



CAPITOL HILL  
OCEANS WEEK

— 2005 —

**Summary Report**



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## Symposium Overview

Capitol Hill Oceans Week is a symposium designed to bring together various ocean constituents, provide a venue for continuous dialogue between these stakeholders, and to identify significant ocean issues before our nation's leaders in order to help us leave our ocean and coasts in better condition for future generations to enjoy. The fifth annual Capitol Hill Oceans Week took place *June 7-9, 2005* in Washington D.C.

The opening session, entitled *Predicting and Preparing for Natural Disasters*, focused on technological investments and other necessary tools to help communities predict and prepare for natural disasters such as tsunamis. The second day of the symposium included *Restoring Our Nation's Wetlands*, where panelists discussed a variety of innovative ongoing efforts to restore critical wetlands habitat, a vital link to ocean health. *Feeding the Nation: The Aquaculture Alternative* panelists discussed various aspects of the aquaculture movement, from open cage farming to re-circulating technologies for both fish and corals. On day three of the symposium, *Oceans and Human Health: A Prescription for the Future* focused on the many connections between human health and healthy oceans, from seafood safety to marine microbes. *Moving America: Ensuring Safe Marine Transportation* addressed measures to increase safe marine transportation from mapping, to navigating, to increasing security in ports and harbors.

Most of these sessions featured a member of Congress to provide an overview, as well as a panel of experts from the federal government, academia, industry, and non-profit organizations to discuss their varying perspectives on the importance of marine conservation. In addition to the five panel discussions, there was a keynote address by James Connaughton, Chair of the Council on Environmental Quality, a discussion about the Census of Marine Life, a Roundtable discussion with NOAA's Office of Oceanic and Atmospheric Research (OAR), a Filmmakers Forum discussing how to influence the public's awareness of ocean and marine issues, and an Ocean Exhibit Fair.

This summary report captures the highlights of all of the panelists' presentations, as well as their challenges and recommendations, many of which were a result of the *U.S. Ocean Action Plan*.

Capitol Hill Oceans Week was hosted by the National Marine Sanctuary Foundation in partnership with members of the Senate Commerce, Science and Transportation Committee; the House Science Committee; and the House Oceans Caucus. Federal partners included the Department of Interior's Mineral Management Service; the U.S. Environmental Protection Agency; and several National Oceanic and Atmospheric Administration offices, including the National Marine Sanctuary Program and the Office of Oceanic and Atmospheric Research.

The National Marine Sanctuary Foundation is grateful for the support of the many sponsors of Capitol Hill Oceans Week, including:

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The Ocean Exhibit Fair provided organizations the rare opportunity to exhibit on Capitol Hill before an audience of Members of Congress, the Administration, policy makers, federal partners and industry, academia, and environmental and community leaders. This forum featured exhibits from various organizations with stakes in protecting our ocean and coastal resources.

**Exhibitors** Census of Marine Life (CoML)  
Chief of Naval Operations  
Environmental Readiness  
Division  
Conserve Our Ocean Legacy  
Consortium for Oceanographic  
Research and Education  
(CORE)  
DOC, NOAA Coral Reef  
Conservation and Marine  
Debris Programs  
DOC, NOAA Habitat Program  
DOC, NOAA National  
Marine Sanctuary Program  
DOC, NOAA Office of Oceanic  
and Atmospheric Research  
DOC, NOAA Undersea  
Research Program  
DOI, Minerals  
Management Service  
IUCN – The World  
Conservation Union  
JASON Foundation for Education  
Mote Marine Laboratory  
Mother Ocean Foundation Inc.  
The National Academies  
Ocean Studies Board  
The Nature Conservancy  
The Ocean Conservancy  
U.S. Environmental  
Protection Agency

## Predicting and Preparing for Natural Disasters

**Moderator:** Vice Admiral Conrad C. Lautenbacher, Jr., U.S. Navy (Ret.)  
Undersecretary of Commerce for Oceans and Atmosphere,  
*U.S. Department of Commerce*

**Panelists:** Dr. Andrew Clark, Industry Representative, *Ocean.US*  
Mr. John Cummings, Planning and Operations Officer, *Oahu Civil Defense*  
Ms. Margaret Davidson, Director, *NOAA Coastal Services Center*  
Dr. Ellen Prager, President, *Earth2Ocean, Inc.*  
Dr. M. Sanjayan, Lead Scientist, *The Nature Conservancy*

### Panel Overview

Panelists discussed technological investments and other tools necessary to help communities predict and prepare for natural disasters, such as tsunamis.

**CONRAD LAUTENBACHER:** Vice Admiral Lautenbacher provided a framework for the discussion by reviewing two bills in Congress that address natural disasters and the 2004 tsunami in the Indian Ocean. The first bill was the Tsunami Preparedness Act, S-50, which directs NOAA to conduct regional assessments and to operate an International Tsunami Information Center. It also calls for the creation of a Pacific Ocean International Tsunami Information Center to assist member States in establishing national warning systems. The second bill, the U.S. Tsunami Warning and Education Act, HR 1674, directs NOAA's National Weather Service to operate its Tsunami Forecasting and Warning Program for the Pacific Ocean Region and for the Atlantic Ocean, Caribbean Sea and Gulf of Mexico. In addition, it calls for programs in research and tsunami preparedness, and directs NOAA to provide technical assistance and training for regional tsunami warning networks. Vice Admiral Lautenbacher reviewed NOAA's role during natural disasters, which includes warning, mitigation and recovery, and noted that a great deal of the data involved during those processes comes from NOAA. He closed by describing an international collaborative effort, known as the Group on Earth Observations (GEO), to create a Global Earth Observation System of Systems (GEOSS).

