

U.S. COMMISSION ON OCEAN POLICY



MINUTES

**Ninth Meeting of the U.S. Commission on Ocean Policy
Historic Faneuil Hall
0 Faneuil Hall Square
Boston, Massachusetts
July 23-24, 2002**

Commissioners in Attendance

Honorable James D. Watkins, (Admiral, USN (Ret.)) - Chair
Dr. Robert D. Ballard
Mr. Ted A. Beattie
Mrs. Lillian Borrone
Dr. James M. Coleman
Ms. Ann D'Amato
Mr. Lawrence Dickerson
Vice Admiral Paul G. Gaffney II, USN
Professor Marc J. Hershman
Mr. Paul L. Kelly
Mr. Christopher Koch
Dr. Frank Muller-Karger
Mr. Edward B. Rasmuson
Dr. Andrew A. Rosenberg
Honorable William D. Ruckelshaus
Dr. Paul A. Sandifer

Meeting Attendees

A list of meeting attendees, including affiliation where provided, is included in Appendix 1.

TUESDAY, JULY 23, 2002

Welcome

The Chair called the meeting to order at 12:30 p.m. and introduced the first panel, including Mr. Bob Durand, Secretary of the Executive Office of Environmental Affairs from Massachusetts, Mr. Evan D. Richert, Director of the Maine State Planning Office, Mr. David E. Hartman, Manager of the New Hampshire Coastal Program in the New Hampshire Office of State

Planning, and Ms. Jane Stahl, Deputy Commissioner of Environmental Protection from Connecticut.

State Representatives Panel

Mr. Bob Durand – Secretary of the Executive Office of Environmental Affairs, State of Massachusetts

Mr. Evan D. Richert – Director, Maine State Planning Office

Mr. David E. Hartman – Manager, New Hampshire Coastal Program, New Hampshire Office of State Planning

Ms. Jane K. Stahl – Deputy Commissioner of Environmental Protection, State of Connecticut

Following their presentations, the panelists commented on a number of issues raised by the Commission. The Commission expressed interest in Mr. Durand's comments about biomapping and asked whether there is a model of data sharing with other coastal states. He responded that right now management is species by species and not looking at habitat, however, ecosystem management is important. He commented that for ecosystem management, it is useful to have all the data in one place and develop a Geographic Information Systems (GIS) database. He described a biomap of Massachusetts land areas that has been created using 22 years of data. He stated that they worked with academia and NGOs to develop a GIS. The map identified space that is critical which they have put on a list for land acquisition. He also described a coastal biomap that they are working on now and will be done sometime next year. He noted that this will help implement an ecosystem approach. He expressed that there has been success in Massachusetts because five state agencies work together. But he stated that there are too many federal agencies involved in managing the oceans, resulting in some confusion. Mr. Durand commented that the Coastal America model is one approach. He suggested that an ecosystem approach makes a lot of sense and the State is starting to do that much more now. He added that Massachusetts is working together with Connecticut, and recognizes that natural resources transcend political boundaries and that states need to start managing resources as an ecosystem. He recommended that there needs to be one agency to look at the Exclusive Economic Zone (EEZ). He added that public trust is key and that there needs to be a benefit in return for resources. Commissioners requested that other panelists provide any comments on data sharing between coastal states in writing to the Commission.

In response to a question about the purpose of Marine Protected Areas (MPAs), Mr. Durand replied that the purpose of MPAs is to provide a coordinated approach to ecosystem management. He noted that the Ocean Sanctuaries Act allows the State to protect not only the fish species, but the ecosystem as a whole. He expressed that it is significant from an ecological perspective to be able to use GIS data, find significant environmental areas and designate them as MPAs to have long-term protection of a whole ecosystem.

In his testimony, Mr. Richert recommended an ecosystem management approach. Admiral Watkins asked him to give an example of his vision of ecosystem management in the Gulf of Maine and how this approach would work. Mr. Richert responded that an ecosystem approach is a system in which there is predictive capacity due to an understanding of the linkages between the physical and biological systems and habitat. He added that with this type of approach, managers can say that if a certain percent of habitat is disturbed, there will be a certain percent of

decline in a species. Mr. Richert stated that this type of approach also must include fishermen and others in gathering information. He added that the Maine State Planning Office does not now have knowledge of all the interactions in an ecosystem in the Gulf of Maine, and this makes management difficult. He emphasized that there is a need to have predictive capacity so that regulations can be made within the context of a much larger environment. Admiral Watkins requested that Mr. Richert provide the Commission, in writing, more specifics on his vision of ecosystem management. Admiral Watkins expressed that the Commission needs specific scientific research requirements to give the Commission the kind of information needed to make investment decisions. Mr. Richert responded that he would provide the Commission with more information in writing, and also added that sea floor characterization will be a priority.

A number of Commissioners asked questions for the panelists to address in writing. Commissioners requested that the panelists provide more detail about a coordinating structure, and the relationship this federal structure would have with the states. The Commission noted that the panelists commented on strengthening the role of the federal consistency provision of the Coastal Zone Management Act (CZMA), and asked what they meant by this. Commissioners stated that in the Governance Working Group, there has been discussion about regional mechanisms. Panelists were requested to describe what they would envision for the relationship between the states and some kind of regional entity. The Commission commented that Mr. Durand had pointed out important gaps in the management regime of the EEZ. It was stated that in the area of marine bioprospecting, questions will arise as to who has authority over this, and that open water aquaculture is a growing industry. Panelists were requested to comment on how they see the potential of their states in the development of these two new industries. Commissioners expressed that the Commission has not had a panel of four states at one time and that this panel represented for the Commission the state-side of ocean governance. The Commission noted that looking to the state governments would be very helpful to the Commission and asked panelists to provide one recommendation for a national ocean policy from a state perspective.

Dr. Rita R. Colwell, Director, National Science Foundation and Chair, National Ocean Research Leadership Council

The Honorable William K. Reilly – Chairman, Board of Directors, World Wildlife Fund

Following their presentations, Dr. Rita Colwell and The Honorable William Reilly addressed follow-up questions asked by the Commission. The Commission commented that the Internet is having a large impact on the American people and that the National Science Foundation (NSF) and the academic community have played a role in this. Commissioners stated that Internet2 will be a much more difficult and expensive technology for schools and communities than Internet1. Dr. Colwell was asked to address how this might be implemented, and replied that NSF is working on this kind of connectivity because it is important to accelerate the diffusion of advanced Internet technology; investments in information technology have paid off with great value to the nation.

The Commission noted that the Research Education and Marine Operations Working Group discussed that a higher percentage of those pursuing science degrees pursue biology or marine biology degrees rather than engineering, physics, or chemistry degrees. Commissioners asked Dr. Colwell what she thought the Commission could do about this. Dr. Colwell responded that

more people are pursuing biology degrees than other types of sciences because the excitement of living things gives biology a natural appeal. But she added that questions such as the types of toxins produced by bacteria associated with marine plants and animals can only be answered by understanding the connectedness of systems. She suggested that enhancing predictions will get youngsters excited; if people start thinking about the predictions they can make with the other sciences, they might broaden their interests. She observed that biology is built on physics, chemistry, and mathematics and that interdisciplinary research and education is important in this century.

It was noted that Dr. Colwell discussed three specific roles for the National Oceanographic Partnership Program (NOPP) in her statement. Commissioners highlighted the last role that Dr. Colwell described, which is to provide a mechanism for identifying and developing oceanographic research directions that cut across agency missions. The Commission commented that the ability to organize research dollars to target research areas that need to be looked at is something that is not effectively done now. Commissioners described a situation in the West Coast where Washington has spent a lot of money restoring habitat for salmon. The State has created an independent science panel and they have recently issued a report saying that there is no proof that habitat restoration has any benefit for salmon. It was stated that these are all researchable questions and yet research has lagged money spent on habitat restoration. Commissioners commented that it seems clear that in any research program, research issues should be identified before money is spent in order to ensure efficiency.

Dr. Colwell responded that every time you tug on something in nature, you find it is connected with everything else. She stated that managers and scientists have not been dealing with the “everything else.” She expressed the need to look at the totality of the system and have a holistic view in research, which requires bringing together the social scientists, engineers, physicists, chemists, biologists, etc. She commented that with the new developments in information technology the capacity exists to handle very large sets of data. For example, she indicated that 21st century science must not look solely at whether to limit catch per se, but consider how the whole ecosystem is affected. Dr. Colwell emphasized the need for a holistic approach to understanding the complexity of the environment.

Commissioners commented that Dr. Colwell described what it is possible to do, but the question of the Commission is really why policy development goes forward without having the scientific research to back it up. Dr. Colwell replied that systematic knowledge is needed for policy decisions and scientists now are beginning to understand that they have to collaborate. She added that scientists of many disciplines have not worked together; they have worked according to their own subset of disciplines. She emphasized that environmental systems are interdisciplinary in nature and work must therefore cross disciplines. Dr. Colwell commented that if scientists go to a funding source and harp about their own discipline, then they get what they ask for, which is small amounts of money to solve small problems, leaving the larger issues unresolved.

A number of Commissioners asked questions for the panelists to address in writing. In response to a question regarding the connection of the oceans to human health, Dr. Colwell responded that NSF is becoming more involved in efforts to understand the major role that climate plays in infectious diseases. She added that sea surface temperature has a direct relationship with

epidemics of disease, affecting human health, and that a better understanding the ocean environment would improve understanding of such effects on human health. Commissioners requested additional information in writing regarding the connection of the oceans to human health and whether NSF will be developing a strategy for addressing the issue, as well as suggestions on what the Commission should do concerning that issue.

