



NOAA's National Ocean Service  
**R O U N D T A B L E S**



December 2003 - July 2004

# CONTENTS

Foreword by Dr. Richard W. Spinrad .....	1
Ocean Future Roundtable Overview .....	3
Summary of the Roundtable Series: What We Have Learned .....	4
Roundtable Summaries	
<i>Marine Transportation, Maritime Safety, Charting and Navigation</i> .....	5
<i>Advancing Our Understanding of the Oceans</i> .....	6
<i>Enhancing Ocean Value and Vitality</i> .....	8
<i>Living on the Edge</i> .....	10
<i>International Issues</i> .....	12
<i>Promoting Ocean Awareness and a Stewardship Ethic</i> .....	14
<i>The Future: Sustaining a National Ocean Policy</i> .....	16
Appendix: List of Roundtable Participants .....	18

# FOREWORD

The past 18 months have been an exciting and challenging time for me. Since becoming NOAA's Assistant Administrator for Ocean Services and Coastal Zone Management in May 2003, I've had the privilege of leading one of the nation's premiere marine research and management institutions. I learned quickly that the National Ocean Service (NOS) is more than a collection of programs; its multitalented staff and diverse research and management initiatives are a foundation on which to build the nation's ocean future.

What makes my work particularly exciting is the opportunity to work with a broad range of constituents — academics, NGOs, industry, state and local officials, and others whose work involves understanding, managing, and using ocean and coastal waters and marine resources. Whether they are scientists, resource managers, policy experts, lawyers, business people, environmentalists or students, NOS's constituents are committed to the conservation and sustainable use of the nation's marine resources.

Our constituents are also the key to NOS's future as a Global Leader in the Integrated Management of the Ocean. Their vision, expertise and professionalism shape NOS's programs, and add value to its products and services. As NOAA's Strategic Plan clearly recognizes, constituent involvement and extramural partnerships are critical to the agency's overall mission.

Recommendations from the U.S. Commission on Ocean Policy (USCOP) and the Pew Ocean Commission have given us a much needed map for the nation's ocean future. The Ocean Future Roundtables, which focused on themes in the USCOP preliminary report, provided an important voice as the NOAA Ocean Council, which I co-Chair, deliberated on how the administration should respond to the Commission. I was pleased that members of the NOAA Ocean Council participated in many of the meetings.

I am also indebted to the NOS program directors and their staffs, who coordinated the meetings and drafted informative background papers and roundtable reports. Their leadership, along with the expertise they brought to the subject, played a key role in making every roundtable a success, as well as a learning experience for me.

Despite the different topics discussed at each of the roundtables, a number of common themes emerged. Participants at all of the meetings, for example, recognized the need to raise public understanding of the role of the ocean in sustaining the nation's economy and environment. Nearly everyone agreed that the ocean community should work together to support the USCOP recommendations. Finally, many participants stressed the need to better link scientific and management efforts, and noted the important role that an integrated ocean observing system could play in furthering the understanding, sustainable use and management of ocean and coastal resources.

As NOS strives to implement its strategic vision to be a Global Leader in the Integrated Management of the Ocean, promoting constituent outreach and new partnerships will be a priority for the agency. Stakeholder involvement is essential to our success, and key to improving NOS products and services. I look forward to continuing to work with NOS's constituents and partners as we strive to fulfill our responsibilities as the "nation's ocean service."

**Richard W. Spinrad, Ph.D.**

*Assistant Administrator for Ocean Services and Coastal Zone Management*

# OCEAN FUTURE ROUNDTABLE OVERVIEW

*“NOS strives to enhance the sustained use of the nation’s oceans and coasts, including safe marine commerce and other commercial, recreational, and conservation uses, and is poised to respond to the challenges ahead. Ideas from our constituents make this possible, and we value your interest, questions, and concerns.”*

From December 2003 through July 2004, the National Ocean Service (NOS) sponsored a series of seven “Ocean Future Roundtables.” Hosted by Dr. Richard Spinrad, Assistant Administrator for Ocean Services and Coastal Zone Management, the roundtables provided an important opportunity for constituents to discuss current NOS initiatives with Dr. Spinrad, senior NOS program officials and NOAA Ocean Council members. A total of 119 representatives from academia, private industry, trade associations, research institutions, environmental groups and marine conservation organizations participated (*see Appendix*), and provided a broad range of perspectives on key issues affecting NOS and the ocean community.

