

# Committee on Resources

## Subcommittee on Fisheries Conservation, Wildlife and Oceans

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### Testimony of Nancy Foster, NOAA

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WRITTEN TESTIMONY OF  
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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
U.S. DEPARTMENT OF COMMERCE  
BEFORE THE  
SUBCOMMITTEE ON FISHERIES CONSERVATION, WILDLIFE AND OCEANS  
COMMITTEE ON RESOURCES  
U.S. HOUSE OF REPRESENTATIVES

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Good morning. I am Dr. Nancy Foster, Assistant Administrator for Ocean Services and Coastal Zone Management at the National Oceanic and Atmospheric Administration (NOAA). Thank you Mr. Chairman, and members of the Subcommittee, for this opportunity to testify on public/private research partnerships in NOAA's National Marine Sanctuaries. Research partnerships play an indispensable role in helping advance NOAA's coastal stewardship mission to conserve, protect, and enhance the biodiversity, ecological integrity, and cultural legacy of our Nation's valuable marine protected areas.

It is fitting that we highlight these essential partnerships in this, the International Year of the Ocean, especially in light of the major initiatives announced at the National Ocean Conference in June at Monterey, California by President Clinton. One of the most important elements is to explore the oceans, the last U.S. frontier, and better understand how to protect marine resources. Much of this knowledge will be gained through public/private research partnerships such as the ones you will hear about today.

This hearing also coincides with the efforts of the National Ocean Service to redefine itself to strengthen the effectiveness of NOAA's coastal stewardship mission, enhance research support within NOAA for coastal management, and build better linkages among NOAA's coastal programs. A key element in this process has been improving NOAA's understanding of our unique areas of management responsibility, including our 12 National Marine Sanctuaries. Fundamental to this effort is our commitment to foster partnerships that ensure balanced participation and allow us to leverage NOAA's technical expertise with the diverse strengths available from outside the Federal government. These partnerships not only help provide the additional scientific data and technical capabilities vital to improving our understanding and management of these complex marine ecosystems, but they also help build the public's awareness of the critical importance of conducting this research. Strong partnerships are vital to enabling the Sanctuary program to provide the superior marine resource management required to sustain these special areas for future generations.

Today, I would like to summarize the importance of research to the National Marine Sanctuary program and

the role partnerships play in conducting that research. This hearing comes in the midst of one of the most successful years in the National Marine Sanctuary program's 26 year history, much of which is due to the strong internal and external partnerships that NOAA has participated in. I think it most appropriate that you hear about these productive collaborations directly from your other witnesses, Dr. Sylvia Earle and Mr. Terrence Tysall. NOAA is very fortunate to have the National Geographic Society and the Cambrian Foundation as partners. Rather than discuss in detail specific partnerships, Mr. Chairman, I would like to submit for the record, attached with my written statement, a summary of the public/private research partnerships currently under way in our 12 National Marine Sanctuaries.

As trustees for the Nation's system of marine protected areas, NOAA needs the support of the private sector, academia, industry and others to help manage and protect these unique public resources. A critical component of this support is to provide NOAA with the high quality research needed to make sound management decisions, implement effective field operations, and to evaluate the effectiveness of NOAA's management strategies on our Nation's valuable natural and cultural marine resources. Our Sanctuaries are natural laboratories in which we can test, refine, prove and implement the linkages between scientific theories and management practices. Many of the lessons learned can be applied outside of the Sanctuaries. Because of their exceptional significance and their irreplaceable value to the nation, it is imperative that the Sanctuaries be able to draw upon high quality research expertise and facilities.

Although NOAA is the Nation's premiere scientific agency for ocean (and atmospheric) research, we also recognize our limitations. At times, it seems that the questions that need answers are as boundless as the oceans themselves. It will not surprise anyone on this subcommittee that more resources are needed to fully address these challenges. This is where the value of partnerships truly stands out. An abundance of knowledge, skills, expertise, creativity, and resources is available in this country, whether it be from Federal, state, academic, private or other institutions that NOAA can collaborate with to help accomplish its mission. Strong, well-focused partnerships help NOAA address needs beyond available resources.