Dr. Colwell was asked if more authority is needed to make decisions about who should do research. Dr. Colwell responded that NSF can play a role but recommended that there be closer cooperation between the Office of Science and Technology Policy (OSTP) and the National Ocean Research Leadership Council (NORLC). She commented that OSTP has a mandate to coordinate efforts and that could reduce delays and second-guessing. The Commission asked Dr. Colwell to provide additional information in writing. Admiral Watkins commented to Dr. Colwell that the Integrated Ocean Observing System is an opportunity for OSTP to take more of a role with coordinating and that there has been much discussion about how coordination does not exist today. Dr. Colwell replied affirmatively that this is an opportunity to work closely with the White House.

It was requested that The Honorable William Reilly provide the Commission with additional information on an approach for marine zoning. Commissioners asked him to provide further ideas about the 1997 report he mentioned and to update this report about marine zoning and provide his views about what has changed.

It was noted that managing the capacity reduction program with fisheries is an important issue. Commissioners requested that Mr. Reilly provide additional information regarding managing harvest capacity long-term.

It was noted that there has been much discussion about Marine Protected Areas (MPAs) at the regional meetings. Commissioners asked Mr. Reilly to discuss whether MPAs should be established in a bottom-up or top-down fashion and whether there should be a sunset clause for fish recovery. Mr. Reilly responded that the Dry Tortugas was very much of a bottom-up effort and was very successful. The Commission asked that further information be provided in writing.

It was also discussed that one of the Commission's mandates is to look for ways the U.S. can be a leader in ocean issues. Commissioners commented that World Wildlife Fund is a global organization and asked Mr. Reilly for any recommendations from a policy perspective on how the U.S. might improve its international activity.

Ocean Observing and Prediction

Dr. J. Frederick Grassle, Director, Institute of Marine and Coastal Sciences, Rutgers, The State University of New Jersey

Dr. Philip Bogden, Chief Executive Officer, Gulf of Maine Ocean Observing System

Dr. David Keeley, State Planner, Maine State Planning Office

Once the panelists had provided their formal statements, they addressed specific issues raised by the Commission. It was noted that all of the panelists commented on the issue of how to govern an observing system. Commissioners asked panelists how to govern an observing system and how they envision the relationship between different partners (federal, state, industry). Dr. Grassle replied that there should be a national academic partnership and a funding mechanism for phasing in regional programs. He added that the system cannot be one-size-fits-all and this system should be coordinated by Ocean.US. He noted that there needs to be strong links to science programs that will emerge regarding the development of the system. Dr. Bogden commented that regional systems need federal funding, both for start-up and for sustained operations. Individual states and industries should contribute, but it is unlikely that regional contributions will ever support the entire system. Rather, we should look to regions to enhance a core federally supported activity. Dr. Bogden also suggested that the system should be modeled as an oceanic version of the National Weather Service, which cannot exist without federal funds. In response to a question regarding whether one agency should be responsible for all of this, Dr. Bogden responded that he supported NOPP at a national level to coordinate multi-agency contributions to the national system. He added that GoMOOS is trying to be a regional version of NOPP in fostering regional partnerships. He discussed the notion of regional systems to look to NOPP and Ocean.US to coordinate at the national level.

In response to a question about whether sensors could be put on sea lions, Dr. Grassle responded that they can. Mr. Rasmuson commented about a dead orca that was found about ten years ago with sea lion tags in the stomach contents. Dr. Grassle replied that researchers at Stanford University are doing experiments to avoid potential impacts of tags.

The Commission expressed interest in Dr. Grassle's description of the need for a prioritized, coordinated, well-financed research program that deals with science and operational issues and commented about the fact that he chaired the Census of Marine Life group. Dr. Grassle was asked to discuss getting academic and business communities and others to work together. In response, he commented that Census of Marine Life is a model and that business partners are important for regional needs. He expressed that the idea is to take dollar value forecasts and look at individual business plans and see how they are affected. He emphasized that the only way to convince people of the value added is to show it in the bottom line. In response to a question about funding, Dr. Bogden noted that GoMOOS members pay dues which support a very small fraction of the total cost of the observing system; GoMOOS relies on federal funding as a primary source. Dr. Bogden commented that many users do not realize the potential pay-offs of ocean observing unless a substantial effort is made to convert data into useful information. He added that they spend a lot of time converting data to useful products for the members. In response to a question about how much money a sustained ocean observing system would require, Dr. Grassle stated that it would cost about \$6 million a year for their system and about \$500 million for a national system.

Commissioners asked Dr. Bogden to further discuss the potential for industry partnerships in an observing system. Commissioners gave an example of providing data to tankers, which could enable them to change their routes and have cost savings in terms of fuel and time. Commissioners commented that if industry had these kinds of pay-offs, it could be significant,

especially in the Gulf of Mexico where most of our oil imports occur. Dr. Bogden added that there are other benefits for shippers as well such as measuring and predicting sea level rise in order to move ships in and out of a port. He noted that there is a company that depends on ship routing in the Atlantic that did a study that says there is a \$500,000 annual benefit. Dr. Bogden added that predicting the actual water levels (such as storm surge, which can differ substantially from tide height) could indeed save money.

It was noted that GoMOOS started as a federally funded activity operating within the region. Commissioners commented that it seems like the system started with the state and local entities and asked Dr. Bogden if it could work if it was guided by the federal level or if federal agency interests would prevail. Dr. Bogden responded that coastal systems must serve regional user needs while they contribute to national needs. We work like this right now. Thanks to NOAA's National Data Buoy Center, GoMOOS data are incorporated into the National Weather Service forecast system. Once a national oceanic backbone is defined, GoMOOS would look to operate under contract to deliver a regional component of that backbone. The national system would be a federation of linked regional systems. It is hard to imagine the converse, where a federal agency with a national mission responds to user needs that vary from region to region.

The Commission commented that the evolution for state capacity raises a question for how management should occur and whether to get the capacity across at the state level. Dr. Keeley replied that there is a need to build capacity at the state level and there has to be a balance.

Science Panel

Dr. Robert B. Gagosian, President and Director, Woods Hole Oceanographic Institution
Dr. Steven Murawski, Chief, Population Dynamics Branch, Northeast Fisheries Science Center, National Marine Fisheries Service, NOAA
Dr. Donald M. Anderson, Senior Scientist, Biology Department, Woods Hole Oceanographic Institution
Dr. Thomas C. Malone, Professor, University of Maryland Center for Environmental Science and Co-Chair, U.S. GOOS Steering Committee

Following their formal presentations, panelists addressed questions raised by the Commission. Admiral Watkins expressed the need to appeal to Capitol Hill and the Administration for long-term funding for a long range plan all science groups, including social scientists and economists, can agree on as a reasonable approach given resource constraints. He asked Dr. Gagosian if there is there a mechanism he could recommend to the Commission on how to set priorities or a long range set of scientific objectives and if this type of science plan can be built for the next 5-10 years. Dr. Gagosian replied in the affirmative, noting that a number of people have given this a lot of thought. He commented that ocean science is really cross-disciplinary and, so far, scientists have only focused on individual science pieces and have had difficulty setting priorities across disciplines. Dr. Gagosian recommended convening a group of scientists to come up with the most important priorities that need to be solved. He suggested setting three or four priorities from each discipline and then making another list of priorities to include all of the science disciplines. He added that by prioritizing science, he meant to ask the questions: what do scientists know, what do scientists need to know, and how should they go about it.

Admiral Watkins noted that the Commission has a document entitled, “Toward a National Ocean Policy” on the Ocean Commission web site. He added that this document includes nine topics that the Commission will focus on and that scientists should look at this document to see if these are the important issues.

In response to a question regarding the federal structures that would be needed to implement an ocean exploration initiative, Dr. Gagosian responded that he was not aware of an ocean exploration program except for the NOAA program and he was not aware of an interagency group that has looked at priorities. He added that unless that is done, there will not be a compelling reason to move forward. He suggested a NOPP type of structure. Dr. Gagosian commented that ocean exploration could be placed as one of the science initiatives under another structure so that if someone goes to see a Congressman and mentions a component of a larger system, it is a coordinated system and there is an intellectual draw.

The panelists were asked how to take the entity or coordinating mechanism and move it to have enough authority to accomplish the coordination that is essential. Dr. Gagosian responded that NOPP is a mechanism by which to coordinate. He commented that NOPP is made up of federal agencies and agencies should be able to do better under NOPP than alone. He stated that some new money is needed. He discussed two ways that the money could flow. First, if the agencies involved decide this is a good mechanism and they want to participate, money could flow from the agencies and go to NOPP. He discussed that another option could be for resources to go directly to NOPP, but he argued that this might be more difficult and if money went to the agencies, they could fund other things in association, which would probably work better. Dr. Malone commented that authority and funding are needed. He recommended that the governing body for a sustained and integrated observing system should function outside the confines of any given federal agency.

The Commission noted that there has been much discussion regarding the lack of coordination across government agencies in dealing with ocean issues. Commissioners commented that they have begun to think about what kind of structure to recommend for improving coordination. It was expressed that often, science and research have little interaction with the policy. Commissioners asked if an institution could do both the coordination of the research and the policy. Dr. Gagosian suggested two possibilities. The first option he outlined is to have one major organization deal with science but have members of that organization be on another organization that has policy makers. Dr. Gagosian expressed his concern with having scientists and policy makers together is that scientists are poor communicators and talk to themselves in a different language. The other option that he discussed was to have scientists engage in frequent meetings with the board of the policy group to get policy inputs from the beginning. He emphasized that there has to be an early dialogue on the issue between scientists and policy makers. Dr. Murawski commented that there is a need for policy coordination when looking at a common set of objectives. He commented that most of the research scientists do is too practical and it is always short-term research. He added that they have problems coordinating long-term research. Commissioners commented that for an issue like ecosystem management there are still so many questions so it would be better if a research strategy was first developed.