Between December 2003 and July 2004, the National Ocean Service sponsored seven Ocean Future Roundtables, as noted below:

- *Marine Transportation, Maritime Safety and Charting and Navigation (December 2003)*
- *Advancing our Understanding of the Oceans (January 2004)*
- *Enhancing Ocean Value and Vitality (February 2004)*
- *Living on the Edge (March 2004)*
- *International Issues (April 2004)*
- *Promoting Ocean Awareness and a Stewardship Ethic (May 2004)*
- *The Future: Sustaining a National Ocean Policy (July 2004)*

With the release of the Pew Ocean Commission’s Report, *America’s Living Oceans: Charting a Course for a Sea Change* in May 2003, and the Preliminary Report of the U.S. Commission on Ocean Policy in April 2004, the roundtables were particularly timely as NOS leadership developed a new vision for the agency: to be a Global Leader in Integrated Management of the Ocean. The roundtables also provided an important opportunity for Dr. Spinrad to share his views on NOS’s evolving mission with constituents, and to receive candid commentary on NOS’s products and services.

This is an exciting and challenging time for the ocean community. With the release of the final report of the U.S. Commission on Ocean Policy in September 2004, national attention has turned to implementing national ocean policy reform. Recommendations from the U.S. Commission on Ocean Policy and the Pew Ocean Commission will likely lead to major changes in ocean and coastal programs in the United States with major implications for local, regional, and international activities. With its multitalented staff and diverse programs, NOS is well positioned to take on these challenges.

## SUMMARY *of the* ROUNDTABLE SERIES: WHAT WE HAVE LEARNED

The roundtables enabled Dr. Spinrad, NOAA Ocean Council members and NOS program officials to hear constituents' views on a wide range of topics related to NOS programs and initiatives. In general, roundtable participants recognized the value that NOS products and services provide. At the same time, a number of constituents stressed the need for NOS to work more closely with its partners from the academic community, the private sector, nonprofit and nongovernmental organizations, and state and local governments to meet research and management priorities. Although the roundtables focused on various topics, a set of common recommendations emerged from the discussions. NOS was urged to:

- *increase outreach and education activities to build public awareness about the role of the ocean in sustaining the nation's economy and a healthy environment;*
- *strengthen partnerships with state and local governments, industry, the academic community and the nonprofit community to better understand and manage ocean and coastal resources;*
- *support the recommendations of the U.S. Commission on Ocean Policy and begin work to implement some of the recommendations on a regional basis;*
- *improve leadership and integration in local, regional and international ocean governance;*
- *strengthen and better coordinate ocean research initiatives;*
- *support development of the Integrated Ocean Observing System, and regional ocean observation systems;*
- *assure an appropriate role for resource managers, and state and local officials in the design and use of ocean observing systems; and*
- *continue to broaden NOS's constituent community, and provide opportunities for constituent involvement in NOS activities.*

Additional information on the roundtables, including participant lists, background papers and summaries of the meetings, is available on the Ocean Future Roundtable Web site at <http://oceanservice.noaa.gov/roundtables>. Highlights from the roundtable discussions are summarized on the following pages.

The National Ocean Service values its constituents' views and looks forward to continuing to provide opportunities to exchange information with its stakeholder communities.

## RT1: MARINE TRANSPORTATION, MARITIME SAFETY, CHARTING AND NAVIGATION

On December 3, 2003, Dr. Spinrad launched the “Ocean Future Roundtables” with a meeting on marine transportation, maritime safety, charting and navigation. Five NOS office directors attended, along with 16 constituents representing the private sector, maritime associations, environmental groups, and ports and vessel operators. The meeting was organized with the assistance of three NOS program directors: Captain Roger Parsons (Office of Coast Survey); Charles Challstrom (Office of National Geodetic Survey); and Michael Szabados (Center for Operational Oceanographic Products and Services).

In his opening remarks, Dr. Spinrad discussed NOAA's strategic plan, which recognizes the importance of commerce and transportation. He noted that much of NOS's work in this area is dependent on ocean observation, modeling and ecological forecasting. He also commented on the importance of public- and private-sector partnerships, and discussed the newly established Hydrographic Services Review Panel that will advise the NOAA Administrator on hydrographic surveying, nautical charts, and related matters.

### **Constituents' Observations**

***Observation and Modeling that Support Commerce and Transportation:*** Participants noted the importance of the Physical Oceanographic Real-Time System (PORTS®) and urged NOAA to support current installations and expansion of the system, and to explore imaginative ways of funding PORTS to assure its long-term viability. Constituents also praised NOAA's recent modernization efforts, and recommended the development of a national and/or regional program supported by base funding instead of earmarked appropriations. Several constituents said that NOAA needs to better coordinate its activities in this area with the private sector.

***Products and Services that Support Safe Navigation:*** Constituents noted that electronic navigational charts and raster charts were extremely valuable products, and they urged NOS to keep them current and affordable. Several people urged NOS to continue to support paper charts, which are still widely used by recreational boaters and fishermen. Participants also noted the need to address the hydrographic survey backlog, and suggested additional attention to providing current sounding data near port facilities.

***Coastal Resource Management, Environment and Port Development:*** Several participants raised environmental concerns, noting that coastal resource managers need ready access to socioeconomic data. They urged NOAA to continue to maintain an environmental focus in its support of the marine transportation system and port infrastructure development, and highlighted the need to consider the concerns of the tourism and recreational boating communities, and environmental and socioeconomic impacts, when making dredging decisions. Several constituents also noted that many of NOS's concerns are the same as those of coastal states, and better coordination is required.