**ANDREW CLARK:** Dr. Clark shared his perspective as President and Founder of Harris Corporation Maritime Communication Services and as Industry Liaison to the National Office for Integrated and Sustained Ocean Observations (Ocean.US), a position which engages the private sector in development of the Integrated Ocean Observing System (IOOS). He presented a brief organizational overview of Ocean.US and IOOS, as well as the Global Earth Observation System of Systems (GEOSS) and the Global Ocean Observing System (GOOS), and explained how the IOOS applies to tsunami and other natural disaster mitigation. Dr. Clark highlighted IOOS goals, which include detecting and forecasting oceanic components of climate variability, mitigating natural hazards, and ensuring public health. He said the success of IOOS depends upon partnerships among government agencies, academic institutions and industry. It also requires integration of vast number of sensors located throughout our environment, from the bottom of the ocean to space and from stationary platforms to moving ships and aircraft. Industry is involved in all aspects of these, from developing the systems to deploying, operating, and maintaining them. He noted that many of the assets and systems of the Integrated Ocean Observing System are already operational, deployed, and providing data, and that data must be amalgamated and turned into useful products for many purposes, including forecasting natural disasters. Dr. Clark concluded by saying that IOOS will be the mechanism whereby all the current ocean observing sub-systems, such as DART (Deep-ocean Assessment and Reporting of Tsunamis), are seamlessly integrated.

**JOHN CUMMINGS:** Mr. Cummings shared his perspective as Planning and Operations Officer for Oahu Civil Defense (OCD) in Hawaii. He pointed out that Hawaii is the most isolated population center in the world and gave an overview of the OCD program, which includes warnings for tsunami events. Hawaii has had 220 deaths since 1946 due to tsunamis, which are the deadliest type of natural disaster in that state--the most recent tsunami was in 1975. Oahu's Civil Defense tests its warning sirens every month and that drill is part of their education for the public. He noted that education is the key to reducing the number of deaths during a tsunami. OCD education efforts also target hotels to insure that tourists are familiar with tsunamis and emergency procedures, such as warning sirens. When residents hear the siren, they are supposed to turn on their TV or radio for instructions. Hawaii telephone books also have disaster information and maps which indicate the areas that should evacuate during a tsunami warning. In addition, they conduct a statewide siren alert during Hawaii's annual Tsunami Awareness Month. Mr. Cummings also said the Oahu Civil Defense has many valuable partners involved in its emergency operations plan, including Civil Air Patrol and 220 volunteers on the ground, who are trained and equipped for a natural disaster. The challenge of transportation for evacuees is met in part by Oahu city buses, which automatically become shuttles during emergency evacuation. He concluded by emphasizing that education is the key to successfully translating observations into warnings and warnings into appropriate actions.

**MARGARET DAVIDSON:** Ms. Davidson shared her perspective as Director of NOAA's Coastal Services Center and as former Acting Assistant Administrator of NOAA for Ocean Services and Coastal Zone Management. She began by discussing coastal flooding, which accounts for 70% of FEMA's repeat losses, and HURREVAC, which is a computer program used by official government emergency managers since 1988 to track hurricanes and assist in decision-making for their communities. Ms. Davidson explained that NOAA, FEMA and the Army Corps of Engineers have been integrating each of their data sets, developed for their particular mission requirements, and created a new operational evacuation tool that is used by 4,500 government managers across the landscape. Hydrologic forecast and observation data is being provided continuously for more than 1,000 locations in 22 states, from Maine to Texas, plus Puerto Rico and the U.S. Virgin Islands. She described it as 'interoperability' of not only sensors, but also systems. She further noted that in addition to getting emergency managers the models and decision support tools, it is important to help them understand how to use those models and tools in order to build local capabilities and resilience. Ms. Davidson said NOAA is also building relationships with the coastal conservation communities, such as The Nature Conservancy and The Land Trust Alliance. Ms. Davidson then showed some natural disaster predictions and response tools, both experimental and permanent, which have proved to be highly effective.

**ELLEN PRAGER:** Dr. Prager shared her perspective as President of the consulting firm Earth2Ocean, Inc. and as author of the 1999 book, *Furious Earth: The Science and Nature of Earthquakes, Volcanoes, and Tsunamis*, which addresses how our better understanding of natural disasters helps to prevent subsequent loss of life and property. She said that while the 2004 tsunami was horrific, it will better prepare people for such disasters in the future. The challenge is to look beyond the human tragedy, to learn the lessons and teach those lessons to the public and disaster managers. Her presentation included a computer simulation of a tsunami and the dates and locations of tsunamis throughout history, based on documented reports, as well as anecdotal and geological evidence. She explained that we now have much greater scientific knowledge of earthquakes and tsunamis and that knowledge in combination with historical data and geologic evidence has given scientists a much better understanding of why, how, and where tsunamis are most likely to occur. In the U.S., the greatest risks of earthquake-generated tsunamis are in Hawaii, Alaska, the Pacific Northwest, Puerto Rico and the U.S. Virgin Islands. Other triggering mechanisms for tsunamis include asteroid impacts, volcanic eruptions, and landslides. Dr. Prager concurs that warning systems are critical, but urges that education in schools and the community are needed to make them effective. She noted that like our hurricane forecasts, tsunami forecasts and emergency response systems,

can improve due to science and research, but it will take investment, political will, education, and public support to make them effective when disaster strikes.

**M. SANJAYAN:** Dr. Sanjayan shared his perspective as Lead Scientist with The Nature Conservancy. He provided a firsthand view of the devastation following the 2004 tsunami, having recently returned from his native Sri Lanka. Upon request by the Sri Lankan government, Dr. Sanjayan led a rapid assessment team on a tour of the country's coastline two and a half weeks after the tsunami and presented a slide show of photos from the trip. He shared some of the conclusions reached by his team, describing those under three categories: preparedness, mitigation and reconstruction. He said that adequate disaster preparedness must include formal education for children in schools and the creation of a social context for the general public, so warning systems are effective. He noted Sri Lanka does not even have a word in its language for tsunami. Under the heading of mitigation, his team concluded that natural barriers to tsunamis, such as sand dunes, coral reefs, and mangroves should be left intact because they played a significant role in lessening the impact of the 2004 tsunami. He also noted that human disturbance to the coral reefs was far greater than the impact of the tsunami. With that point in mind, Dr. Sanjayan concluded by stressing that reconstruction should address long-term sustainability of natural resources, as well as short-term rebuilding. He said there is little point to rebuilding hotels for eco-tourism if coral reefs are being destroyed gradually by human beings.