The panelists were asked if it is time for a shift in sharing data or if there should be a different policy where people protect their data. Dr. Gagosian responded that if one compares the ocean

science field to others they still have a way to go. He stated that they are already sharing their data but have a way to go when compared with the bio-medical field. Dr. Malone replied that access to data depends on whether it is generated by research or by an operational observing system and commented that there is good reason to limit access to research data until researchers are sure of the data. For operational oceanography, an open data policy should be mandatory. Dr. Murawski commented that they are trying to work around confidentiality issues with fisheries.

It was noted that the Commission has heard at least three concerns about fisheries: 1) there is uncertainty with fisheries science; 2) there is a need to go to ecosystem-based management; and 3) there is a need for protected or closed areas. The Commission asked Dr. Murawski to comment on these three issues. In response to the issue of ecosystem-based management, Dr. Murawski commented that the first step is to save all the parts. He stated that the theory is to move to an ecosystem-based approach, but it is unclear what that is if it does not include monitoring mortality of species within it. He commented that there are a number of issues that are not addressed by fisheries management plans, such as predator-prey relationship, the effects of physical alterations (fishing gear impacts), management of the overall capacity to fish in a region, and the issue of bycatch. He added that there should be good quality species management across the board now, and that is the best ecosystem management. Regarding the issue of MPAs, Dr. Murawski commented that protected areas are good tools in fisheries management. He noted that New England is leading the U.S. and the world in protected areas with 20,000 square kilometers of protected areas and more temporarily protected areas. He commented that there are likely other benefits than just fisheries. He added that research has indicated that there are unique biological communities that need to be protected. Regarding the issue of the uncertainty with fisheries science, Dr. Murawski commented that the science is lagging behind, but the problem is more due to the history of overfishing. He expressed that the quality of science is not always relevant to the quality of the management.

Commissioners noted that Dr. Murawski made a strong point about the need for good science, especially fisheries science, but that even with that science there are problems in stock declines. Dr. Murawski was asked to discuss mechanisms to ensure good science is used in the right way. He replied that one way to ensure that the science is used in the right way is to separate the science and fishery management process. He added that problems with overcapitalization have masked good science in many cases.

In response to a question regarding whether there are incentives needed for fishermen to be engaged in science, Dr. Murawski responded that a lot of the push to do this has come from the fishermen themselves. He commented that fishermen do better when they have more information, and cited an example of lobster temperature devices. On the issue of mandatory filings, Dr. Murawski stated that fishermen know they are disguising the truth in some cases, and now realize that serious management decisions are being made based on that data. As a result, there is more interest from fishermen to take filing more seriously.

In response to a question regarding how to develop a research agenda and get people and agencies together, Dr. Anderson responded that to deal with harmful algal blooms, he and his colleagues convened a meeting of scientists, managers and shellfish industry officials. They identified key impediments to progress (e.g., a lack of toxin standards, or a method to rapidly

count toxic cells) and the actions needed to remove those impediments. Those actions constituted a science agenda. Prioritization was attempted, but was abandoned in favor of a list of top priorities with equal weighting. He expressed that not much happened thereafter until Congress stepped in and encouraged federal agencies to pool resources and work together on common marine issues. Harmful algal blooms requires multidisciplinary research, so it was a good candidate for a partnership among NSF, NOAA, EPA, NASA and ONR. He stated that the leaders of the HAB field convened an ad hoc interagency task force that met periodically so program managers from these and other agencies could address the needs and recommendations of the national science plan together. The ECOHAB program is one of several programs that have resulted from the science agenda. Dr. Anderson emphasized the need to come up with a rigorous and coordinated science plan that can be sold, even if the agencies needed to support it have not been identified. It is much easier to convince agencies to buy into a program if the details are worked out and the pathway to implementation is clear, even if those agencies were not part of the initial program formulation.

Commissioners asked Dr. Malone how to best run an integrated and sustained ocean observing system, whether it be through an interagency organization or some other form; he was also asked to, if possible, think of a model that exists. Dr. Malone suggested that no single government agency has the resources (funding, infrastructure and expertise) to design and implement such a system by itself. He commented that successful implementation will require a strong commitment by NOPP agencies to develop mechanisms that ensure coordinated development of the national backbone and a federation of regional observing systems. Dr. Malone emphasized that a program will be most effective if regional systems are developed in the context of a national backbone of observations because user needs vary to some extent from region to region. Dr. Malone expressed that a body such as Ocean.US that operates outside of the agencies is needed to coordinate this program.

The first day of the meeting was adjourned at 6:00 p.m.

WEDNESDAY JULY 24, 2002

Welcome

The Chair called the meeting to order at 8:30 a.m. and introduced Mr. Mark Forest, a staff member for Congressman Bill Delahunt (MA) to read a short statement on behalf of the Congressman.

Mr. Forest commented on the importance of the ocean to New England's economy. He noted that cargo, fishing, whale watching and coastal tourism have been important for New England's economy. He also stated that they have benefited from institutions such as Woods Hole

Oceanographic Institution. Mr. Forest also expressed that Congressman Delahunt was an early supporter of the Ocean Act and pledges his continuing support. He discussed new technologies and marine activities and commented that often these are exciting opportunities, but too often officials lack regulatory tools and resources. He commented that there may be a hearing regarding the Interior Bill H.R. 5156 for new energy projects on the outer continental shelf. Mr. Forest noted that the President has proposed increased use of offshore resources as part of his national energy policy, but commented that there is a lack of clear policy to guide individual projects. He discussed the proposed wind farm project in Nantucket Sound that is now under review. Mr. Forest expressed his concern about his project and requested that the Commission review these activities and make recommendations on achieving a balance.

The Chair then introduced the first panel.

Regional Coordination of Ocean Policy

Mr. Robert Ostrom, Chief Counsel, Maritime Administration, U.S. Department of Transportation

Colonel Thomas L. Koning, USA, District Engineer, U.S. Army Corps of Engineers, New England and **William A. Hubbard**, Marine Ecologist, U.S. Army Corps of Engineers, New England

Ms. Patricia A. Kurkul, Regional Administrator, National Marine Fisheries Service, Northeast Region

Dr. Jamie Geiger, Assistant Regional Director, Northeast Region, U.S. Fish and Wildlife Service

Mr. Thomas W. Skinner, Director, Office of Coastal Zone Management, Executive Office of Environmental Affairs, State of Massachusetts

Following their presentations, the panelists addressed follow-up questions asked by the Commission. Mr. Ostrom was asked if the Marine Transportation System is going to take on political issues to plan for the future growth of ports. In response he commented that the planning aspect and creating intermodal transportation are key because otherwise interstates, such as I-95 and I-5, will not be able to take the load in the near future. He commented that at the Merchant Marine Academy they stress that their career is not limited to operating a ship and dealing with a port; instead, they are part of a seamless Marine Transportation System. He added that marine transportation must deal with trucking and highway construction. He stated that they need to coordinate and coordination requires planning which in turn requires political will. Mr. Ostrom expressed that it is clear that cooperation with every sector (municipalities, state and federal government) is required but he is not sure there is the political will. Colonel Koning commented that currently states compete and there needs to be a national policy to encourage cooperation.

The Commission commented that they were interested in the port statistics Mr. Ostrom cited in his statement and requested that he send a report from the Mineta Transportation Institute on transportation issues to the Commission. Commissioners also requested that the Maritime Administration comment, in writing, about how much national guidance is needed to deal with port competition.

It was noted that the Commission has been thinking about government mechanisms and structures to coordinate ocean policy. The question was raised about how to achieve and integrate the Gulf of Maine and other regional approaches. Commissioners asked the panelists to first offer their views from a regional perspective and then look at the issue from a national perspective. It was asked if this will take legislative changes and if there are overlapping mandates from various legislation. Mr. Ostrom replied that he would be pleased to respond in full to those questions in writing. Colonel Koning responded that the opportunity for federal agencies to cooperate must be created.

Commissioners commented that Mr. Ostrom and Colonel Koning referred to a national transportation strategy and port and harbor vision. They were asked if these two efforts fit together and if the Department of Transportation (DOT) and ACOE are working together. Colonel Koning responded that he was not sure there is a comprehensive strategy, but they probably need a comprehensive transportation strategy that goes beyond ports and harbors. He added that the question of how to get there is not something he can answer but is something the Ocean Commission will need to look at. Mr. Ostrom commented that he agreed that the need for coordination is something that has been brought to the floor. He noted that the issue of a seamless transportation system and making sure cargo and personnel are moving across the sea safely is an important one. He emphasized that DOT is intermodal and commented that they are looking at a seamless transportation system that goes way inland and involves trucking and rail. Mr. Ostrom added that this effort requires a commitment to work across government to make necessary plans. Commissioners commented that Mr. Ostrom made a compelling case that transportation starts at the waterfront but must go inland.

The point was made that the Commission's discussion of ports, harbors and waterways has gone beyond region to a national basis. It was noted that looking at the statistics that Mr. Ostrom is predicting raises a question about potential growth in the intercoastal waterway (ICW). The panelists were asked if they see an increased role for the ICW and asked about the physical condition of it. Colonel Koning responded that it is the responsibility of ACOE to keep the nation's waterways navigable and they work with the ICW. He added that some parts of the ICW are in better condition than others and if there is an expansion of use of the ICW, improvements and more funding may be necessary. Mr. Ostrom commented that the ICW is part of the seamless transportation system. He noted that there has been an increase in ferry systems moving people across the country and that the prospect of increased traffic on the ICW, both moving goods and people, should not be ignored. He emphasized the need for an intermodal view of how the U.S. moves goods and people.