## RT2: ADVANCING OUR UNDERSTANDING *of the* OCEAN

On January 14, 2004, 30 constituents from academia, industry, nongovernmental organizations (NGOs), and state and local agencies joined Dr. Spinrad for the second “Ocean Future Roundtable” on advancing our understanding of the ocean. The roundtable focused on NOS’s efforts to observe and model ocean and coastal processes. Much of the discussions focused on how ocean observations can advance our understanding and management of the ocean. Dr. Gary Matlock (Director, National Centers for Coastal Ocean Science) and his staff organized the meeting and prepared background material.

Dr. Spinrad opened the roundtable with an update on the work of NOAA’s Ocean Council and NOAA’s Research Review Team. He described recent ocean and coastal observation initiatives, and NOS’s vision to be a Global Leader in Integrated Management of the Ocean. He concluded by acknowledging the role of NOS partners in implementing this vision, and welcomed suggestions from the roundtable participants.

### **Constituents’ Observations**

***Building National Ownership of the Ocean:*** Roundtable participants expressed concern over the lack of “national ownership” of the oceans and asked NOS to work with its partners to choose and articulate a clear message about the importance of ocean observations. Federal leadership, improved marketing, and constituent awareness of ocean observations are critical to garnering public and private support. Roundtable participants recommended marketing the concept of ocean and coastal observation by identifying national priorities, articulating the goods and services to be delivered, and identifying users and supporters of a national system.

***Linking Science and Management at Local, Regional, and National Levels:*** The products and services of ocean observing systems must meet the needs of users. NOS was invited to work with its constituents to identify customers and their information needs, and to develop a joint vision of what they are trying to accomplish. For all users, the observing system provides a framework to build a continuum between the user base, academics, and federal sectors. To this end, most participants requested increased integration of NOAA and academic activities. NOS should work toward a seamless connection between ocean observatories and observing systems, and among local, regional, and national programs. A long-term strategic research plan will clarify NOAA’s intended role in ocean observing systems and, in doing so, advise partners how they can contribute to mutual goals. Participants recommended that the plan build on national, regional, state, and local planning efforts, and address how partners will reduce the distinction between coastal and ocean observing and modeling.

***Developing Infrastructure and Expanding Partnerships:*** Challenges in ocean observing are not limited to science and technology; they extend to data access, coordination, application, and sustainable funding. Participants recommended building credibility with the user community by putting together a small version of the system that contains all of the components required in a full-scale version. NOAA will need institutional support and a governance structure for regional networks and national coordination. A feedback mechanism should link data to user needs, and NOAA should have increased flexibility within funding lines to move resources to meet those needs. Partnerships are an equally important part of the infrastructure, and roundtable participants asked NOS to continue to explore broader, more diverse partnerships, and to expand existing ones. Participants from the

academic community requested more opportunities to contribute to, and to use, products and research related to ocean observing. Universities must do their part by promoting the value of applied research and establishing a reward system that recognizes the relevance of high-quality research. In addition to supporting this award system, it was recommended that NOS focus on the transition to operations while universities take the lead in research.

## RT3: ENHANCING OCEAN VALUE *and* VITALITY

On Thursday, February 12, 2004, 20 constituents joined Dr. Spinrad and seven NOS and NOAA program representatives for the third “Ocean Future Roundtable” on enhancing ocean value and vitality. The roundtable focused on NOS programs and initiatives related to marine resource activities, including ecosystem-based management, ocean management, monitoring and observation, public awareness and partnership issues. David Kennedy (Director, Office of Response and Restoration) and his staff assisted in organizing the meeting.

In his opening remarks, Dr. Spinrad discussed FY05 budget issues, and described NOAA’s efforts to respond to recommendations of the U.S. Commission on Ocean Policy. He also commented on strategic planning issues and the new Planning, Programming, Budgeting and Execution System (PPBES) that serves as the basis for NOAA’s budget.

### **Constituents’ Observations**

***NOAA and NOS Goals:*** One participant expressed concern about a perceived disconnect between Congress and communities as a result of NOAA lacking bold goal statements, as well strategic plans and milestones for such goals. If NOAA, through NOS, is to lead the nation in oceanic research and sustainable use of ocean resources, the agency must identify where it intends to go and how it plans to get there. This should be done in conjunction with ocean constituents and Congress. Also, it was unclear to a few of the constituents, particularly in the state arena, as to where their energies should be directed to complement NOAA’s work. A specific example of this is in the field of research. NOAA and NOS conduct a great deal of excellent research, and a few constituents mentioned that they will continue to do their best to support NOAA endeavors. The impact of NOAA research, however, is adversely affected by the lack of an overall NOAA research strategic plan that states the agency’s focus, purpose, and goals.