## **CHALLENGES**

- Adequate ocean observation systems are simply not in place in many critical areas of the globe
- In places where ocean observational technology is in place to detect phenomenon such as tsunamis, the land-based warning systems to communicate this information may not be adequate
- In many communities, there is no social context for tsunamis, let alone an emergency operations plan
- Natural barriers to tsunamis, such as sand dunes, wetlands and coral reefs, are often destroyed or damaged to accommodate development
- Educating people about understanding the risks and what to do if a tsunami or a tsunami warning occurs, or other natural disaster for that matter, is critical, but too often the resources are lacking to undertake this education

## **RECOMMENDATIONS**

- Residents in coastal areas should be better educated, both by schools and their communities, about tsunamis
- Natural barriers to tsunamis, such as sand dunes, wetlands, and coral reefs, should be preserved
- Education efforts should include a middle school level class on natural disasters, including tsunamis, earthquakes, hurricanes and rip tides
- Coastal businesses, such as hotels, should be involved in natural disaster education and emergency operations plans



- Reconstruction efforts for the 2004 tsunami should address long-term issues, such as sustainability, as well as short-term issues, such as rebuilding
- Data produced by the Integrated Ocean Observing System must be turned into useful information for forecasting natural disasters.
- As warning systems are established, the infrastructure to communicate such warnings must also be developed and tested.

The challenges and recommendations section of this summary do not necessarily reflect the consensus of the entire panel, but individually identified challenges and recommendations. For additional information on each panelist's key points, please go to [www.NMSFocean.org/CHOW2005](http://www.NMSFocean.org/CHOW2005).

# Restoring Our Nation's Wetlands

**Moderator:** Mr. John Berry, Executive Director, *National Fish and Wildlife Foundation*

**Panelists:** Ms. Cindy Angelelli, Managing Director, *Duke Energy Corporation*  
Mr. John Dunnigan, NOAA Ecosystem Goal Lead and Director, *NOAA Office of Sustainable Fisheries*  
Mr. Benjamin Grumbles, Assistant Administrator, *EPA Office of Water*  
Mr. Jon Kachmar, Senior Planner, *Maine Coastal Program*  
Ms. Renee Orr, Chief, Leasing Division, *Minerals Management Service*  
Mr. Keith Rigby, Assistant Director, Southern Division, *National Fish and Wildlife Foundation*

## Panel Overview

Panelists discussed a variety of innovative and ongoing efforts to restore critical wetlands habitat, a vital link to ocean health.

**JOHN BERRY:** Mr. Berry provided a framework for the discussion by highlighting ecological, economical, and recreational benefits of wetlands. He explained that while wetlands make up only 5% of U.S. land mass, they are home to 31% of America's plant species and serve as either feeding or nesting grounds for up to half of North American bird species. In addition, wetlands filter sediment, nutrients, and toxic materials from our streams, waterways, and estuaries. Mr. Berry then pointed out the economic benefits of the \$59 billion wetlands-related ecotourism industry, which includes hunting, fishing, bird watching, and photography. He added that 75% of commercially harvested fish are dependent on wetlands, and if one considers shellfish that amount jumps to 95%. The Army Corps of Engineers also estimates that wetlands are one of the most important natural assets for flood prevention in the United States. Mr. Berry concluded by explaining that more than half the U.S. population lives in and around wetlands, and more than 98 million Americans pursue activities in wetlands.

**CINDY ANGELELLI:** Ms. Angelelli shared her perspective as Managing Director of Duke Energy Corporation and Chair of the Corporate Wetlands Restoration Partnership (CWRP), which is charged with the mission of protecting, enhancing and restoring wetlands and other aquatic habitats. Ms. Angelelli began by describing the CWRP, which accomplishes its mission by creating partnerships and synergy to leverage the collective resources, skills and processes of the private and public sectors. CWRP is approximately 5 years old and active in 13 states, with more than 300 corporate and other partners, including NOAA, the U.S. Fish and Wildlife Service and non-profit entities such as The Nature Conservancy and Restore America's Estuaries. CWRP has also benefited from several million dollars of in-kind services and cash donations. Along with its federal partner, Coastal America, CWRP creates state chapters, with corporate support that includes in-kind services and funding. She said she's especially pleased with the in-kind services, which allow smaller companies to participate. Ms. Angelelli then highlighted the range of CWRP's projects, which include monitoring, research, education, planning, dam removal, and fish ladders, to name a few. She closed by encouraging potential corporate and nonprofit partners to join one of CWRP's state chapters.

**JOHN DUNNIGAN:** Mr. Dunnigan shared his perspective as Director of NOAA's Office of Sustainable Fisheries and as Ecosystem Goal Team lead. He outlined NOAA's approach to the management and restoration of wetlands. Mr. Dunnigan explained that within NOAA's strategic planning paradigm, the Agency's vision is a better world through ecological and environmental knowledge and stewardship, recognizing that NOAA has a science mission, as well as a stewardship mission. The Agency's four major goal areas include the ecosystem goal, which is to protect, restore and manage the use of coastal and ocean resources through an ecosystem-based approach to management. He said NOAA defines an ecosystem as a geographically specified system of organisms, including humans. He noted that often fisheries

regulations are aimed at individual stocks or fisheries, without always taking into account how things are interrelated, and that approach can cause problems. In contrast, the ecosystem approach to management is something that is collaborative, incremental and adaptive, and addresses diverse societal goals. Mr. Dunnigan outlined NOAA's accomplishments, which include the restoration of 16,000 habitat acres, the removal of stream blockages, the reopening of stream isles, and the creation of 24 national partnerships that involve more than 1,500 state, federal and tribal entities.