It was noted that during Colonel Koning's testimony, he discussed ecological restoration programs and recommended that a partnership is required. He was asked how he would see requiring a partnership and why this is a better policy than having one central agency. Mr. Hubbard responded that Coastal America helped ACOE understand the role of other agencies. He stressed that it is important to know if your agency cannot do a project what other federal agency can. He added that this is a good way to deliver federal services and there are a lot of overlapping programs in government.

The question was raised that since the U.S. Army Corps of Engineers (ACOE) is a public works agency, how do they reconcile that with being a permitting agency looking at the impacts of their

own public works. In response to whether it is appropriate to have these two functions within the same agency, Colonel Koning responded that there are appropriate levels of review to ensure that there is no conflict. Mr. William Hubbard, a marine ecologist with the ACOE added that it is important that ACOE have both of these functions within the same organization. He also commented that ACOE has to use the NEPA process and that most permit (non-ACOE civil works) projects are small with few environmental impacts. Large civil works projects of the Corps allow the in-house staff to develop expertise in water resource development and impact assessment. He also noted that the regulatory staff has the ability to get expertise from onsite people who are environmental or engineering specialists. Since they have in-house expertise to make decisions, they do not have to rely on consultants.

Commissioners noted that in his statement, Colonel Koning mentioned some inconsistencies and conflicts in various ocean-related laws for dredged material disposal and asked him to identify these in writing for the Commission.

It was noted that Ms. Kurkul stressed the need for ocean planning but not more bureaucracy. Commissioners asked Ms. Kurkul to describe what a structure to deal with planning in our oceans would look like and to give examples of models. She responded that her vision for it was that the policy work would be at the national level, being fed by regional level systems that allow for differences at the regional level, and would be implemented at the regional level. She added that this does require some sort of authority to make sure that it is followed through.

The Commission commented that many of the panelists expressed the need for an Organic Act and having common goals that all of the other legislation needs to refer to in order to utilize resources and manage ocean use. Commissioners commented that Ms. Kurkul made a compelling case that this needs to be specific and that it should have no additional layering. The question was raised as to whether anything has been done besides adding another step. Also, if it were to be kept regional the question was asked if there could be a regional strategy with the existing structure or if an overarching body or act was needed. In response, Ms. Kurkul noted that there is a need for some kind of regional structure. She commented that they coordinate very well on a project-by-project basis but do not have the directive regionally. She added that it is important to have some national guiding policies that feed into a regional strategy.

Ms. Kurkul was asked to identify where ocean-related acts conflict with each other and if there is a need for an Organic Act. Ms. Kurkul responded that there has been a lot of talk about conflicting and overlapping and that one thing that also exists are gaps in legislation. She said that she would like to respond in writing to the question.

Dr. Geiger was asked if he had some ideas on how to control invasive species and what the cost would be. He responded that the Aquatic Nuisance Species Task Force was established by Congress under the Aquatic Nuisance Species Control Act. He noted that it works with states in developing plans to deal with invasive species. He added that many federal agencies are members of that task force and develop aquatic species management plans. Dr. Geiger stated that they are trying to bring the action plans down to the lowest possible level. In terms of cost, he stated, the magnitude of the problem is large. He commented that they have not been able to eradicate invasive species and are still looking for appropriate tools to deal with the issue. He

said that the strategy is to prevent the organisms from getting into the U.S. and once they identify that invasive species are in the U.S., they try to keep them under control.

Admiral Watkins noted that the Commission has heard a lot about restoration. He asked Dr. Geiger if restoration cannot be done, when does the invasive species become the new indigenous species. Admiral Watkins commented that eradication may work sometimes, but asked what could be done when it cannot work. Dr. Geiger responded that they have been successful in restoration but have opportunities to do more restoration but are either lacking political will or the tools to restore an area. He discussed Lake Trout in the Great Lakes as an example of a success story.

In response to a question on whether U.S. Fish and Wildlife Service is developing a plan to deal with diseases, Dr. Geiger noted that their priorities within their agency are not keeping up with the issues. He commented that they have discussed trying to work together with other agencies and he stated that they need to do much more.

Mr. Skinner was asked a question regarding funding of the Gulf of Maine Council. Commissioners asked how federal agencies justify funding what they give, how much they give the Council, and whether it is on a project-by-project basis. Mr. Skinner replied that they receive funding through a combination of several sources including going after competitive grants, direct appropriations from Congress and EPA support. He added that they have a mixture of funding for keeping up with general activities and carrying out specific projects.

Admiral Watkins noted that the Commission has put “Toward a National Ocean Policy” on the Ocean Commission web site and one of the areas the Commission is looking at is marine transportation. He asked the panelists to look at the questions the Commission has asked and comment about whether they think they are the right questions.

Commissioners expressed interest in Mr. Skinner’s recommendations and map of the Gulf of Maine. It was noted that the Commission heard about regional approaches also in Seattle and the San Juan Islands and that they needed Canadian support to deal with problems with sewer systems in Victoria, but Victoria did not have any money. Mr. Skinner was asked if the U.S. government should give money directly to foreign governments to assist in a collaborative effort. Mr. Skinner responded that from the standpoint of the goal of improving the overall health of an area, it would be a great idea but that it is really an issue of money.

Admiral Watkins noted that this panel was put together because there has been a lot of good regional work done in New England. He stressed again for panelists to look at and review “Toward a National Ocean Policy” and provide a regional perspective.

Public Interest

Mr. Peter Shelley, Vice President, Conservation Law Foundation

Ms. Sharon B. Young, Field Director, Marine Issues, Humane Society of the U.S.

Dr. Rebecca Goldberg, Senior Scientist, Environmental Defense

Mr. Curt Spalding, Executive Director, Save the Bay, Narragansett Bay

Mr. Richard F. Delaney, Director, Urban Harbors Institute, University of Massachusetts Boston

Following their presentations, the panelists answered questions on a number of issues raised by the Commission. Commissioners asked if there is something in the governance structure that should be considered that would help change the fisheries management process to eliminate management by litigation. Mr. Shelley responded that he did not think that the litigation numbers are high and that there is not as much ocean litigation in comparison to the extensive litigation that is going on with Forest Service and Bureau of Land Management right now. He stated that ocean resources must be managed under laws. He commented that under the fishery law, the Fishery Councils are unaccountable planning agencies and he would like to be able to sue the Fishery Councils directly. Ms. Young commented that it is a sad fact that unofficially agencies want to be sued because once litigation is filed, everyone rushes in to contribute resources. She noted that there is an incentive not to do anything until sued. Dr. Goldberg echoed Ms. Young's comment.

The Commission followed-up with a question regarding the need for better coordination with marine aquaculture and asked panelists for their vision of where aquaculture is going. Mr. Shelley commented that in the area of ocean zoning, some areas could be identified that have interactions with marine mammals and fisheries, and noted that this should be explored within a regional context. He also added that he thinks there is a federal role in terms of monitoring and shared costs. It was requested that more information be provided in writing on specifics about what an aquaculture governance structure would look like and how it would be imposed. In response to a question about whether MPAs should be top-down or bottom-up, Mr. Shelley responded that his view is to use both approaches. He commented that there should be a very clear scientific hypothesis for MPAs. He mentioned that communities should be allowed to identify sites and evaluate them, as opposed to having specific criteria. He added that structuring around a national network is too difficult to analyze from a local level, although there is a need for a national mandate. He noted that for biodiversity purposes, there have to be some no take zones, although he is not sure what percentage.

The question was raised about whether the concept of farming the sea and displacing some wild animals is a good one and if this is inevitable. It was noted that there may be some inherent problems with the zoning concept. In response, Dr. Goldberg commented that she thinks that this is inevitable and that the issue is not going to disappear. She added that she sees a whole different future in terms of fishing. She expressed that she does not think fishing will disappear for several reasons and sees a mix of fishing and aquaculture. Mr. Shelley noted that in Maine, the two biggest fisheries, Atlantic salmon and lobster, are both aquaculture fisheries. He commented that there are not natural populations of lobster that are being maintained and that the lobsters are fed with bags of herring. For the aquaculture project involving scallops, he explained that they were located in areas of high currents where fishing was not taking place but scallops could grow. He added that it is hard to imagine a finfish aquaculture as economically viable as a wild fishery if the ecosystem is protected.

It was noted that the Commission has heard from people in the aquaculture industry about the difficulties dealing with permitting and in her testimony, Dr. Goldberg mentioned several agencies that deal with aquaculture. She was asked if she could discuss a governance structure for aquaculture. Dr. Goldberg responded that there is a complicated governance structure of aquaculture in the U.S. because states vary enormously in their requirements and sometimes

even local towns can vary enormously. She added that having a better planning process, particularly in the marine environment, would be very useful.

It was discussed that the Commission conducted a site visit in the Chesapeake Bay region and met with the Chesapeake Bay Foundation. It was noted that the Chesapeake Bay Foundation said that from a scale of 1 to 100 they are at a 27 in terms of getting better, and they are having problems from sewer discharges and nitrate runoff. Commissioners commented that there needs to be a national policy to address this and that there is going to be a certain amount of pollution but it needs to be mitigated. In response, Mr. Spalding commented that some of the people who work in other estuaries look at the Chesapeake Bay and it would be useful to look at the Chesapeake Bay to determine if it is a good model. He added that Narragansett Bay does not have a Bay Commission. Mr. Spalding noted that the Chesapeake has good intergovernmental cooperation and that there is a role for the federal government to push watershed thinking. He commented that at some level there needs to be across the board commitment and there has been some of this in the National Estuary Program, but not what is needed.