The National Marine Sanctuary program's role in public/private partnerships includes identifying areas and gaps where partnerships can best address outstanding needs, seeking the appropriate partners to address those needs, and bringing sufficient resources to the table to adequately support NOAA's commitment to the partnership effort. In the past, NOAA has developed partnerships in areas as diverse as the Sanctuaries themselves. A few examples are multi-lingual education at the Channel Islands Sanctuary, fish resource inventories in the Florida Keys, and even a benefit concert by the popular country band "Little Texas" to raise funds for monitoring activities at the Flower Gardens Sanctuary.

Partnerships are expected to play an important, well-defined role in the first-ever comprehensive National Marine Sanctuary Research Plan currently under development. The Research Plan will ensure that all National Marine Sanctuaries have the capability to effectively coordinate site-specific planning and research, identify and address priority research areas relevant to important management issues, and direct NOAA and external resources to where the most critical needs exist.

Also, the Plan will encourage development of partnerships to implement cross-cutting scientific projects involving multiple sites that cut across regions. We also expect to establish clear criteria for data quality and management for monitoring and other research programs, and make information produced through Sanctuary sponsored research programs widely accessible and user-friendly.

Some of the key goals of the Plan are to fully understand the nature of the many threats to our nation's valued marine resources and ecosystems by monitoring the condition of protected resources and tracking natural and human-induced changes. NOAA expects to enhance its capabilities to better respond to resource damage incidents and restore marine habitats important to those communities that rely on healthy, vibrant marine resources.

In conclusion, NOAA has long recognized the value of public/private partnerships that enhance research efforts needed in the National Marine Sanctuaries. The two exciting partnerships that will be highlighted this morning demonstrate the National Marine Sanctuary Program's unique ability to find willing partners, leverage appropriated dollars and realize significant benefits. The development of a system-wide Research Plan will provide the guidelines needed to ensure that future partnerships are focused where most needed. I look forward to working with you next year, Mr. Chairman, to update the Subcommittee regarding our progress in developing new partnerships under the Research Plan, when your Subcommittee begins to consider reauthorization of the National Marine Sanctuaries Act.

Thank you for the opportunity to discuss research partnerships in NOAA's National Marine Sanctuaries. I would be pleased to answer any questions you may have.

#### SUMMARY OF NATIONAL MARINE SANCTUARY PUBLIC-PRIVATE PARTNERSHIPS SEPTEMBER 1998

Stellwagen Bank NMS, MA

University of Connecticut  
Ivar Babb/Peter Auster, NURC-NAGL

One of the key research partners for this sanctuary; provides considerable support for sanctuary research and education. Leads critical habitat research program at SBNMS, which is on the cutting-edge of providing and understanding the important role habitats play in sustaining marine resources. The Center is also assisting the sanctuary with understanding the acoustic environment, and the effects of human-generated sound on the marine mammals that return to this critical habitat every year. UCONN, through the NURC-NAGL, provides us with access to advanced underwater technologies such as ROVs and manned submersibles, essential to conducting effective research in a sanctuary generally too deep to allow safe diving.

Woods Hole Oceanographic Institution  
Porter Hoagland, Marine Policy Center

Marine Policy Center provides significant support in a number of areas related to understanding the socioeconomic implications of sanctuary management. Conducted a study of the economics of whale watching at SBNMS (one of the 10 top whale watching sites in the world according to World Wildlife Fund), developed an inventory of existing marine protected areas in the Gulf of Maine (a project that is part of our activities associated with the Gulf of Maine Council on the Marine Environment), and has agreed to provide socioeconomic analysis for our upcoming management plan review.

Massachusetts Institute of Technology  
Dr. Jim Bellingham, AUV Program

Collaborative work, in cooperation with NURC-NAGL, deploying MIT's Autonomous Underwater Vehicle (AUV) Odyssey to field test its capabilities to map the sanctuary seabed. Have collaborated on a number of other proposals which did not receive funding.

Dr. Judith Kildow, Department of Ocean Engineering

Graduate students, under the direction of Dr. Kildow, produced an environmental monitoring program for the sanctuary, which is being used both to help the sanctuary formulate monitoring priorities and to assist the NMS program to develop a national program-wide monitoring initiative.