**BENJAMIN GRUMBLES:** Mr. Grumbles shared his perspective as Assistant Administrator for the U.S. Environmental Protection Agency's Office of Water. He began by reiterating the Bush Administration's goal, announced Earth Day 2004, to move beyond the 'no net loss' policy to one of overall gain. President Bush challenged federal agencies to join together to restore, improve and protect at least three million acres of wetlands by 2009. He said an integral part of that effort continues to be working with government agencies and NGOs organizations on collaborative non-regulatory approaches. The key to success is not just having the important regulatory backdrop and tools and to ensure that the nation's environmental laws are followed, but also to develop those partnerships. Mr. Grumbles then outlined two EPA programs. One is the 'Five Star Restoration Program,' which typically involves five different types of sponsors and provides challenge grants, technical support and opportunities for information exchange to enable community-based restoration projects. The other is the National Estuary Program, which Congress created in 1987 to improve the quality of estuaries of national importance. Mr. Grumbles concluded by pointing out that Americans have a tendency to love their coastlines and oceans to death, but, ironically, it will take that kind of attention to restore them.

**JON KACHMAR:** Mr. Kachmar shared his perspective as Senior Planner for Habitat Restoration at the Maine Coastal Program and as Restoration Coordinator for the Gulf of Maine Council. He pointed out the critical need for wetlands, which act as nurseries for marine species, nesting grounds for birds, a buffer to erosion, and as a filter for land pollution. In addition, wetlands provide flood storage capacity, a relief from fresh and salt water flooding. He noted that Maine has 157,000 acres of coastal wetlands and 5 million acres of fresh water wetlands, so Maine is a very 'wet' state. Mr. Kachmar then explained that the Gulf of Maine Council is an NGO organization that focuses on conservation protection and restoration of the Gulf of Maine. It includes federal, state, and local government entities, non-governmental entities, private sector and academia. It has a non-regulatory working group that meets four times a year to assist the Council in its decision-making. The Council administers habitat restoration grants, approximately \$300,000 a year, through a partnership with NOAA and its restoration center. They have funded 43 projects so far. Mr. Kachmar concluded by briefly reviewing some of the challenges and needs they have encountered, which include the scarcity of non-federal matching funds and the need for better coordination with coastal land use policies.

**RENEE ORR:** Ms. Orr shared her perspective as chief of the Leasing Division for the Minerals Management Service (MMS), which is currently focusing on collecting and providing geologic and environmental information to identify and make available sand deposits in federal waters suitable for beach nourishment and wetlands protection projects. Since 1995, the MMS has conveyed more than 23 million cubic yards of sand to restore over 60 miles of the nation's beaches, shorelines and wetlands. Ms. Orr gave an overview of MMS work around the country, and then focused on Louisiana, which is home to some of the nation's most critical wetlands. She explained that the MMS is responsible for managing all the mineral resources, including oil and gas, located on the Outer Continental Shelf, which is 1.76 billion acres. MMS oversees over 42 million acres under active lease, which includes 7,800 leases and more than 4,000 facilities. Ms. Orr said the MMS relies heavily on partnerships and science for information, and has invested more than \$750 million in environmental studies to support its decisions regarding access and development. She provided an overview of the MMS's

Marine Minerals Program which currently focuses on collecting and providing geologic and environmental information, developed through successful partnerships with 14 coastal states to identify and make available sand deposits in federal waters suitable for beach nourishment and wetlands protection projects. To date, over 23 million cubic yards of OCS sand have been used in 16 coastal projects, which have restored more than 90 miles of the nation's coastline and protected critical military installations, national park land, and billions of dollars of infrastructure. She then addressed the loss of wetlands in Louisiana and described MMS restoration projects there, including the Holly Beach Breakwater Enhancement Project, which placed 2.5 million cubic yards of sand on five miles of beach, providing critical protection to a highway and more than 10,000 acres of wetlands behind it. Similar projects are scheduled for Pelican and Whiskey Islands.

**CHRIS RIGBY:** Mr. Rigby shared his perspective as Assistant Director for the Southern Region of the National Fish and Wildlife Foundation. He explained that the Foundation administers \$35 million in public funds every year in three ways: corporate partnerships, fundraising and grants, and court-ordered settlement money. Mr. Rigby then described two of the Foundation's long-term wetlands restoration programs. One is a corporate partnership with Shell Oil Company, Shell Marine Habitat, which is funding restoration projects in the Gulf of Mexico. The other is a multi-agency public partnership, Chesapeake's Small Watershed Grant Program, involving five federal agencies and financing restoration efforts in Chesapeake Bay. Shell Marine Habitat is sustained corporate philanthropy, \$1 million annually over 7 years, funding projects which are considered high priorities by stakeholders and successfully drawing other funding sources to the region. Grants vary from \$10,000 to \$200,000 and are growing. The Chesapeake Small Watershed Grant Program has leveraged \$11 million to \$38 million, over 5 years, and 37,000 acres of habitat. Mr. Rigby said the Foundation has been rigorous in soliciting outside evaluation of these programs to make sure they are effective.