The Commission commented that they are looking at some sort of national level coordinating mechanism and requested that Mr. Shelley and Mr. Spalding respond in writing regarding whether there would need to be some sort of response mechanism at the regional level to make this effective and, if so, what type of regional structure would be needed.

The Chair asked the panelists to review and make comments on “Toward a National Ocean Policy,” which is on the Ocean Commission web site.

Commissioners asked panelists to address a number of issues in writing. Commissioners asked Mr. Spalding to comment on S 2608, the Coastal and Estuarine Land Protection Act, which has just been introduced. Mr. Spalding was also asked about whether there is something that needs to be done to focus on nonpoint source pollution. Further, he was asked if the Clean Water Act is enough to regulate pollution statutorily and to provide specifics about whether it is a statutory problem or an implementation problem. Also, he was asked, if the Clean Water Act is not adequate, what needs to be done. Ms. Young was asked how the U.S. can provide effective leadership in the International Whaling Commission and in other areas critical to marine mammals. She was also asked if the U.S. is in danger of pushing aquaculture abroad, and how the U.S. can help foreign nations. Commissioners expressed interest in Mr. Delaney’s proposal to do away with the flood insurance program and requested that he provide some thought about how practical that solution would be. It was noted that in the Northwest region, there has been some discussion about community-based aquaculture and the question was raised as to whether, from a national perspective, the panelists have heard anything about this issue. Admiral Watkins asked Mr. Shelley to provide the Commission with papers on the precautionary approach. Admiral Watkins commented that they understand the need for the precautionary principle, but he is not sure that everyone agrees on the parameters of it.

Marine Industry

Mr. Michael Leone, Port Director, Massachusetts Port Authority

Mr. Paul E. Shorb, III, Senior Attorney, AT&T Corporation, on behalf of the North American Submarine Cable Association

Mr. Thomas R. Hill, Chairman, New England Fishery Management Council
Mr. David Goethel, Commercial Fisherman, F/V Ellen Diane
Mr. Roger S. Berkowitz, President and CEO, Legal Sea Foods

Once the panelists had presented their formal statements, they answered follow-up questions on specific topics raised by the Commission. Commissioners commented on future port demands and how the current system is a free-for-all among ports. The question was raised about whether a more nationalized process is needed for the U.S. Marine Transportation System. Mr. Leone responded that it is important to have a process whereby each region can develop its Marine Transportation System that can satisfy its economic demands. He noted that not every port will be a load center and needs to be dredged to 55 feet. He gave an example of how operators in the Port of Boston are not trying to be the Port of New York or the Port of Long Beach because they do not have that much space to serve the entire country. Boston wants to have direct call service from steamship lines that predominantly carry New England freight. In this way, New England companies can enjoy similar Transportation Services as businesses near load center ports. He added that if the U.S. gets to a point where they are only maintaining and improving a of couple ports on each coast, there would be a great deal of stress on the particular ports, and that it is important that steamship lines have options to meet regional needs. Mr. Leone emphasized the need to have good, sound local planning rather than to have planning at the national level.

It was noted that at many of the ports the Commission has visited, they have heard about a shift to smaller, faster vessels. Mr. Leone was asked if this is an anomaly or if the whole industry is going to that. In response, Mr. Leone commented that there will be a split and some companies will build larger vessels and some will build smaller ones. The lines that build smaller vessels want to remain competitive by serving a regional market well as opposed to trying to serve all markets.

Commissioners asked Mr. Leone to articulate what goes into his port's planning and how he successfully markets a port plan. He responded that they have tried to unite the port community including importers and exporters. He added that they have a Port Action Committee and they look at what the needs are from a port and they look at finding ways to market certain services. He said that the shippers commit to the steamship lines that they will give them a certain amount of Boston freight and a portion of their freight over other trade lanes. Since New England shippers control 7 to 10 times more freight over all trade lanes than they handle in Boston, the steamship lines realize that a Boston call can be very profitable for their company. He added that people realize that if they have 50% of the Port of Boston that might be better than having a smaller percent of the Port of New York. He noted that another way they market a port plan is by having travel agents promote the port to cruise lines.

Commissioners asked Mr. Shorb whether the U.S. has a way to respond to excessive territorial sea changes by other nations. Mr. Shorb commented that he would recommend the U.S. ratify the Law of the Sea Treaty. He also emphasized that, if the U.S. wants to urge other nations to respect the jurisdictional limits set in that treaty, we should stop our own ongoing violations of those territorial sea limits, described in his presentation.

Commissioners then asked Mr. Shorb if cables are available for scientific use. He responded that the cable would have to be physically connected to the scientific monitoring equipment, which raises technical issues that would have to be resolved.

The question was raised about what kinds of incentives the Commission could ask Congress to put in place to have the cable industry help provide the scientific community access to existing cables. Mr. Shorb replied that older, retired cables are available and have been used for scientific use. He was also asked if there is a map of existing cables available for scientific use and if there is a paper discussing this issue. He responded that they have just submitted documentation of active cables and that can be provided to the Commission. He added that no cable is laid without first looking at the bottom with sonar and that such survey records could be made available to the scientific community.

Commissioners commented on Mr. Shorb's statement that the current government processes for reviewing proposed submarine cables have multiple problems, which among other things have threatened to kill some of these projects through permitting delays. Mr. Shorb's comment that NOAA, in August 2000, suggested expanding its permitting jurisdiction beyond Sanctuaries to undefined areas of sensitive marine habitats, submerged cultural resources, fishing zones, and areas of aesthetic value was also noted. Commissioners commented that with respect to the CZMA, Mr. Shorb's comments remind them of testimony that has been heard about offshore oil and federal consistency. The question was raised about whether when dealing with the states on this issue, if this is similar. Mr. Shorb responded in the affirmative. In response to a question, he explained that it is the CZMA and OCSLA that have been relied upon by federal agencies seeking to extend their permitting reach over submarine cables.

Mr. Shorb was also asked if the submarine cable industry has had any problems where cables have been torn up by vessels. He responded that they have never had a cable buried to the current standard hit by trawling. He noted that fishermen are supposed to avoid hitting cables, but that if they do snag a cable and sacrifice their gear in order to avoid damaging the cable, the cable company is required to pay for loss of gear and catch.

Commissioners commented that Mr. Shorb had suggested weakening the CZMA, whereas the previous panelists had made recommendations to strengthen the CZMA. In response, Mr. Shorb commented that the exception he proposed from the CZMA would allow better consideration of important national interests but would not override state interests. He noted that there is precedent for Congress allowing a single federal agency to permit; his industry would like a single permitting process that is predictable and consistent.

Mr. Hill was asked about the adverse effects of bottom trawling and whether the New England Fishery Management Council is doing any research on this. He responded that they are looking at gear impacts on bottom habitat.

Commissioners commented that they liked the idea of an "oath" for Fishery Council members that Mr. Hill suggested. It was noted that Mr. Hill commented on the separation of science and management. He was asked if a Fishery Council of non-scientists should be able to revise the information provided by scientists. Mr. Hill responded that he thinks that the Councils should be able to make value judgments. He commented that science is not static and that there are some

changes in short periods of time. As a result, the Council uses its judgment about science and applies social and economic values to technical data.

Commissioners noted that Mr. Hill commented that splitting the responsibilities of addressing conservation issues and allocation issues would be a bad idea because the Councils should be able to apply value judgments and have input into the process. Commissioners stated that they see no reason why all these things cannot happen and still have scientists determine the size of the pie and let the Council allocate. Mr. Hill responded that he disagreed and that the process of separating would be strongly opposed by the Councils. He added that policy assumptions go into determining the size of the pie and these representatives of thousands of people have value judgments to bring to the process.

It was noted that Mr. Hill described the regions management system as a grand experiment in using input controls. Commissioners commented that there is an overfishing problem because the political will was not there and the lobbying efforts were intense. Commissioners also stated that history shows that value judgments will always have the most optimistic view of the status of the resource so it is obvious what is likely to happen if flexibility is allowed. Mr. Hill commented that there have been some failures, but also some successes. He added that very gradually attitudes are changing and the question is how fast to force change.

Commissioners requested that Mr. Goethel pinpoint inconsistencies and conflicts in regulations and statutes and send them to the Commission.

Mr. Goethell responded affirmatively when asked if he thought that IFQs make sense and can be applied to fisheries. Commissioners also asked if Mr. Goethell thought that fishermen should pay to fish since all other extracting industries pay to extract resources. He commented that he has no problem with paying to fish, but most fishermen cannot pay upfront and would need a loan.

Commissioners expressed interest in Mr. Goethel's recommendation on MPAs. Mr. Goethel recommended that the U.S. needs a coherent policy on Marine Protected Areas and commented that as a biologist and a fisherman he sees the value of setting aside discreet areas of complex habitat with great biodiversity to act as biological reserves. Commissioners asked Mr. Goethel to what extent he would require governing agencies of MPAs to establish, measure and change goals. Mr. Goethel commented that in New England they have a strong town meeting system and have as much public input as possible. He added that they look at their goals and objectives and have to have one view when they leave the room.

