem management and development of an ocean observing system. U.S. members of the Census's international Scientific Steering Committee also participated in development of the document. While the paper reflects a general consensus among the U.S. members of the two committees, it does not necessarily reflect the opinions of individual members or the organizations they represent.

We hope that you will find this material useful in the preparation of your final report and recommendations. Please contact us if there is any additional information that we can provide.

Sincerely,

Dr. Fred Grassle
Chair
Scientific Steering Committee

Dr. Daphne Fautin
Chair
U.S. National Committee

Enclosures



Issue Paper for the U.S. Commission on Ocean Policy

The oceans cover vast amounts of the earth's surface and most of its organisms are found nowhere else. The diversity of marine life is huge and may rival that of the rain forests in number of species, yet our knowledge of ocean life lags far behind that of terrestrial life. We now have the tools to embark on a new age of ocean exploration. We also recognize the need to better understand changes occurring in the seas to provide vital – and previously lacking – information for national policy, innovative research and education at all levels.

One effort to address that need is the Census of Marine Life (Census), an international research program to assess and explain the abundance, diversity, and distribution of marine organisms throughout the world's oceans. The Census is focusing on field studies that explore little known habitats and re-examine familiar areas using innovative technologies. The Census also is developing an integrated biogeographic information system and assessing historic marine animal population levels. This information will support modeling efforts to better understand the response of marine biological systems to environmental change and harvesting. Together, Census activities will enable scientists to compare what once lived in the oceans to what lives there now and to gain insight into what may live there in the future. The results, in turn, will enable informed management decisions and can be used to educate all Americans.

In December 2002, the U.S. National Committee met for the first time to begin establishing priorities and planning for a U.S. Census program. The Committee discussed the potential contributions of the Census to the implementation of an ocean observing system, our understanding of marine biodiversity, and ecosystem-based management. The following are among the specific policy considerations:

- *Dynamic access to biological data.* One key component of the Census is the Ocean Biogeographic Information System (OBIS), a comprehensive management system for marine biological data that is freely accessible online. OBIS is a federation of geo-referenced species-level and environmental databases that can be simultaneously searched. It is currently available over the Internet and is expanding rapidly. Biological and physical information may be downloaded directly or interpreted through visualization and modeling techniques. By requiring common data formats, incorporating historic information from many sources, and providing a common entry point, OBIS will support synthesis of existing information and be accessible to a wide range of users.
- *Exploration and taxonomy.* Many species in our oceans have yet to be discovered. When they are, they must be accurately described and classified – and immediately become part of OBIS. A more complete understanding of the distribution and abundance of marine organisms will allow us to develop products from the sea and more effectively address human effects on the marine environment, including such issues as invasive species, coastal pollution, and harmful algal blooms.
- *Biological sensors and data management for ocean observing systems.* Scientists and managers agree that an ocean observing network must monitor biological parameters. A central aim of the Census is to adapt and test state-of-the-art technologies for surveying marine organisms that can be standardized and incorporated into such a network.

Recognizing this potential, the National Oceanographic Partnership Program (NOPP) has provided funding support for the Census as part of a federal interagency effort to implement an integrated ocean and coastal observing system. NOPP also has provided support for OBIS, positioning it to become the biological component of the data management system for the global network.

- *Ecosystem-based management.* Working in conjunction with the pilot Gulf of Maine Ocean Observing System, one Census project is surveying marine life and physical conditions concurrently within the region. Patterns of abundance and distribution will provide clues to the relationships among marine animal populations and to the role of non-commercial species in the sustainability of fisheries and ecosystems. By integrating biological and physical information, fisheries managers will better understand how harvest levels for managed species affect other components of the ecosystem and its overall health. The project goals are to gain enough knowledge to enable ecosystem-based management in a large marine environment within ten years and to develop an approach that can be replicated in other regions.

Investment of \$50 million annually in a U.S. Census program would substantially improve our knowledge base for dealing with issues of management, conservation, human health, and effects of global climate change. The program anticipates similar funding from international sources.

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Members of the U.S. National Committee

- Dr. Daphne Fautin, Professor, Department of Ecology and Evolutionary Biology and Curator, Kansas University Natural History Museum (*Chair*)
- Dr. Sylvia Earle, Executive Director for Marine Conservation, Conservation International
- Dr. Daniel Finamore, Director, Council of American Maritime Museums
- Mr. Tom Fry, President, National Ocean Industries Association
- Mr. Terry Garcia, Executive Vice President for Mission Programs, National Geographic Society
- Dr. Nancy Knowlton, Director, Center for Marine Biodiversity and Conservation, Scripps Institution of Oceanography
- Dr. Clarence Pautzke, Executive Director, North Pacific Research Board
- Dr. Shirley Pomponi, Vice President and Director of Research, Harbor Branch Oceanographic Institution
- Dr. Michael Roman, Director, Horn Point Laboratory, University of Maryland Center for Environmental Studies
- Dr. Paul Sandifer, Director, South Carolina Department of Natural Resources
- Dr. Jerry Schubel, President, Aquarium of the Pacific
- Mr. Bill Shedd, President, AFTCO Manufacturing Company

U.S. Members of the International Scientific Steering Committee

- Dr. J. Frederick Grassle, Director, Institute of Marine and Coastal Sciences, Rutgers, The State University of New Jersey (*Chair*)
- Dr. Vera Alexander, Dean, School of Fisheries and Ocean Sciences, University of Alaska Fairbanks
- Dr. Donald Boesch, President, Center for Environmental Science, University of Maryland
- Dr. David Farmer, Dean, Graduate School of Oceanography, University of Rhode Island
- Dr. Andrew Solow, Director, Marine Policy Center, Woods Hole Oceanographic Institution