## **CHALLENGES**

- 50% of the U.S. population lives in and around wetlands and nearly 100 million Americans pursue activities in them
- Threats to wetlands create a domino effect in our estuaries and waterways
- There is a great need to find funding partners and fully leverage philanthropy efforts
- Americans tend to 'love their coastlines and ocean to death,' and a commensurate level of commitment will be required to restore them

## **RECOMMENDATIONS**

- Make certain that restoration and regulations take into account how species, ecosystems and human impact are interrelated
- Partnerships among government, NGOs, and private industry must be pursued to effectively restore and preserve wetlands
- Flood prevention should be considered when making decisions about preserving wetlands
- Management of wetlands must be adaptive
- Comprehensive scientific research is vital to making good long term restoration and management decisions



- Non-regulatory Councils are a valuable partner in the restoration process and should be utilized more often
- Include small companies in restoration efforts by accepting in-kind donations
- Coastal land use policies should be better coordinated

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# Feeding the Nation: The Aquaculture Alternative

**Moderator:** Dr. Michael Rubino, Program Manager, *NOAA Aquaculture Program*

**Panelists:** Mr. Randy Cates, Owner, *Cates International, Inc.*

Dr. Delbert M. Gatlin, III, Professor, *Dept. of Wildlife and Fisheries Sciences, Texas A&M*

Dr. Gary Jensen, National Program Leader for Agriculture,  
*U.S. Department of Aquaculture*

Timothy Keeney, Deputy Assistant Secretary for Oceans and Atmosphere,  
*U.S. Department of Commerce*

Dr. Richard Langan, Director, Cinemar, *University of New Hampshire*

Dr. Kevan Main, Director, Center for Aquaculture Research &  
Development, *Mote Marine Lab*

Mr. Mike Sutton, Director, *Center for the Future of the Oceans*

## Panel Overview

Panelists addressed various aspects of the aquaculture movement, from open cage farming to re-circulating technologies for both fish and corals.

**MICHAEL RUBINO:** Dr. Rubino provided a framework for the discussion with a brief review of the recently introduced National Offshore Aquaculture Act, which addresses offshore, near shore, onshore, shellfish, fin fish, commercial aquaculture for food and other products, as well as the use of hatchery technologies for marine stock enhancement that are important for sport fishing, commercial fishing, habitat restoration, and endangered species. He then noted that because wild capture fisheries will not be able to meet the increased demand for seafood products, future supplies will come increasingly from aquaculture. He said the two industries, wild capture fisheries and aquaculture, must work together to meet future needs for a variety of seafood products. Dr. Rubino explained that the NOAA Aquaculture Program is designing a marine aquaculture program that enables aquaculture to happen within the context of safeguarding the environment, producing healthy and safe seafood, and balancing multiple uses. He added that NOAA wants a balanced program that encompasses the wide panoply of species and technologies.

**RANDY CATES:** Mr. Cates shared his perspective as President and Owner of the Hawaii-based Cates International, Inc, which is the first open ocean fish farm in the U.S. and the result of a research project that successfully demonstrated the feasibility of open ocean aquaculture utilizing sub-surface cages. He provided an overview of open ocean fish farming and the challenges that lie ahead for his company and the industry. He said the necessity for fish farming is evidenced by the large percentage of fish that Hawaii and the U.S. must import to meet demand. Mr. Cates said farmed seafood is the natural progression, despite the challenges, and his goal is to make good, healthy seafood affordable for everyone. He opined that without aquaculture, the public will either pay a lot of money for seafood or there will be a continuation of exploitation of fish stocks from other countries. Currently, Cates International has one farm permitted, with up to four cages, and each cage can produce about 150,000 pounds. The company also plans to construct its own hatchery in August. Mr. Cates said his industry faces many challenges, including educating the public, attracting funds, and measuring and handling waste. He then summarized industry's many needs, which include technology improvements (automated feeders, cage cleaners, effective monitoring systems), species development, and attracting support from state and federal governments. Mr. Cates concluded by saying he hoped the National Offshore Aquaculture Act would lead to research and development money.



**DELBERT GATLIN:** Dr. Gatlin shared his perspective as a professor in the Department of Wildlife and Fisheries Sciences and as a member of the Intercollegiate Faculty of Nutrition at Texas A&M University. He spoke about advancements in nutrition and feeding of marine fish to ensure sustainable seafood production. He said among the benefits of aquaculture is the opportunity to provide a consistent supply of superior product in terms of quality and freshness, with efficient use of natural resources. Dr. Gatlin then noted some of the perceived limitations of aquaculture, including the issue of available land and freshwater resources; the concern about the release of eutrophying nutrients; and the concern about the dependence on marine resources, particularly marine fishmeal and fish oil by certain species. He addressed the last two issues from the perspective of nutrition and feeding by giving some examples. He presented figures from 1990-2000 showing a two-thirds reduction in the level of phosphorus excreted by farmed rainbow trout, accomplished by reducing the amount of phosphorus in refined diet formulations to more specifically meet the metabolic needs of the fish. He then discussed research into fish meal alternatives, such as soybean meal and cottonseed meal. Dr. Gatlin also outlined the marine stock enhancement program in Texas, which ultimately restored stocks of red drum and other marine fish by producing them in hatcheries and then releasing them into the wild. The program also has found suitable alternatives for fish meal in diet formulations. He concluded by pointing out that additional advancements in nutrition and feeding will reduce production costs and favorably influence other aspects of aquaculture including limiting nutrient excretion.

**GARY JENSEN:** Dr. Jensen shared his perspective as the National Program Leader for Aquaculture at the U.S. Department of Agriculture and as Executive Secretary of the federal Joint Subcommittee on Aquaculture, an inter-agency coordinating body that offers a formalized structure to improve federal programs and services associated with aquaculture in the U.S. He explained that various national task forces make up the key action component of the Subcommittee. They are co-chaired by two or more federal agencies and each focus on specific areas of emphasis, such as quality assurance, aquaculture effluents, aquatic animal health, and science and technology. Dr. Jensen then briefly highlighted some USDA programs that are making important contributions to advance marine aquaculture. Among them are the Agriculture Research Service (ARS) and the Cooperative State Research Education Extension Service (CSREES). The ARS has one of the fastest growing programs in aquaculture within USDA, with 60 scientists in facilities throughout the U.S who are focusing on aquaculture feeds, genetics, culture systems and more. The CSREES works in partnership with the Land Grant University System and leverages state funds to improve production system efficiency, aquatic animal health management, product safety and quality, environmental management, marketing and more. Dr. Jensen concluded by saying that the role of government is critical in generating new knowledge and enabling policies to fuel the entrepreneurial engine for marine aquaculture development in this country.