Public Comment

Mr. Roger Payne, Founder and President of Ocean Alliance in Massachusetts commented briefly on his organization, which is dedicated to ocean conservation through research and public education. He mentioned an ongoing study of the biology of 1500 known Patagonian right whales that he directs, but he stated that he would address the Commission regarding another Ocean Alliance program called "The Voyage of the Odyssey." This study is aimed at quantifying a serious threat to ocean life from synthetic compounds collectively known as POPs (Persistent Organic Pollutants). Mr. Payne discussed how these compounds, also known as

Endocrine Disrupting Compounds, can upset fetal development and cause reproductive disorders and neural damage. He commented that most animals store POPs in their fat, and because they accumulate throughout the animal's lifetime they get added to the animal. Therefore, he stated that one of the best ways to study the concentration of these compounds is to analyze the fats of animals. Mr. Payne gave some alarming examples of PCP concentrations that have been found in marine mammals. "The Voyage of the Odyssey" is a five year program to look at the concentration of these compounds in oceans and determine how serious the problem of synthetic pollutants is. The goal of the Odyssey Voyage to be able to make comparisons of synthetic pollutants in different oceans. He concluded by saying that he would like to see a national ocean policy that supports work of the kind being done aboard the Odyssey and which also supports the kinds of programs Ocean Alliance is doing in partnership with educational institutions across the country.

Ms. Maggie Linskey Merrill, Executive Director of Marine and Oceanographic Technology Network (MOTN) commented on the economic viability of the oceans. She stated that the MOTN is located in New England but is known globally for its marine technology expertise. They provide services to 68 members, most of which are private companies. Their members include groups such as Benthos, Inc. and others who make remotely operated vehicles and undersea research equipment. She noted that their members employ 400,000 people. Ms. Merrill recommended that the Commission support increased technology transfer from academic institutions to the public sector. She noted that this was important for creating jobs and it is difficult for U.S. firms to compete. She also commented that the U.S. should streamline regulations domestically. She also noted that few of the company leaders that are members of MOTN have time to address corporate growth so programs such as training skills should be instituted.

Dr. Peter Jumars, professor at the School of Marine Science at the University of Maine commented on behalf of the American Society of Limnology and Oceanography. He commented that the American Society of Limnology and Oceanography is a professional society of scientists and managers and explained that limnology is the study of inland waters. Dr. Jumars commented on observing systems. He stated that virtually all members are bringing data in at a much more rapid rate than it can be made useful and understandable. He also commented on the exchange of water and talked about runoff coming into waters from hog farms. He stated that this is a problem for the oceans and it is not being given the weight it deserves. He also discussed the issue of marine science funding and commented that it is more and more being oriented in a top-down fashion with less room for innovative science. Last, Dr. Jumars commented on the coordination of ecosystem research.

Mr. Gary Gill-Austern, an attorney representing the Alliance to Protect Nantucket Sound commented that the Alliance protects Nantucket Sound from the industrialization that will be brought in by the largest wind power plant in the history of the U.S., which is coming to shores of Cape Cod. He expressed that the Alliance wants to ensure the long term protection of Nantucket Sound. He noted that the Commission heard from Secretary Durand, the comments of Congressman Delahunt, Colonel Koning, Sharon Young and Rich Delaney that no authority exists for the federal government to convey rights to develop certain projects, including the Cape Wind Project. Mr. Gill-Austern commented that the Commission has a responsibility to recommend appropriate measures to deal with this. He explained that the OCSLA was intended

to serve as a basic legal authority to protect fragile offshore areas. He stated that the Alliance shares Congressman Delahunt's concerns regarding H.R. 5156, a just-introduced bill which proposes new measures that would broadly authorize any use of the outer continental shelf not already authorized. He stressed that the U.S. must not abandon principles of the OCSLA. Mr. Gill-Austern also commented that regulatory gaps need to be filled. He stated that there should be no action on the Cape Wind Project until the Commission comes out with its recommendations.

Mr. John Phillips, Director of The Ocean Conservancy's district office in Maine commented on fisheries in the Northeast and MPAs. He stated that he urged the Commission to: 1) adopt a national oceans act; 2) create a national oceans agency; 3) reform the composition of existing Fisheries Management Councils; 4) set target catch limits not at the Council level; and 5) establish a network of MPAs. Mr. Phillips commented that over half of New England's groundfish stocks are overfished. He noted that some species show positive signs of rebuilding but many will not be rebuilt and are depleted. He added that groundfish stocks will produce an economic hardship because they are being overfished. Mr. Phillips stressed that the problem lies in the Fisheries Councils and the U.S. needs to strengthen the Fisheries Act. He commented that the Northeast fisheries, as well as others, are dominated by fishermen and reforms must return authority to set catch limits to federal government. Mr. Phillips recommended that the U.S. needs to create an independent ocean agency that consolidates existing programs and has an Organic Act. He then commented on establishing MPAs and noted that there has been some success in the Gulf of Maine and Georges Bank but these closed areas are temporary. He expressed that no take management reserves are needed in the Northeast and that it is time to make Stellwagen Bank a no take area. Mr. Phillips concluded that the Commission has to change the way the U.S. manages and protects marine resources.

Mr. Charles Higginson, member of the Council on Ocean Law and Cruising Club of America commented on yacht's pump out facilities. He stated that the U.S. should foster more technology to clean wastewater in yachts. Mr. Higginson asked the Commission to consider having the federal government establish national standards for discharges of wastewater from yachts.

Mr. Robert Buchsbaum, a conservation scientist with the Massachusetts Audubon Society discussed six recommendations. He first commented on the Massachusetts Audubon Society, which has a membership of 69,000 families. He noted that they have experience on the local/grassroots level working with communities. Mr. Buchsbaum's first recommendation to the Commission was that Congress should continue to support the National Estuaries Program. He commented that this program works well and that in Massachusetts, the Massachusetts Bays and Buzzards Bay Programs have provided valuable technical support and education to citizens and local officials on coastal issues. Second, he commented that NOAA's Community Restoration Grants Program has been a valuable source of funding and technical support for coastal restoration. He commented that the Grants Program has been instrumental in getting towns to address nutrient loading and they have worked with local communities to update their regulations. He recommended that monitoring and restoration projects and outreach be part of this program. Third, Mr. Buchsbaum recommended that the federal government needs to have a strong role in developing guidelines for offshore wind farm development. He noted that the issue of public trust should be addressed with the wind farm project and a program should be designed to compensate the public and that the funding should then be used for monitoring.

Next, he recommended that the federal government needs to clarify the procedure for developing and expanding the system of MPAs. Fifth, Mr. Buchsbaum urged the federal government to provide NMFS with sufficient funding to enable it to better understand fish-habitat relationships and how those relationships may be affected by fishing and human activities. Last, he recommended that EPA require ambient water monitoring by discharges as part of its NPDES program.

Ms. Mary Ann Nelson, volunteer coordinator of Sierra Club in Massachusetts, commented on a number of the Sierra Club's positions. She noted that Sierra Club is involved with protecting the marine environment and has adopted the policy of supporting marine reserves. Ms. Nelson commented that the Sierra Club supports the designation of MPAs because these areas would prohibit activities such as fishing and mineral extraction. She also commented that the Massachusetts chapter of Sierra Club is pioneering Sierra Club's position on fisheries. She stated that they advocate that the precautionary principle is adopted, reserves are designated and utilized and time and area closures are established to protect fish breeding areas. She also recommended that programs be established to protect habitat and stop land-based pollution. Ms. Nelson commented that nonpoint source pollution is a serious problem, especially in Cape Cod. She stressed that the Commission should make recommendations on land uses that have impacts on marine habitat. She also expressed that Sierra Club advocates a national energy policy and that the current energy policy was created by those in the energy industry. Additionally, she noted that there needs to be more information to evaluate impacts of the wind farm project. She asked the Commission to consider a national permitting system for permanent structures in the EEZ. Ms. Nelson noted that the Sierra Club is working on protecting right whales and they are interested in working with the fishing community to develop whale-friendly fishing gear. Last, she emphasized that the oceans should not be privatized.

Mr. Richard Fredricks, President of Maritime Solutions (BWT), Inc., spoke on behalf of J. Arnold Witte, President of the American Salvage Association. Mr. Fredricks noted that the American Salvage Association represents a group of eleven of the leading professional salvage companies. These member companies work in U.S. waters and also overseas. He commented on the environmental threats posed by the cargo and/or bunker oils and chemical cargoes remaining aboard shipwrecks located in the ocean. He stated that the risk of a major pollution incident will exist as long as bunker and/or cargo oils or other petroleum and chemical cargoes are not properly removed from shipwrecks. Mr. Fredricks noted that from the larger population of wrecks, they have pointed out three cases of wrecks that posed a threat to the Northeast U.S. He described a drift study that was conducted with support from the Coast Guard. Mr. Fredricks discussed a shipwreck that is a source of oil pollution that has given rise to a number of beach remediation projects along the South Shore of Long Island. He added that this recurring source of oil is impacting bird life. He commented that previously the source of oil was a mystery, but it has now been identified and there is a policy for removing oil. Mr. Fredricks recommended that the Commission secure support for the Coast Guard to deal with these threats.

Ms. Dale Brown, Director for the city of Gloucester spoke on behalf of Mayor John Bell. She commented that New England boasts an extraordinary breadth of talent and expertise in marine affairs. She also noted that fishing has been the heart and soul of the city of Gloucester since the 1600's and that overfishing is affecting places like this. She stated that Mayor Bell serves as the Chairman of the Northeast Seafood Coalition and through this group they are engaged in the

deliberations on the current northeast fishery management plan and discussions of reauthorization of the Fisheries Management Act. Ms. Brown expressed that local communities must deal with many of the regulatory requirements, as well as competing interests, with resulting impacts to their citizens, businesses and municipal budgets. She commented that they have dealt with a number of issues including contaminated sediments and removal of dredged material; marine transportation, safety and navigation; ocean disposal of wastewater; the potential for aquaculture; management of shellfish resources; the Stellwagen Bank National Marine Sanctuary; port security; recreational boating and fishing; habitat restoration and a potential ocean energy generation facility. She noted that there are also local government benefits as more people want to live there, but it becomes more difficult to balance. Ms. Brown asked the Commission to include representatives of coastal communities.