***Ocean Management:*** Many participants commented on different methods of ocean management. Some agreed with NOAA’s focus on ecosystem-based management, although they expressed concern as to what this phrase really means. Some participants felt that insufficient information, tools, and capabilities exist to effectively implement this type of management. A few constituents approved of NOAA’s current approach to implementing ecosystem-based management in evolving and incremental ways. Some NGOs are also trying to better understand ecosystem-based management and its implications. Two participants stated that ocean zoning is the potential wave of the future and that NOS should begin to examine it.

***Monitoring and Observation:*** Monitoring and observation are important NOS responsibilities. A few constituents pointed out that monitoring should be conducted based on outcomes. Within a centralized program, better coordination would ensure that certain resources were not being used or studied for redundant purposes. One constituent highlighted the new field of restoration monitoring as something beneficial to the overall coastal community. The constituent also noted that in NOS’s quest to monitor larger-scale environments, current resources should not be redirected from NOS’s vital work “on the ground” in the ocean and coastal zones.

**Partnerships:** Several constituents talked about the extensive network of partnerships that NOS maintains among states, NGOs and academia, and how these collaborations support the resolution of issues currently facing the marine management and scientific communities. The National Marine Sanctuaries Program, National Estuarine Research Reserve System, National Marine Protected Areas, and Coastal Zone Management Program provide essential links to states and other stakeholders. States and communities have specific needs, interests and problems. NOS should continue to view its partnerships as a significant means of engaging everyone in the “ocean community” to work toward common solutions.

**Education:** By educating the public on the inherent benefits of the world’s oceans and the need to conserve and sustain them, NOAA can gain the public support it needs to ensure that its programs continue. Many constituents felt that strong public understanding and support are vital to develop new NOAA programs and capabilities. Several comments focused on the need to support formal education, including national educational standards and curriculum development. Participants from various sectors of the ocean community offered to assist NOAA and NOS in expanding their outreach to the public and the nation’s educational systems.

**Planning, Programming, Budgeting and Execution System:** The new NOAA Planning, Programming, Budgeting and Execution System (PPBES) is causing some confusion. Constituents do not understand the new process, nor do they know how they can offer their views on priorities. Constituents expressed concern about future funding and support of NOAA programs that do not have explicit authorization language.

## RT4: LIVING *on the* EDGE

On March 10, 2004, 18 constituents joined Dr. Spinrad and eight NOS and NOAA program leaders for the fourth “Ocean Future Roundtable”, titled Living on the Edge. As the roundtable was held in conjunction with the 29th annual Ocean and Coastal Program Managers Meeting, most of the participants were managers of state or territory coastal programs or estuarine research reserves. The meeting focused on NOS initiatives related to coastal zone management, protection of coastal habitats, natural hazards, and modeling and monitoring activities. Eldon Hout (Director, Office of Ocean and Coastal Resource Management) and Margaret Davidson (Director, NOAA Coastal Services Center) and their staffs assisted in organizing the roundtable.

Debra Hernandez, Chair of the Coastal States Organization, provided a brief overview of the Linking Science and Coastal Management survey conducted by the Coastal States Organization and sponsored by the Cooperative Institute for Coastal and Estuarine Environmental Technology. She explained that the survey is part of a larger conversation about translating science to management. More than 220 people responded to the survey, identifying land use and habitat change as their two highest-priority management issues. The survey also identified cumulative impact assessment, land-use change analysis and trends analysis, and affordable, high-resolution remote sensing as the most useful tools to help coastal managers address these issues. Dr. Spinrad opened the discussion by asking how we might take advantage of the survey in responding to the upcoming report from the U.S. Ocean Commission on Ocean Policy. Attendees responded that the survey would provide the framework to suggest which opportunities to pursue. They also noted that the survey held few surprises.

### **Constituents’ Observations**

**Urbanization and Land Use:** Several participants were pleased that the survey emphasized the growing importance of urbanization and land-use issues to their coastal programs and to the nation as a whole. Participants expressed interest in new technology to accommodate growth while reducing environmental impacts. One participant felt that NOS is at the forefront of land management, and that addressing land use and urbanization is a unique opportunity for NOS to be a national leader. Another participant expressed concern that it will be difficult to measure our success in this area, because success is often defined by preventing inappropriate development from occurring.

**Social Science:** Several participants expressed the need for more social science research. They felt that this kind of information could be useful in management situations where local residents oppose coastal management because they fear infringement on their property rights. Dr. Spinrad suggested that in these situations, “gaming” (simulation exercises) might be appropriate to help citizens better understand the effects of management decisions. One participant shared a potential model of successful simulation, in which Florida State University, using Sea Grant funding, developed a “game” to help local government officials work through the decisions necessary to rebuild a community after a hurricane.