University of North Carolina at Wilmington (UNCW)  
Dr. Larry Cahoon

Dr. Cahoon is a participant in our habitat research team and leads an effort, funded largely by NURC-NAGL, to shed light on changes to seabed production in areas where considerable fishing activity occurs. UNCW has participated in at least three sanctuary research cruises, focusing on demersal zooplankton and seabed productivity.

Harbor Branch Foundation  
Tim Askew, Operations Manager

Through NURC-NGL, cutting-edge technologies in submersible and ROV systems have been deployed and yielded considerable information regarding seabed processes in the Sanctuary. Harbor Branch's Vessels SEA DIVER and EDWIN LINK have been platforms for critical research in the Sanctuary, supporting both ROVs and manned submersible CLELIA, such as a lobster habitat research project funded by NURC-NAGL.

Monitor NMS, NC

The Mariners' Museum  
Claudia Pennington, Director

The Mariners' Museum is this sanctuary's key partner. Through a long-term memorandum of understanding, the museum serves as principal museum for sanctuary education programs, curation of the Monitor Collection of artifacts and documents, and artifact conservation. The museum is currently preparing a conservation and exhibit facility for the conservation, curation and interpretation of large components to be recovered from the Monitor. The museum is also working with NOAA for the development of the USS Monitor Research Center, to be located at the museum.

National Undersea Research Center/University of North Carolina at  
Wilmington (NURC/UNCW)  
Lance Horn or Doug Kesling, Operations

One of the key research partners for this sanctuary, NURC/UNCW provides essential support for sanctuary deepwater research and training. During the most recent on-site research expeditions, NURC/UNCW provided dive training support, decompression chamber and operators, dive equipment and research divers. Because of the unique relationship between NOAA's National Ocean Service and the National Undersea Research Program, NURC's services are available to this sanctuary at a fraction of the estimated cost of obtaining equivalent services from an outside contractor.

Cambrian Foundation  
Terrence Tysall, President

This private, nonprofit foundation is dedicated to conducting deepwater diving research projects. The foundation has committed resources for long-term research at the Monitor sanctuary. The foundation, which conducted NOAA-permitted private research at the sanctuary for several years, participated as a full partner in NOAA's 1998 Monitor Expedition. The foundation provided training, equipment and research divers for the expedition, absorbing a large portion of the associated costs.

U. S. Navy, Naval Sea Systems Command (NAVSEA)  
CDR Christopher Murray, Commanding Officer  
Mobile Diving and Salvage Unit Two (MDSU Two)

MDSU Two provided essential personnel and equipment for the highly successful 1998 Monitor Expedition. Using a Navy-leased vessel as a research platform, Navy and NOAA divers worked together for the recovery of the Monitor's propeller, hull plates and other artifacts, as well as for the recovery of data required for the next phase of on-site stabilization and research.

Oceaneering Technologies  
A division of Oceaneering International  
Leonard Whitlock, Engineer

Oceaneering holds a NAVSEA contract for support of Navy ocean research and salvage. In 1997, Oceaneering provided, at no cost to the government, a preliminary assessment and recovery plan for the preservation of the Monitor's hull and the recovery of major hull components.  
Gray's Reef NMS, GA

Skidaway Institute of Oceanography, Savannah, GA  
Dr. Herb Windom, Acting Director

The Gray's Reef National Marine Sanctuary program offices are located on the campus of the Skidaway Institute of Oceanography (SkIO). Under Joint Project Authority of the Department of Commerce, SkIO and Gray's Reef have entered into a long-term agreement to collaborate on research, conservation and educational activities. Through this agreement SkIO provides access and use of all its facilities including research vessels, Distance Learning Center and marine operations equipment. SkIO also provides staff and research faculty support for all facets of sanctuary research and educational programs.

National Undersea Research Center at the University of North Carolina/Wilmington (UNCW) Wilmington, NC

Tom Potts, Assistant Science Director

The Center at UNCW has provided considerable support for Gray's Reef over the past 4-5 years in establishing monitoring programs, providing research coordination and training of staff and volunteer divers. UNCW has conducted extensive surveys of the sanctuary using their ROVs to provide video confirmation of reef features identified with side scan sonar surveys. They have provided training to staff for Nitrox diving certification and have visited sanctuary offices on two different occasions to provide week long dive certification training for volunteer divers from local universities. Tom Potts serves in a part-time capacity as the sanctuary's Research Coordinator and has ensured that the sanctuary research needs receive priority in the NURC annual call for proposals from the scientific community.