**TIMOTHY KEENEY:** Deputy Assistant Secretary Keeney spoke briefly about the National Offshore Aquaculture Act, calling it an excellent first step. He said currently there's no clear mechanism for permitting of aquaculture in marine waters and this regulatory uncertainty is widely acknowledged as the major barrier to development of offshore aquaculture in the U.S. He further explained that the National Offshore Aquaculture Act fulfills the administration's U.S. Ocean Action Plan commitment to propose national offshore aquaculture legislation in 109th Congress. The Act also responds directly to the U.S. Commission on Ocean Policy's recommendations that NOAA develop a comprehensive, environmentally sound permitting and regulatory program for offshore aquaculture. He added that NOAA is committed to helping frame a thorough discussion, based on facts, about offshore aquaculture, which will guide the development of the agency's overall program and the regulatory design process that lies ahead.

**RICHARD LANGAN:** Dr. Langan shared his perspective as Director of CINEMar at the University of New Hampshire, which is a pioneer offshore pilot project focusing on fin fish and shellfish farming. He spoke about the molluscan shellfish culture (clams, oysters, mussels, scallops), including the relationship between shellfish aquaculture and the environment, the characteristics of the U.S. industry, economic impacts and trends, factors limiting industry growth and prospects for the future. Molluscan shellfish feed on naturally recurring particles, primarily microscopic plants, and require no fertilizers, feeds, drugs, or chemicals. Dr. Langan noted the work being conducted at the University of New Hampshire has now made offshore culture of some species possible. He said every coastal state, with the exception of Delaware where it's illegal, has some aspect of aquaculture production. He said the West Coast now has the greatest production, the highest value production and the greatest variety of species that are grown. He also noted the Gulf Coast uses an extensive form of aquaculture to raise oysters. Dr. Langan pointed out that molluscan shellfish farming improves the environment by increasing water clarity, providing valuable habitat, and removing nitrogen from the water. He then profiled the cultured shellfish industry--mainly clams and oysters--in the U.S., which he described as highly diverse and still a small business enterprise. He concluded by saying prospects for the industry are good but it needs more private sector investment, as well as research and development support from the federal government.

**KEVAN MAIN:** Dr. Main shared her perspective as Director of the Center for Aquaculture Research and Development at Mote Marine Laboratory. She outlined sustainable production strategies for the 21st century, including re-circulating systems. She profiled a research and development program at Mote Marine Lab, which focuses on environmentally sound and economically feasible culture technologies. A future goal is to integrate aquaculture with traditional agriculture practices. The facility operates intensive marine and freshwater recirculating production systems in enclosed buildings in a land-based facility. This program is developing the culture technology for sturgeon, a freshwater species chosen because it has high potential for profitability using recirculating technology. The lab is also conducting a commercial shrimp demonstration project to design and test recirculating strategies for zero discharge shrimp production systems. Mote Marine Laboratory is also working with Florida Keys National Marine Sanctuary to develop culture technology for 23 different species of corals. A review of Mote's recirculating aquaculture research was presented, which began in the 1990's. Within freshwater aquaculture production systems, 95% of the water is re-used after it has been cleansed by various recirculating techniques, including biofiltration, solids filtration and sterilization. Recirculating technology can also help in marine aquaculture, by enabling farms to move inland away from the more expensive and sensitive coastal ecosystems. Dr. Main concluded by saying the aquaculture research is rapidly advancing into new directions, including the development of new feeds, species and technologies.

**MIKE SUTTON:** Mr. Sutton shared his perspective as Director of the Center for the Future of the Oceans at Monterey Bay Aquarium. He explained that six of the top ten seafood choices in the U.S. are farmed to one extent or another. Shrimp, by far the largest and most important seafood commodity in the U.S., is 41% farmed, but most of that is imported from overseas. Salmon is in the top 5 at 63% farmed. He said farming has overtaken wild catch of salmon as the main source of supply, and much of that is imported as well, from Chile, Norway, British Columbia, and the UK. Some of the top ten seafood choices are 100% farmed or close, including catfish, an industry that thrives in the South and is regulated by the states because it is farmed inland. Mr. Sutton then described the Seafood Watch Card, a wallet-sized pocket guide to sustainable seafood, which was created by the Seafood Watch Program at Monterey Bay Aquarium. The program has produced regional cards for the Southeast and the Northeast, as well as a National card. The cards list the most and least sustainable seafood choices, and there are good and bad choices with aquaculture, as there are with fisheries. He outlined the challenges with aquaculture, including the

increasing need for fish meal, the release of waste, and the risk of escape. He then reviewed some of the solutions, including re-circulating systems that allow fish to be farmed on land and offshore net pens. Mr. Sutton said the National Offshore Aquaculture Act should have tough legal standards for environmental protection. He suggested the establishment of a U.S. Commission on Aquaculture to consider key ecological and socio-economic concerns before passage of legislation.