**Marketing:** Participants expressed concern that coastal audiences can be difficult to reach. To overcome the mentality of “build it and they will come,” some participants recommended more market research. Some also suggested integrating “Madison Avenue marketing tools” in an effort to involve the public.

***Training and Product Delivery:*** Participants felt that NOS should focus on capabilities brought to bear on concrete problems, a continued commitment to training, and strategies for improved product and service delivery. The need for products and services integrating different types of information to aid decisionmaking (e.g., functional mapping products) was also noted. Participants also expressed appreciation for the National Estuarine Research Reserve System's Coastal Training Program.

***Coastal Technology:*** Several participants mentioned that inexpensive near-shore bathymetry would be most helpful for their coastal and estuarine programs. Other participants mentioned the need for products that synthesize data and provide predictive tools and products, because program staff is often too busy to absorb and analyze real-time data. Participants also expressed concern about scale. They felt that NOAA products and information are sometimes produced at resolutions that are too low to be useful on a local scale. They recommended that NOAA seek opportunities to interact with end users at the product design stage to ensure that NOAA products are useful for decisionmakers at the state and local levels.

***Regionalization:*** Participants from across the nation expressed the desire for a greater NOAA presence in their regions. They felt this would be useful both because it would enable NOAA to respond to predicted Ocean Commission recommendations about regionalization and because it would help involve NOAA in day-to-day management activities on the local level. Participants also emphasized that NOAA should not see its role as solely to provide services to local organizations, but to view locals as partners in coastal management efforts.

***Coastal and Ocean Observations:*** Participants expressed the need to include end-user audiences in discussions about ocean and coastal observing systems. They also noted the need to consider how observations will feed into needed products, such as trends analyses.

## RT5: INTERNATIONAL ISSUES

On April 15, 2004, 16 constituents from academia, NGOs, and federal and state agencies joined Dr. Spinrad and NOAA and NOS program representatives for the fifth “Ocean Future Roundtable” on international issues. The meeting focused on NOS efforts to strengthen its role as a Global Leader in the Integrated Management of the Ocean through ocean observations, integrated coastal management, and marine protected area (MPA) management. Charles Ehler (Director, International Programs Office) and his staff helped organize the roundtable.

Dr. Spinrad stressed that engaging with international partners is an essential element of the agency’s mission, and noted several challenges to integrated ocean and coastal management. He also described his role as the U.S. representative to the Intergovernmental Oceanographic Commission, and discussed NOS partnerships with UNEP, NGOs, the scientific community and other governments. He invited roundtable participants to identify ways that NOS could strengthen its global leadership and contribute to integrated management of the ocean.

### **Constituents’ Observations**

***Sustainability:*** Participants noted that the broad global leadership agenda of NOS requires sustained international engagement over time. International activities should emphasize: building local capacity as an integral part of project implementation; measures to define and resolve local-national governance challenges that are impediments to success; a variety of performance indicators to assess the impacts of management on both people and the environment; and financial sustainability of projects to maintain their economic and environmental benefits over time.

***Ecological Resilience:*** Participants noted the increased international and national priority on ecosystem-based management and its implications for managing biological resources and human communities at appropriate scales. As an example, coastal and MPA managers can mitigate the impacts of large-scale threats, address local threats, and enhance ecosystem recovery by assuring that coral reefs are protected and well managed. An improved understanding of ecosystem integrity, connectivity within and among managed areas, and observational models that forecast environmental conditions will catalyze the creation of mutually replenishing networks of MPAs, nested within systems of ocean and coastal governance, that enhance the recovery prospects of the component MPAs.

***Program Coherence:*** Participants identified a need to integrate international leadership “vertically,” from local capacity building in the application of management tools, to national ocean governance policy, to international policy development through treaties and intergovernmental coordination. Further, NOS should expand international commitments within its main program lines to foster international engagement in problem-solving and capacity-building techniques.

***Capacity-building Through Partnerships:*** Participants acknowledged that decentralization of coastal management creates special challenges. Certainly, NOS’s national experience can contribute to national ocean policy dialogues in other nations. Participants also noted that NOS could make a more substantive contribution by undertaking

partnerships to solve specific local problems. Further, they noted that international networks of coastal and MPA managers should engage U.S. management at the state level in international exchanges to enrich U.S. and international management experience.

***Integration of Observations and Management:*** Participants noted that ocean observations require long-term financial and programmatic commitment if they are to have an impact on management. To foster a national commitment to implement observation programs, NOAA needs to strengthen the integration of management goals with observation programs, improve the integration of biological and physical environmental data, enhance the accessibility of existing data (e.g., via a centralized directory of NOAA data sources), increase resources to support the coastal observing system, and broaden governmental and NGO partnerships. Mission goals should emphasize management, protection, and public safety. Further, an integrated data management program would ensure that data becomes a key component of decisionmakers' support tools.