University of Georgia, Athens GA  
Dr. Erv Garrison

For four years Dr. Garrison has been providing time and scientific equipment to Gray's Reef to explore the paleoenvironmental conditions of the sanctuary. His work includes extensive diving and survey of a portion of the reef that has significant fossil resources. He has also conducted sub-bottom surveys of the reef and adjacent areas to explore ancient drowned riverbeds and has been participating in media events and stories relating to the work at the sanctuary.

Georgia Southern University, Statesboro GA  
Dr. Jim Henry

Dr. Henry has been directly involved with the sanctuary program at Gray's Reef since its inception. He has conducted a variety of geological studies of the reef and continues to contribute to the sanctuary program by providing advisory services, review of documents and support for geophysical surveys. He has also encouraged other GSU faculty to focus their work where feasible in the sanctuary and this has resulted in support for GRNMS loggerhead sea turtle studies, reef fish and invertebrate monitoring and paleoenvironmental sediment characterization.

Marine Resources Research Institute, Charleston SC  
Dr. Jack McGovern

Through support from the National Marine Fisheries Services, MRRI has conducted five years of reef fish assessment surveys in the sanctuary. Their efforts under the MARMAP program have provided the most reliable scientific data for the sanctuary on the status of targeted recreational fish species.

Florida Keys NMS, FL

Florida Institute of Oceanography, St. Petersburg.  
Dr. John Ogden (813-553-1100).

Since 1992 FIO has worked with the sanctuary on providing the best available science for use in management decisions. FIO implemented the SEAKEYS program which

\* established long-term automated physical oceanographic

monitoring stations along the reef tract,  
\* monitored coral change over a 4 year period, and  
\* quantified hydrological linkage between Florida Bay and the sanctuary.

As part of SEAKEYS, two educational posters were produced to graphically show linkages in the ecosystem. Last year, FIO was awarded a \$200K monitoring grant to look at the effects of the no- take zones on the coral community. Dr. Ogden is leveraging that money to get private funding to enhance the study to investigate the replenishment potential of marine reserves.

National Undersea Research Center at the University of North Carolina-Wilmington (NURC/UNCW),  
Bob Wicklund, Director; Dr. Steven Miller, Science Director

For the past seven years, NURC/UNCW has operated the world's most active and productive coral reef research program involving both a day-boat program and a saturation mission program. The sanctuary and NURC work hand-in-hand on science planning, permitting, and logistics. It is essentially the research arm of the sanctuary. (A good indicator of our cooperation together is that NURC RFP for research now lists investigating the effect of the no-take zones as a major funding priority.) NURC manages our Level I contract to Ogden and conducts a yearly rapid assessment of the no-take zones.

Mote Marine Lab, Sarasota and Pigeon Key  
Dr. Kumar Mahadevan, Director; Dr. Erich Mueller, Pigeon Key  
Marine Research Center director

The Pigeon Key lab has been operating in the sanctuary for the past three years and focuses on cutting edge coral reef restoration techniques, coral disease research, and investigating the cause and effect of episodic events in the sanctuary. Mote will be funding two post-doctoral fellows to assist with the science coming out of the SSE initiative.

Flower Garden Banks NMS, TX/LA

Gulf of Mexico Foundation - Flower Gardens Fund  
Dr. Quenton Dokken, Director

Provides financial and in-kind support for research and education at the Sanctuary. Has been instrumental in initiating partnerships with business and industry, including Mobil, Shell, Oryx, and BP Exploration. Annually provides financial assistance to graduate students conducting a variety of work in the Sanctuary. Sponsors the annual Education Workshop & Field Excursion for classroom teachers and informal educators.

Channel Islands NMS, Santa Barbara, CA

## University of California, Santa Barbara (UCSB)

Channel Islands National Marine Sanctuary (CINMS) has partnered with UCSB scientists to study the impacts of El Niño storm runoff on the marine environment- specifically in the Santa Barbara Channel and the sanctuary. Since early February, El Niño generated storms have resulted in nearly two-thirds of the Santa Barbara Channel being inundated with freshwater, terrestrial sediments, agricultural runoff and other debris. The runoff creates a visible pattern of nutrient rich brown sediment plumes which, in turn, produces green marine algal blooms.