## **CHALLENGES**

- Wild capture fisheries will not be able to meet the increasing demand for seafood
- Aquaculture is still a relatively new approach to food production and concerns about environmental impacts and safety issues need to be addressed
- Research and technology development need to occur in order to meet some of the challenges presented by aquaculture, including waste management
- Currently, exploitation of the fish stocks of other nations is occurring in order to meet U.S. demand for affordable seafood
- Aquaculture is increasingly dependent on marine resources such as fish meal and fish oil

## **RECOMMENDATIONS**

- Wild capture fisheries and aquaculture must work together to meet future demand for a variety of affordable seafood
- The U.S. must create clear regulations in order to develop offshore and nearshore aquaculture
- Federal, state and local governments must initiate and support policies to fuel investment interest in aquaculture
- More funding is needed to research advancements in nutrition and feeding to ultimately advance aquaculture
- A U.S. Commission on Aquaculture should be established to set a course for the future of the industry, and should involve all parties, including industry, in its discussions
- Invest in re-circulating systems in order to allow fish to be farmed inland, thereby lessening the pressure on coastal areas

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# Oceans and Human Health: A Prescription for the Future

**Moderator:** **Dr. Paul Sandifer**, Senior Scientist, *NOAA National Center for Coastal Ocean Science*

**Panelists:** **Dr. Dan Baden**, Director, Center for Marine Science, *University of North Carolina Wilmington*

**Ms. Sarah Chasis**, Director, Water and Coastal Programs, *Natural Resources Defense Council*

**Dr. Lora Fleming**, Co-director, *National Science Foundation (NSF) National Institute of Environmental Health Sciences (NIEHS)*, *University of Miami Oceans and Human Health Center*

**Ms. Kathleen Frith**, Communications Director, *Center for Health and the Global Environment*, *Harvard Medical School*

**Mr. Don Perkins**, President, *Gulf of Maine Research Institute*

## Panel Overview

Panelists discussed the many connections between human health and healthy oceans, from seafood safety to marine microbes.

**PAUL SANDIFER:** Dr. Sandifer provided a framework for the discussion by giving an overview of NOAA's Oceans and Human Health Initiative. He said the NOAA strategic plan places emphasis on an ecosystem approach to management and includes human health in that equation. He noted that historically NOAA has focused principally on the impact of humans on the environment. Now, the agency is completing that circle by also putting emphasis on the impact of the environment as modified by humans on human health and well being. He explained that the goal of the NOAA Oceans and Human Health Initiative is to support an ecosystem approach to understanding relationships among humans, the marine environment, and marine organisms, and ultimately how they impact human health. It also serves to promote ecologically sound discovery of pharmaceuticals and other natural products from the marine environment and provides useful information to public health and public resource managers.

**DAN BADEN:** Dr. Baden shared his perspective as Director of the Center for Marine Science at the University of North Carolina, Wilmington. He spoke about the possibilities for human health created by marine research. Dr. Baden began by highlighting how harmful algal bloom toxins interact with living systems and how those activities could be exploited for good uses. He explained that harmful algal create some of the most 'exquisitely toxic' materials known. They are active at such concentrations, that a grain-of-salt size amount of the toxin can cause deleterious effects in humans, and even death, noting some of them are much like chemical warfare agents. Dr. Baden then gave examples of specific toxins and how they are actually useful in biomedical research. For example, the inhaled 'brevetoxins' during red tide incidents may be useful in treating diseases such as cystic fibrosis; cone shell toxins are now being used in clinical trials for pain management; and marine poisons are highly useful to neuroscientists around the world in their studies in the laboratory. He added that researchers are sensitive to the environment and use cultured and synthetic marine organisms whenever possible. Dr. Baden then presented examples of marine toxin studies that are yielding new insights into human health. In all cases, without the synergistic coupling of oceanography and biomedical sciences, the discoveries would have been missed. He said true synergy will press oceans and human health studies forward.

**SARAH CHASIS:** Ms. Chasis shared her perspective as a Senior Attorney and Director of Water and Coastal Programs for the Natural Resources Defense Council (NRDC). She highlighted the NRDC's annual report 'Testing the Waters,' which documents beach closings at ocean, bay, Great Lakes, and some freshwater beaches. In 2004, the report documented

more than 18,000 beach closings and advisories. The overwhelming majority of these, over 16,000, were due to monitoring which showed elevated levels of bacteria indicative of the presence of disease-causing pathogens. The number of beach closings and advisories is on the upswing, partly because of monitoring and stricter health standards. She cited a NOAA study that found two-thirds of U.S. estuaries are already moderately to severely degraded by nutrient pollution and that is expected to get worse over the next 15 years unless action is taken. Nutrient pollution contributes to several problems, including harmful algal blooms, which are on the rise. Ms. Chasis gave an overview of toxic contaminants, citing a recent EPA report that found approximately 74% of the shoreline miles adjacent to U.S. estuaries and coastal areas are under fishery advisories. Many marine fish species have levels of mercury, PCB's, dioxin and other substances that have generated fish advisories about swordfish, tile fish, shark, grouper, and other species. Ms. Chasis closed by highlighting some of the recommendations of the U.S. Commission on Ocean Policy and the Pew Oceans Commission which are supported by the NRDC.

**LORA FLEMING:** Dr. Fleming shared her perspective as Co-director of the National Science Foundation (NSF) National Institute of Environmental Health Sciences (NIEHS) at the University of Miami Oceans and Human Health Center. She explained that scientists are only just now beginning to understand the full cost of harmful algal blooms. She said it's difficult to know for certain because of poor surveillance, but it appears from historical records that the number of marine-related illnesses is increasing, possibly in part because we're interacting more with the oceans and eating more seafood. Dr. Fleming then profiled the annual 'red tide' event in Florida and a research project co-funded by the NIEHS, the CDC, and the Florida Department of Health, as well as other organizations. The research included consistent monitoring of conditions and comprehensive reporting by the surrounding community, the Health Department and a hotline coordinated with the South Florida Poison Information Center. The project included interviews and evaluations of people with asthma and chronic obstructive pulmonary, as well as lifeguards, before and after they go to the beach. She said the study has been a good example of how to blend oceanography and biomedical sciences, and the hope is to expand on that in the next couple of years. She concluded by saying that in terms of human health and the marine and fresh water toxins, there is growing evidence that algal blooms and their toxins can impact both environmental and human health, and there are chronic diseases that are associated with exposure to these toxins.