## RT6: PROMOTING OCEAN AWARENESS *and a STEWARDSHIP ETHIC*

On May 18, 2004, 20 constituents representing major education and outreach partners of NOS joined Dr. Spinrad and eight NOS and NOAA officials for the sixth “Ocean Future Roundtable” on promoting ocean awareness and a stewardship ethic. The meeting explored NOS’s education and public awareness activities, including K-12 education, ocean sciences, and informal education, along with NOAA-wide initiatives in this area. Dan Basta (Director, Office of National Marine Sanctuaries) and Michiko Martin (National Marine Sanctuaries Education Coordinator) organized the meeting.

In his opening remarks, Dr. Spinrad commented on the Preliminary Report of the U.S. Commission on Ocean Policy. He noted that promoting ocean awareness and a stewardship ethic is a cross-cutting priority of NOAA’s strategic plan, and discussed NOAA’s involvement in the Smithsonian Folklife Festival and in planning the upcoming Smithsonian Oceans Hall. Dr. Spinrad then introduced Marlene Kaplan, Acting Director of the NOAA Office of Education and Sustainable Development, who described the work of the NOAA Education Council and discussed NOAA’s new policy on education.

### **Constituents’ Observations**

Participants addressed how NOS could help build national and international capacity for ocean education and outreach. Three common themes were identified, including the need to (1) clearly define the audience for ocean education messages; (2) produce education and outreach products and their delivery mechanisms; and (3) maximize partnerships to achieve education objectives.

***Target Audience for Ocean Literacy:*** Participants identified the need to clearly define the audience before education and outreach initiatives can be conducted. The difficulty is that, in terms of an “ocean literate” nation, the ocean community needs to empower all people to understand their own impacts on the ocean and how they can contribute to a better future. While NOS should reach a general audience that is broad and inclusive, specific education programs must target specialized audiences to achieve measurable results. Constituents noted many targeted-audience education programs within their own organizations that are successful in increasing ocean literacy through specific markets, such as K-12 students, resource managers, and visitors to museums, zoos, and aquaria.

The participants agreed that all children should be taught to foster ocean conservation, and be given opportunities to experience the world of oceanography firsthand. Several constituents noted that the ocean community should also focus on increasing diversity in the ocean workforce. Finally, participants noted that one strength of ocean education is its interdisciplinary nature. Ocean education has the potential to be taught and discussed in a number of contexts, and to various audiences with differing perspectives and interests.

***Education Products and Delivery:*** A significant theme of the roundtable focused on current and future products and delivery mechanisms, including technology to help promote an ocean stewardship ethic. With the advance of weather data, ocean current simulators, GIS software and training, real-time video links, and enviro-casts, ocean educators have a multitude of presentation formats available to them. Used effectively, these technologies

can promote ocean education in ways that impart lifelong lessons. Additionally, participants noted the need to connect scientists and teachers to improve the sharing of knowledge from the laboratory to the classroom.

***Partnerships:*** Constituents noted that the ocean community could more effectively achieve national ocean literacy through partnerships and coordinated efforts. A visible effort to promote ocean stewardship, including formal and informal education venues, can present a unified ocean stewardship message. Constituents noted the lack of a united “ocean voice” and suggested that NOAA assume a leadership role in coordinating ocean education. They also noted that if an ocean-literate society is to be achieved, the ocean community must take a comprehensive approach to promoting ocean education and a stewardship ethic.

## RT7: SUSTAINING *a* NATIONAL OCEAN POLICY

On July 23, 2004, 28 constituents from academia, nongovernmental organizations (NGOs) and the private sector joined Dr. Spinrad and NOS and NOAA officials for the seventh and final “Ocean Future Roundtable” titled *The Future: Sustaining a National Ocean Policy*. The meeting focused on NOS initiatives along with a strategic vision for the agency’s future. Participants discussed current ocean policy issues, including the work of the U.S. Commission on Ocean Policy, and noted priority actions the agency should undertake to build a more comprehensive and meaningful ocean policy. Dan Farrow (Chief, NOS Special Projects Division) and Alison Hammer of Special Projects developed the background material for the meeting.

In his opening remarks, Dr. Spinrad discussed NOAA’s revised strategic plan, and outlined some of the challenges confronting NOS and the ocean community. He presented an overview of NOS’s strategic vision to be a Global Leader in Integrated Management of the Ocean. He opened the discussion by asking participants to talk about the most important actions needed to build a more comprehensive, integrated, and sustainable National Ocean Policy and the roles that NOS should play in providing leadership in ocean management.