## Southern California Coastal Water Research Project (SCCWRP)

CINMS has partnered with the Southern California Coastal Water Research Project (SCCWRP) and 54 organizations, including international and volunteer organizations, to participate in a regional marine monitoring survey of the Southern California Bight, referred to as the Bight '98 Project. The project includes the measurement of a variety of indicators at roughly 300 sites between Point Conception and just south of the Mexican Border. The indicators measured will include benthic invertebrate assemblages, sediment contaminant concentrations, sediment toxicity, demersal fish assemblages, demersal fish gross pathology, demersal fish bioaccumulation, dissolved oxygen, temperature, salinity, transmissivity and marine debris. The overall goal of Bight '98 is to assess the condition of the bottom environment and the health of the biological resources in the SCB. To accomplish this goal, Bight '98 will focus on four objectives: (1) estimate the extent and magnitude of ecological change in the SCB, (2) compare condition among selected geographic regions of the SCB, (3) assess the relationship between biological responses and contaminant exposure, and (4) describe historical trends at selected sites.

## Monterey Bay NMS, CA

### Monterey Bay Aquarium Research Institute (MBARI)

Marcia McNutt, President

MBARI and MBNMS share facilities and scientific expertise to achieve their missions. MBARI is providing the large training tanks for submersible training for the Sustainable Seas Expeditions. They provide satellite images and buoy data related to oceanographic monitoring, and have recently completed a sea floor map that is so detailed that potential ship wrecks can be located. The MBNMS has provided MBARI scientists ship time on the R/V McArthur for El Niño studies and we have worked closely together on the cause and effects of toxic algal blooms. MBARI has a representative on the MBNMS Research Activities Panel. This panel advises the Sanctuary on research issues while providing a forum for collaboration between 22 research institutions in the Monterey Bay region. In the future, MBARI and MBNMS are planning for a combined postdoctoral position. The position would be funded by MBARI and the post doc would be located at the MBNMS office, working on a joint project of interest.

### MBNMS Research Activity Panel (RAP)

Dr. Greg Cailliet

Working under the auspices of the Sanctuary Advisory Council, the RAP is composed of 22 representatives- 14 from private and university marine research institutions. The RAP meets nine times per year to advise the MBNMS on research and scientific issues, as well as to coordinate research, logistics (such as shiptime)



and funding issues among the various institutions represented. This group of research talent helps the sanctuary develop action plans for difficult resource management issues, for instance on the issues of White Shark chumming, or diver impacts on kelp beds. Also, the sanctuary gains significant knowledge about the region's biological resources due to the active research conducted by the RAP members.

Moss Landing Marine Laboratories  
Dr. Don Croll, University of California at Santa Cruz  
Critical Marine Mammal Habitats Study

Starting 1995, the sanctuary has directed resources to studying the critical habitats of large cetaceans (whales) in the sanctuary. While the sanctuary region has long been known for its diversity of marine cetaceans, little was known about what brings so many large mammals to the specific locations in the Sanctuary. This study by researchers at the University of California, Santa Cruz assessed sea floor topography, oceanic currents and the distribution of prey to explain recent unusual phenomena of coastal congregations of whales.

Moss Landing Marine Laboratories  
Monterey Bay NMS BeachCOMBERS  
Dr. James Harvey

The MBNMS Beach Coastal and Ocean, Mammal and Bird, Education and Research Surveys (COMBERS) program began two years ago with only partial funding by the MBNMS. The program was created through the recruitment of volunteer beach walkers to collect standardized scientific data on beached and dead marine birds and mammals. The goal of the study is to create a database of information from which environmental "events" (El Ninos, Red Tides, Oil Spills, etc.) within the sanctuary can be evaluated for ecological significance. The program has responded to oil spills, found tagged animals from throughout the Pacific, detected toxic algal blooms, provided data related to impacts of gill net fishing on birds, and saved a drowning citizen.