Ms. Ingrid Nugent, a student at the University of New Hampshire commented that many young people do not vote or follow the policy process. She stated that maybe they do not realize how fortunate they are and asked the Commission to forgive them because young people will be in their shoes someday. Ms. Nugent commented that the culture of science is such that there will always be doubt and asked the Commissioners not to hurt her generation's future based on this uncertainty.

Mr. John Bradley, a Trustee of the New England Aquarium commented on airborne pollutants. He commented that there are many airborne pollutants that get concentrated in the food chain. Mr. Bradley focused his discussion on mercury, which he noted comes from municipal solid waste incinerators. He commented that many people claim they cut down on mercury discharges, but even a small amount of discharge is lethal. Mr. Bradley stated that mercury goes up the food chain and the top fish dies and the mercury goes right back into the food chain. He commented that mercury is continually building up in peoples' system and this is especially a problem for fetal development. He emphasized that the U.S. should try to reduce emissions coming from power plants. He commented that there is plenty of natural gas in the world to displace coal from fueling electric power plants. Mr. Bradley added that mercury concentrates tenfold or more at each step in the food chain. He pointed out that the aquaculture industry has received negative publicity in regard to the approximately 2½ pounds of herring meal needed to produce a pound of aquaculture product fish. Wild fish must swim a lot more between meals than do aquaculture fish, so they must also eat a lot more prey. Mr. Bradley stated that there is about a tenfold increase in the concentration of mercury and other poisons at each stage of the food chain for wild ocean fish.

Mr. Marty McGowan, a business entrepreneur commented that he grew up in Boston and used to fish and scuba dive until Boston Harbor became polluted. He noted that he is looking to invest as a capitalist in a small aquaculture farm that has shellfish. He commented that it is important to balance environmental and commercial interests. But he stated that sometimes the issues become neutralized by the different forces. Mr. McGowan stated that what he would like to see is an environment that the Ocean Commission creates where all these groups can come together and fast track business development. He commented that there is an untapped resource – the spirit of American entrepreneurs where they can come in and develop the ocean to benefit everyone.

Mr. Bob Lobecker, Chairman of the New England Section of the Marine Technology Society noted that they represent 270 scientists, educators, students, engineers and companies in the region. He commented that they hold meetings to focus on regional issues. Mr. Lobecker urged the Commissioners to think outside of the box and not just think about their personal agenda. He commented that drastic changes are needed in the way things are approached. He noted that they had a meeting earlier this year where 80 people were asked to identify recommendations. Three of these recommendations were: 1) a charismatic leader is needed; 2) the science information that is generated must be easily communicated with the public; and 3) education should start with the kids and also college level students.

Ms. Angela Sanfilippo, President of the Gloucester Fishermen's Wives Association commented that their top priority is to allow flexibility in dealing with rebuilding stocks. She commented, what is the point of imposing even more severe regulations in an attempt to reach what may prove to be unattainable targets. She noted that ten years is no magic number and it was arbitrarily selected. She further commented that if a fishery can be rebuilt in 13 years, what is the justification for having to rebuild it in 10. She stated that this will force boats out of business. Ms. Sanfilippo stressed that past efforts to promote sustainable communities should not be destroyed merely to meet someone's unrealistic timetable. She expressed that sustainable yields should be the primary focus and it is unwise to set yields without sufficient data. Ms. Sanfilippo concluded that only when fisheries managers and fishermen work together can progress occur.

Ms. Megan Amundson, a concerned citizen and Chair of the Massachusetts Chapter of Sierra Club spoke about the right whale issue. She commented that the oceans are in crisis and the right whale issue demonstrates this. She commented that there is only so much research a population of only 300 can tolerate before something needs to be done. Ms. Amundson stressed that as long as the right whale is not protected on a day-to-day basis, there is no intention of protecting the oceans, but she hopes the Commission will prove her wrong.

Ms. Helen Sullivan, President of a Maine homeowners association commented that homeowners do not earn their living from the ocean. She commented that they want to live by the sea and respect the sea and that they were pursuing their "pursuit of happiness" until they became overregulated. She stated that Wells Beach is a public beach; however, the politics have ruined it. Ms. Sullivan explained that the townspeople were uneducated on oceanography until they wanted to put in a harbor in Wells Beach. She commented that they had no say in this matter and it has ruined their beaches. She stressed that they respect the ocean but have no say with what happens to their beaches. She also commented that she does not think that private ownership and home ownership near a beach should be considered a detriment and she noted that other industries profit from the sea. She expressed that they are just asking to protect their homes from the sea and to rebuild their seawalls. Ms. Sullivan also emphasized that protecting the homeowners is just as important as protecting the whales or any other thing and she commented that they are also an endangered species. She also expressed that they have installed a sewer system and they do not detract from the economy of the town, but rather they are the economy of the town.

Dr. David Evans – Assistant Administrator for Oceanic and Atmospheric Research, National Oceanic and Atmospheric Administration

Following his presentation, Dr. David Evans addressed questions raised by the Commission. Admiral Watkins asked Dr. Evans if there is growing support for making an ocean observing system a reality. He asked him to comment on the pulse or the health of the system, as to whether it is heading toward success or failure. Dr. Evans responded that the system is heading toward success. He commented that agency cultures are changing and the experiment with NOPP and Ocean.US has to do with changing culture. He noted that people come with the attitude of how to make the program work and the intent of the agencies is to build an ocean observing system. However, he commented that there are still real questions about what this means and huge questions having to do with money. Dr. Evans stated that climate change has been an important issue with this administration and there was an attempt by the administration to make new investments in climate change research but the economy has changed over the last 18 months and the level of funding for initiatives is lower. He commented that he is not overly optimistic about how this will be received but noted that they are putting together the right framework for coordination to take place. He expressed that working on these cultural problems is very important. Dr. Evans commented that this is good news in terms of the future and whether this is the right way to go but he is less optimistic about getting budgetary support.

Commissioners commented that NOAA's Office of Ocean Exploration is giving more and more funds to the academia. It was noted that 75% of this year's funds are going to the academic community. Commissioners commented that the academic community is having delays with getting these funds and asked Dr. Evans for recommendations on moving moneys in efficient and timely ways to the academic community. Dr. Evans responded that the Department of Commerce (DOC) has a lot of difficult procedures and has difficulties in the General Counsel's office. He noted that there are procedural issues and since NOAA is a part of DOC, there is another check-off on all its activities. Commissioners asked Dr. Evans to submit a recommendation about this to the Commission. Dr. Evans commented that there are serious problems inside DOC that need to be addressed.

It was noted that measuring biological components is an important part of an observing system, and it would take decades to get biological systems up to the same level as other components. Commissioners asked Dr. Evans if he would suggest some funds for biological sensors be earmarked. Dr. Evans commented that the 21st century is the one for biological sciences. He stated that there should be real progress, especially with the new information technology.

Commissioners asked if the acquisition of fisheries data will be included in this system. Dr. Evans responded in the affirmative, but expressed that it has been difficult because the living resource community has not come together. Commissioners asked if a recommendation from the Commission would help with this, and Dr. Evans responded that it would.

Dr. Evans was asked about the relationship between GoMOOS and Ocean.US. He responded that there is a very explicit connection. He commented that a vision for building a coastal component to the observing system would put together those regional efforts and it is important to put together a system that has users and products. He noted that the federal system would put together connectivity for those regional systems and stated that most of those regional entities have gotten their funding through their own labors on Capitol Hill. Dr. Evans explained that NOAA and Navy have started to work together with the recipients of those funds and made an

offer to them to bring them together and their funding because then the agencies would probably be much more supportive and give them more funding. He commented that they brought all of the groups together this year and asked them if they wanted to be part of a larger group. Dr. Evans expressed that he is cautiously optimistic that they are moving forward.

Commissioners commented that they have heard from a number of people about needing a lead agency for oceans in the federal government. Dr. Evans was asked why NOAA has not taken a leadership role in this effort. Dr. Evans responded that he does not think that it can be expected for any one agency to step up to take on this effort. He commented that agencies have very concrete issues and missions that they need to satisfy. He stated that it would be very difficult to say that the Department of Energy was going to give the Weather Service data so that they could predict the weather. He stated, similarly these agencies would not want to step up and use other people's data and take over. He commented that he does not think it is appropriate for any agency to step up and take over. Dr. Evans explained that no agency wants to turn over the job to another agency, and if NOAA tried to take the lead, it would be seen as taking over.

Commission Business

Admiral Watkins announced that "[Toward a National Ocean Policy](#)" is on the Ocean Commission web site. He also announced that the Commission invites the public to comment on it and that the Commission has given it to the Science Advisory Panel to provide comments.

Report of Working Group Chairs

Research Education and Marine Operations Working Group:

Dr. James Coleman reported that his Working Group made good progress. He announced that they prioritized and made minor revisions to "Toward a National Ocean Policy."

Stewardship Working Group:

Dr. Paul Sandifer announced that this Working Group meeting was the first one with Mr. Malcolm Williams, Associate Director of Stewardship. He reported that they discussed "Toward a National Ocean Policy" and only had two changes: 1) to increase the international focus and 2) to improve the discussion of informal education in the document. He announced that Commission staff will put together a matrix of recommendations that the Commission has received to date so that they can start coming up with options. He also discussed plans for the upcoming Stewardship Working Group meeting in August with their Science Advisory Panel.