### **Constituents’ Observations**

***Increase Outreach, Education and Public Awareness:*** Participants noted that increased public education and awareness about ocean issues and about the role that people play in ocean health are crucial to changing public perceptions. After years of ocean mismanagement, fundamental changes in human behaviors are necessary. Increasing public awareness about the impacts that human activities have on coastal and marine ecosystems will help people to better understand their role in the interconnectedness of land and ocean. Participants stated that NOS should try to express this message in easy-to-understand terms that matter to society (e.g., jobs, history, ports) and that focusing on the social and economic implications related to ocean health might help increase public interest. Participants were supportive of NOAA’s recent outreach efforts (e.g., participating in the Smithsonian Folklife Festival, planning the Smithsonian Ocean Hall) and suggested that the agency continue such innovative approaches to public outreach. They also noted that NOAA should capitalize on exciting efforts such as ocean exploration and coral habitat restoration to energize and engage the public, and that aquaria and interactive educational forums could be better utilized to improve the agency’s visibility.

***Strengthen Partnerships:*** Participants urged NOS to strengthen and enhance existing partnerships, and to look for new, innovative partnerships with organizations such as the Navy, the American Medical Association, and NASA, among others. They also suggested that NOS work more closely with professional societies and promote more exchanges between the agency and the private sector (e.g., visiting scientist programs). The group emphasized that NOS and NOAA should also work harder to include the private sector in ocean research activities.

***Support Recommendations of the U.S. Commission on Ocean Policy:*** Roundtable participants felt that NOAA and the ocean community should try to implement several of the Commission’s recommendations as soon as possible. A number of participants highlighted the need for the ocean community to work together to develop a unified, consistent message with regard to implementing the recommendations. They also stressed the need for the ocean community to present a common message to Congress. Participants noted that NOAA should

attempt to demonstrate the value of integrated coastal and marine management to the nation.

***Improve Leadership and Integration in Regional and International Ocean Governance:*** Participants stated that NOS has much expertise in how to delineate regions, and should take a leadership role in developing the regional approach recommended by the U.S. Commission on Ocean Policy. They also noted that, although NOS is involved in a lot of regional work, it is not clearly expressed in the new NOS vision. NOS should try to increase financial support for the integrated observing system regional associations. Further, NOS should do more international work and share its knowledge with developing countries.

***Coordinate Ocean Research through the Integrated Ocean Observing System (IOOS) and Integrated Ecosystem Management:*** Participants suggested that with less funding for science and research and the need to improve the management of resources, NOS should focus new research on problems identified in the Commission's report. One participant, noting that "success stories" are needed to advance research and education efforts, recommended using the Integrated Ocean Observing System to broaden public support for ocean initiatives. NOS should, however, try to explain more clearly what the system is and why it is important. It is also essential for the system to include observations and research on the interconnections between fresh and marine waters. Further, participants felt that NOS should strive to show Congress and the public better examples of ocean management successes and develop more useful metrics to track progress toward achieving long-term outcomes. Finally, it was recommended that NOAA research should be more inclusive, engaging talent from a variety of sectors and including more peer review.

## Appendix: LIST of ROUNDTABLE PARTICIPANTS

**Tundi Agardy**, Sound Seas  
**Wendy Allen**, North Inlet-Winyah Bay National Estuarine Research Reserve  
**Kacky Andrews**, Florida Department of Environmental Protection  
**Lori Arguelles**, National Marine Sanctuary Foundation  
**Ellen Athas**, The Ocean Conservancy  
**Robert Bailey**, Oregon Ocean-Coastal Program  
**Joy Bartholomew**, Estuarine Research Federation  
**Paul Bea, Jr.**, Port Authority of New York and New Jersey  
**Robert Beal**, Atlantic States Marine Fisheries Commission  
**Allan Beck**, Narragansett Bay National Estuarine Research Reserve  
**Charles Bedell**, Murphy Oil Company  
**Keith Bedford**, Ohio State University  
**Jonathan Benner**, INTERTANKO  
**Jane Biggs Sanger**, Delaware Department of Natural Resources  
**Jennifer Black**, National Marine Sanctuary Foundation  
**Donald Boesch**, University of Maryland  
**Philip Bogden**, Gulf of Maine Ocean Observing System  
**Bill Boicourt**, University of Maryland  
**Amy Brandt**, American Waterway Operators  
**Ken Brink**, Woods Hole Oceanographic Institution  
**Tammy Brooks**, Texas Coastal Management Program  
**Tyson Brown**, National Science Teachers Association  
**Michael Bruno**, Stevens Institute of Technology  
**Beth Burgess**, National Aquarium in Baltimore  
**Lauretta Burke**, World Resources Institute  
**Andrew Burnett**, U.S. EPA Office of Environmental Education  
**Janet Campbell**, University of New Hampshire  
**Francesca Cava**, National Geographic Society  
**Joseph Chandler, Jr.**, State of North Carolina, Office of the Governor  
**George Chmael**, EcoLogix Group Inc.  
**Jeanne Christie**, Association of State Wetlands Managers  
**Biliana Cicin-Sain**, University of Delaware