California State University Monterey Bay  
Dr. Rikk Kvitek  
MBNMS Site Characterization

One of the first research projects conducted by various research universities and partially funded by the sanctuary is known as the "MBNMS Site Characterization." While the area encompassed by the sanctuary has become world renown for its cutting edge marine research, little had been done to synthesize and abstract the available environmental information. The sanctuary site characterization is an encyclopedia of information about the sanctuary environs (which includes a 10,000 record bibliography), and is served out over the internet to the general public. Individual chapters were donated by academic experts from numerous disciplines. The sanctuary site characterization has become a educational tool for resource managers, scientists, teachers and students at all levels of education.

Gulf of the Farallones NMS, CA  
Cordell Bank NMS, CA

The Marine Mammal Center (MMC)

Dr. Francis Gulland

MMC provides early detection and tracking of mortality events in the sanctuary as part of the five-year old BeachWatch program. Also educates the public about how to best coexist with wildlife and reduce disturbance and taking of seal pups as part of the sanctuary's SEALS program.

Farallones Marine Sanctuary Association (FMSA)  
Maria Brown

FMSA provide educational opportunities, information exchange with the public-particularly school children-volunteer coordination, and data housing. Partner in both the BeachWatch and SEALS programs.

Olympic Coast NMS, WA

University of Washington (UW)  
Dr. Julia Parrish.

In addition to OCNMS helping Dr. Parrish's seabird research with logistical support, Dr. Parrish is a key player for OCNMS as the Research Representative on the Sanctuary Advisory Council. Dr. Barbara Hickey. Aboard NOAA ship McARTHUR, conducted physical oceanographic investigations along the shelf and canyons of OCNMS.

Dr. Rita Horner and Jim Postel.

Mr. Postel and Dr. Horner have taken advantage of OCNMS's offer of ship time to conduct investigations for marine biotoxins and phytoplankton species off the Olympic coast. Dr. Megan Dethier. Dr. Dethier has helped OCNMS establish intertidal transects for monitoring long-term trends in nearshore communities.

California State University Monterey Bay (CSUMB)  
Dr. Rikk Kvitek

Dr. Kvitek and his dive team have been key players in establishing subtidal transects for sanctuary baseline data, video habitat characterization, and for monitoring long-term trends of nearshore communities.

University of California Santa Cruz (UCSC)  
Michael Kenner

UCSC's dive team has helped the sanctuary establish baseline data for subtidal habitat characterization and to monitor long-term trends in sea otter habitats.

Oregon State University  
Dr. Carl Schoch

Dr. Schoch has been instrumental in establishing on-site inventories of geomorphological characterizations of shoreline into GIS with links to biological communities, that OCNMS and other agencies are using for resource inventories.

Ecscan Resource Data (ECI)  
Bob VanWagenen

ECI has flown annual aerial surveys for OCNMS and other resource agencies to monitor long-term trends in kelp canopy cover and digitize into GIS.

#### Coastal Maritime Archeology Resources (CMAR)

Mark Norder

CMAR volunteer divers conduct survey work for historical shipwrecks off the Olympic coast while OCNMS provides logistical and vessel support.

#### Hawaiian Islands Humpback Whale NMS, HI

University of Hawaii, West Hawaii

Dr. Joe Mobely

The university recently completed a sanctuary sponsored aerial surveys of humpback whales (and other cetacean) populations in Hawaii. This is important since the sanctuary has limited data on where the humpback whales reside or how many are actually here. Some of the highlights of the just completed study include:

- \* Estimated - 2-3000 humpbacks
- \* Sperm whales - more than expected in Hawaiian waters
- \* Fin whales - second recorded sighting.
- \* Distribution of humpbacks has not changed over the past 10 years, even though boat and vessel traffic has increased in areas such as Maui.

#### Fagatele Bay NMS, AS

University of Guam Marine Laboratory

Dr. Charles Birkeland

FBNMS has a research partnership with the University of Guam Marine Laboratory that extends back to 1988. Under the direction of Dr. Birkeland, we have a biological resource survey approximately every three years. This database is one of the oldest longitudinal studies of a Pacific coral reef. The survey has documented changes in the coral and fish populations with the recovery from the crown-of-thorns starfish infestation of 1978, and represents a significant management tool.

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