Governance Working Group:

Mr. William Ruckelshaus reported that his Working Group looked at definitions of governance and will provide a definition to the Commission. He noted that they discussed what, if any, structure they would recommend to coordinate ocean policy. He commented that people are clearly asking for a more effective mechanism to have a coordinated system and reported that his Working Group is exploring different mechanisms to achieve coordination. He added that they are also looking at what would be needed regionally. Dr. Ruckelshaus stated that they need to show that the issues being faced need some sort of coordinating mechanism.

Investment and Implementation Working Group:

It was announced that the Investment and Implementation Working Group will meet on Thursday, July 25. It was also announced that the staff mailed out briefing books and will mail them out to the rest of the Commission after the meeting with a report of the meeting.

Approval of Minutes of [April 18-19, 2002 Meeting](#) and Minutes of [May 13-14, 2002 Meeting](#)

The minutes of both meetings were approved subject to staff technical changes. The minutes will then be subject to review by the panelists at those meetings who will be given an opportunity to recommend edits. Once finalized, the minutes will be posted on the Commission web site.

The second day of the meeting was adjourned at 6:00 p.m.

Appendix 1

July 23 & 24, 2002 Ocean Commission Meeting Attendees

<u>Name</u>	<u>Affiliation</u>
Colin Abercrombie	New England Aquarium
Megan Agy	Congressman Frank Pallone, Jr.
Joel Ames	U.S. Navy
Tim Armour	Jason Foundation
Deerin Babb-Bron	Office of Coastal Zone Management, Massachusetts
Antonio Baca	MIT/ Polz Lab
Karen Baragona	WWF
Cris Barbero	WHOI
Bradley W. Barr	NOAA/NOS
James Beletic	W.M. Keck Observatory
Rhodes Berube	MA DPH
Arita Bischoff	No Affiliation Given
Chris Boelle	NJ Coastal Management Program
Glenn Boledovich	NOAA
John M. Bradley	NE Aquarium Trustee
Rose Marie Bradley	Antioch New England Graduate School
Tory Bramante	Atlantic Coast Seafood, Inc.
Brenda Breuer	Hospital for Joint Diseases
Priscilla M. Brooks	Conservation Law Foundation
Tom Broom	Shell Exploration & Production Company
Christopher Brown	McDermott, Will & Emery
Dale T. Brown	City of Gloucester
Robert Buchsbaum	Massachusetts Audubon Society
Kristen M. Burke	Massachusetts Technology Collaborative
Douglas R. Burnett	Int'l Cable Protection Com./Holland & Knight LLP
CDR Margaret Carlson	U.S. Navy
Courtney Carothers	Environmental Defense
Nina Lee Carranco	WHOI
Heather Charles	Self Employed Biological Consultant
Sharon Chan	No Affiliation Given
Gib Chase	USF&WS
Susan Watts Chinn	Nicholas School of the Env't./Duke University
Kevin Chu	Sea Education Association, Inc.
Andrew M. Clark	Marine Technology Society
John J. Clarke	Massachusetts Audubon Society
Harlan K. Cohen	Department of State
Travis Coleman	No Affiliation Given
Tom Connolly	WHOI
Basil Cooil	No Affiliation Given
Helen R. Cooil	No Affiliation Given

Name

Ken Coons
Kim Cooper
Ernie Corrigan
Lauren Cotter
Fara Courtney
Thomas Craven-Banette
Catherine Creese
Kent Curtis
Penelope D. Dalton
Shelley M. Dawicki
Cynthia Decker
Ron DePasquale
Elise A. DiBenedetto
Laura Dichtel
Aaron Donohoe
Amanda Dooley
Emily Dooley
David Dow
Elaine Driscoll
Will Dunaway
Jenny Catherine Eriksen
Micheal Errigo
Falcone Family
Susan Faraday
Victoria Felson
Ben Fertig
Thomas N. Fetherston
Christine Feurt
Peter B. Fippinger
Mark Forest
Teri Frady
Zouridakis Fragiskos
Richard E. Fredricks
Gail French
Frank Gable
Wendy Garpow
David Gibb
Louis Gibb
Hilary Gittings
Gary L. Gill-Austern
Tom Grasso
Melanie Griffin
Madeleine Hall-Arber
Linda A. Hansen
Justin Harper

Affiliation

Fish Facts
Environmental Defense
Corrigan Communications
Alliance to Protect Nantucket Sound
Good Harbor Consulting
Anoto
TyCom
Gulf of Maine Times
CORE
Woods Hole Oceanographic Institution
U.S. Navy
Associated Press
No Affiliation Given
New England Aquarium
WHOI
CLF
Cape Cod Times
NOAA/NMFS
Regan Group
U.S. Navy
APNS
New England Aquarium
No Affiliation Given
The Ocean Conservancy
No Affiliation Given
Mass Bays Programs
U.S. Navy
University of New England
U.S. Senate
Congressman William D. Delahunt
NOAA/NMFS
MIT
Maritime Solutions Inc & American Salvage Assoc.
USACE
URI
Mass Bays National Estuary Program
No Affiliation Given
No Affiliation Given
WHOI
Nutter, McClennen & Fish LLP
WWF
MADMF
MIT Sea Grant
Hart Crowser, Inc.
MIT

Name

Ann Marie Harvie
Jennifer R. Hauser
Heb Hermann
Charles Higginson
Bill Holler
Jacqueline M. Hollister
William A. Hubbard
Deborah R. Hutchinson
Greg H. Itchen
Tom Jamir
Ines Kaft
Ray Kammer
Ellen Keane
Scott Kenney
Iain Keer
Thomas E. Lee
Jamie Marie Leff
Stephen M. Lehmann
Mae Leslie
Carolyn Levi
Philip E. Lewis
Matthew Liebman
Huei-Ting Lin
Deb Liptzin
Robert N. Lobecker
Katie Lund
Danielle Luttenberg
Craig D. MacDonald
Michio Matsuzawa
James McCaffry
Heather M. McDonald
Martin McGowan
Robert F. McKeon
Thomas P. McShane
Maggie Linskey Merrill
Anna Michel
Thomas Michels
Tracey Morin
J.K. Murphy
Mary Ann Nelson
Becca Newhall
Nicole Nichols
Ingrid Nugent
Kevin M. O'Grady
George R. O'Keefe

Affiliation

USACE
Congressman Thomas H. Allen
MTS
Council on Ocean Law
Legal Seafoods Inc.
Woods Hole Oceanographic Institution
U.S. Army Corps of Engineers
USGS
U.S. Coast Guard
UMass Dartmouth/NE Regional Aquaculture Center
No Affiliation Given
No Affiliation Given
McLaughlin Research Corp.
DoD
Ocean Alliance
Regan Group
UNH
NOAA
No Affiliation Given
New England Aquarium
Dolomite Petroleum LC
EPA, New England
Woods Hole Oceanographic Institute
Woods Hole Oceanographic Institute
Marine Technology Society
Office of Coastal Zone Management, Massachusetts
Environmental Defense
NOAA
The University of Electro-Communications
Sierra Club
FH-GPC
CPA
USDOT/Maritime Administration
Dewey Square Group
Marine & Oceanographic Technology Network
MIT Ocean Engineering/Woods Oceanographic
NOIA
University of Rhode Island
No Affiliation Given
Sierra Club
Nicholas School of the Env't./Duke University
Woods Hole Oceanographic Institute
UNH
Hart Crowser, Inc.
GeoAcoustics, Inc.

Name

John V. O'Shea
Curtis R. Olsen
Roger Payne
Judith Pederson
Joseph E. Pelczarski
Elizabeth Phelps
John C. Phillips
Laura Pierce
Justin Pope
G.M. Purdy
RADM (sel.) Robert D. Reilly, Jr.
Sarah Robinson
Capt. Phil Ruhle, Jr.
Angela Sanfilippo
Faith G. Scattolon
Bonnie J. Scott
Mitchell K. Shank, Jr.
Susan Snow-Cotter
Charalambos Soultatis
Lisa Spalding
Richard W. Spinrad
Harry Sproul
Carolyn Steve
V. Frank Stone
Helen E. Sullivan
Anne B. Tenney
Janelle R. Thompson
Carolyn A. Thoroughgood
Steven M. Tucker
Beth Turner
Kate VanDine
Capt. Mark G. VanHaverbecke
Janet Watkins
Eli Weissman
RADM Richard (Dick) D. West
Robert M. White
Patience Whitten
S. Jeffress Williams
Arnold Witte
Pat Woods
James A. Yoder
Ann Young
Sally J. Yozell

Affiliation

Atlantic States Marine Fisheries Commission
University of Massachusetts Boston
Ocean Alliance
MIT Sea Grant
EOEA/CZM Commonwealth of Massachusetts
U.S. Navy
The Ocean Conservancy
NESPA
Association Press/ Boston
Lamont-Doherty Earth Observatory/Columbia U.
U.S. Navy
Harvard University
F/V Sea Breeze
Gloucester Fishermen's Wives Association
Fisheries and Oceans, Canada
Woods Hole Oceanographic Institute
U.S. Navy
Massachusetts Office of Coastal Zone Management
MIT
New England Aquarium
U.S. Navy
No Affiliation Given
New England Aquarium
U.S. Navy
Webhannet Beaches Association
National Science Foundation
MIT/WHOI
University of Delaware
Cape Cod Commission
NOAA
NOAA/Stellwagen Bank NMS
U.S. Coast Guard
Wife of Commissioner ADM James Watkins
The Ocean Conservancy
U.S. Navy
The Washington Advisory Group LLC
No Affiliation Given
USGS
American Salvage Association
Ocean Alliance
National Science Foundation
U.S. Navy
Battelle