**Penny Dalton**, Consortium for Oceanographic Research and Education  
**Karolien Debusschere**, Louisiana Oil Spill Coordinator's Office  
**Mike DeLuca**, National Estuarine Research Reserve Association  
**Rick DeVoe**, South Carolina Sea Grant Consortium  
**Elaine Dickinson**, Boat US  
**Peter Douglas**, California Coastal Commission  
**Marguerite Duffy**, Coastal America  
**Clifford Duke**, Ecological Society of America  
**Mathew Dunn**, National Marine Manufacturers Association  
**Sylvia Earle**, Deep Ocean Exploration & Research, Inc.  
**Vicki Fabiyi**, National Aquarium in Baltimore  
**Erika Feller**, The Nature Conservancy  
**Madilyn Fletcher**, University of South Carolina  
**Chuck Fox**, Consultant  
**Michael Friis**, Wisconsin Coastal Management Program  
**Tom Fry**, National Ocean Industries Association  
**Seth Gabriel**, National Ocean Industries Association  
**Christine Gault**, Waquoit Bay National Estuarine Research Reserve  
**Suzanne Giles**, Restore America's Estuaries  
**Jean Godwin**, American Association of Port Authorities  
**Melissa Goslin**, National Geographic Society  
**Fred Grassle**, Rutgers University, Institute of Marine & Coastal Sciences  
**Jennifer Greenamoyer**, Sea Grant Association  
**Holly Greening**, Tampa Bay Estuary Program  
**Lynn Griffin**, Florida Coastal Program  
**Lynne Hale**, The Nature Conservancy  
**Kim Harb**, National Ocean Industries Association  
**Linda Hayden**, Elizabeth City State University  
**Mike Hemsley**, Ocean.US  
**Debra Hernandez**, South Carolina Coastal Program  
**Michael Jeffries**, Consortium for Oceanographic Research and Education  
**Dave Jones**, StormCenter Communications, Inc.  
**Jennie Kopelson**, Consortium for Oceanographic Research and Education  
**Judith Krauthamer**, Marine Technology Society  
**Richard Langan**, University of New Hampshire

**Justin LeBlanc**, National Fisheries Institute  
**Malcolm LeCompte**, Center of Excellence in Remote Sensing  
**Michele Lemay**, Inter-American Development Bank  
**Sally Lentz**, Ocean Advocates  
**Rachel Lillestolen**, National Marine Sanctuary Foundation  
**Eric Lindstrom**, NASA  
**Douglas Lipton**, University of Maryland  
**Mari Lou Livingood**, Marina Operators Association of America  
**Hank Lobe**, RD Instruments  
**Bryan Logan**, Earthdata  
**David Loomis**, University of Massachusetts  
**Ryck Lydecker**, Boat US  
**Maurice Lynch**, NERRA, Inc.  
**Tony MacDonald**, Coastal States Organization  
**Kumar Mahadevan**, Mote Marine Laboratory and Aquarium  
**Chris Mann**, Center for SeaChange  
**David Martin**, University of Washington  
**Mark Mauriello**, Association of State Floodplain Managers  
**Larry Mayer**, University of New Hampshire  
**Laura McKay**, Virginia Coastal Program  
**Stephanie Meadows**, American Petroleum Institute  
**Blanche Meeson**, Ocean.US  
**Jennifer Merrill**, Oceans Studies Board  
**Robert Moran**, American Petroleum Institute  
**Peter Neill**, Southstreet Seaport Museum  
**Kate Newman**, World Wildlife Fund  
**Betty Olivolo**, World Wildlife Fund  
**Thomas Palmerlee**, Transportation Research Board  
**Jan Petri**, Consortium for Oceanographic Research and Education  
**Scott Rainey**, American Pilots Association  
**Dragos Rauta**, INTERTANKO  
**William Reay**, Chesapeake Bay National Estuarine Research Reserve  
**Cheri Recchia**, The Ocean Conservancy  
**Susan Roberts**, Ocean Studies Board  
**Terry Schaff**, Woods Hole Oceanographic Institution

**Kristin Sherwood**, IUCN  
**Alan Sielen**, Ocean Studies Board  
**Thomas Skinner**, Massachusetts Coastal Management Program  
**David Smith**, United States Naval Academy  
**Sallie Smith**, Prince George's County Public Schools  
**Scott Smith**, The Nature Conservancy  
**Laurence Soggi**, American Congress on Surveying and Mapping  
**Jay Sterne**, Windward Strategies  
**Terry Stevens**, Padilla Bay National Estuarine Research Reserve  
**Carolyn Thoroughgood**, University of Delaware  
**Peter Tuddenham**, College of Exploration  
**Christophe Tulou**, The Center for SeaChange  
**Dan Walker**, Ocean Studies Board  
**Lisa Weiss**, Jacques Costeau National Estuarine Research Reserve  
**Eli Weissman**, The Ocean Conservancy  
**RADM Richard West, USN (Ret.)**, Consortium for Oceanographic Research and Education  
**Diana Zinkl**, State of North Carolina, Office of the Governor