**KATHLEEN FRITH:** Ms. Frith shared her perspective as Communications Director of the Center for Health and the Global Environment at Harvard Medical School, where she supervises a project entitled "Healthy Oceans, Healthy Humans." She spoke about the Center for Health and Global Environment, which conducts research on a range of global environmental change issues, such as the loss of biodiversity, global climate change, and changes in the ocean environment. The Center presents their information within the context of human health and then educates the public, policy makers and the medical community. Ms. Frith said the Center has developed a number of education tools, including a traveling exhibit for aquariums and learning centers, as well as a series of films and media installments. These outreach tools highlight three themes: 'Oceans Heal,' 'Oceans Nourish,' and 'Oceans Protect.' First and foremost, the goal is to highlight how humans benefit from the oceans and marine life. The 'Oceans Heal' theme describes medical applications derived from marine organisms and the threats to those organisms and their environments, such as coral reefs, which referred to as the 'medicine chest of the sea.' The 'Oceans Nourish' theme explains the role of seafood in our diet and in our economy and the threats to our health and supply. The 'Oceans Protect' theme discusses the role oceans play in our climate and the threat of a warming trend, which then leads into education about global warming and renewable energy.

**DON PERKINS:** Mr. Perkins shared his perspective as President of the Gulf of Maine Institute. He spoke about marine biotechnology from the commercial market and investment perspective. He described the ocean as an ‘extraordinary library that has been very poorly read,’ and said ocean issues might get more attention if people knew of the potential for human health, beyond the commonly known problems, such as pollution and depleted fish stocks. Mr. Perkins spoke first about the diversity of marine species and their habitats, as compared to those on land. He added that marine species have been competing in those habitats for resources and that competition has caused the evolution of chemistries and processes that are hundreds of millions of years old. He explained that marine biotechnology can be quite useful in testing functionality and chemical and toxic responses because marine organisms, though oftentimes simpler than the human body, possess organ systems that are very similar to ours. Marine biotechnology also has applications on the industrial side, through such applications as aquaculture. Among the challenges are the opportunities for private sector funding, the competition for government funding, and the degrading marine environment. Mr. Perkins also said the scientific community must stimulate both public and political thought about the marine environment and engage the public in marine biotechnology.

## **CHALLENGES**

- There is growing evidence that algal blooms and their toxins can impact both environmental and human health, and cause chronic diseases
- Historical records indicate that the number of marine-related illnesses is increasing
- Major challenges for marine biotechnology include the competition for government funding and private sector investment
- Many of ocean fish have levels of mercury, PCB’s, dioxin and other substances that have generated fish advisories
- Two-thirds of U.S. estuaries are already moderately to severely degraded by nutrient pollution and that is expected to get worse
- The number of beach closings and advisories is increasing

## **RECOMMENDATIONS**

- The scientific community must stimulate public and political thought about the marine environment and marine biotechnology
- Ocean education for the public and policymakers should be presented in themes that are compelling
- The oceans’ impact on human health should be emphasized more
- Much interdisciplinary research is needed to investigate the health benefits of marine toxins
- Cultured and synthetic marine organisms should be used for research whenever possible to lessen the impact on the environment
- Interdisciplinary synergy between oceanography and biomedical sciences is needed for some discoveries

- Advanced nutrient removal should be used at sewage treatment plants that contribute to nutrient-impaired waters
- A comprehensive plan should be developed to upgrade aging and inadequate wastewater. The Clean Water State Revolving Fund should be used to fund implementation of such a plan.
- Enforceable management measures should be adopted to control sources of nonpoint pollution and laws should be strengthened to focus on nonpoint sources of pollution on a watershed basis

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# Moving America: Ensuring Safe Marine Transportation

**Moderator:** Mr. Peter Johnson, Marine Engineer, *Chesapeake Bay Foundation*

**Panelists:** Mr. Stan Deno, Operations Director, *International Council of Cruise Lines*  
Mr. Tyler D. Duvall, Acting Assistant Secretary for Transportation Policy,  
*U.S. Department of Transportation*  
Mr. George Galasso, Assistant Manager, *Olympic Coast National  
Marine Sanctuary*  
Mr. Gerry Leape, Marine Program Director, *National Environmental Trust*  
Commander Brian Poskaitis, Chief, Strategic Planning & Analysis,  
*USCG Office of Marine Safety, Security, and Environmental Protection*

## Panel Overview

Panelists discussed measures to increase safe maritime transportation from mapping, to navigation, to increasing security in ports and harbors.

**PETER JOHNSON:** Mr. Johnson provided a framework for the discussion by giving a brief overview of the marine transportation system. He noted that marine transportation may be taken for granted because so much of it is out of sight from the public, but ocean lanes around the industrialized world are filled with ships. In the U.S. alone, every year, approximately 75,000 vessels of all kinds make port calls. He noted there are roughly 70 deep draft sea ports in the U.S. and 40 of them handle 10 million tons of cargo or more per year. In international trade, approximately 1.2 billion tons of cargo per year, valued at \$750 billion, is handled. He said both the number and size of ships coming to the U.S. are increasing, in part because the U.S. is importing more oil. He added that many of the oil tankers are too large to enter U.S. ports, so these larger vessels are offloading their cargo into smaller vessels at sea, which can create problems. He noted that internationally, spills from very large ships and catastrophic oil spills are on the decline. He also noted that the whole tanker fleet is changing from single-hull vessels to double-hull vessels.

**STAN DENO:** Mr. Deno shared his perspective as Operations Director for the International Council of Cruise Lines (ICCL), which supports the legislative, regulatory, and international policy goals of 16 foreign flag passenger cruise lines. ICCL handles approximately 90% of the North American market and about 85% of the worldwide market. In 2004, they carried more than 10 million passengers on 115 vessels. Mr. Deno said boarding passengers experience security screening similar to passengers at airports. The bridge, the engineering spaces, and the other technical and mechanical spaces that are important to the ship are all protected with locks, alarms and/or guards. He added that waterside security is a major issue because that is where the industry considers themselves most vulnerable. He said their passenger vessels are among the safest modes of transportation available. In the past 25-30 years, with over 90 million passengers, ICCL member lines have not had one death of a passenger due to a vessel incident. He also summarized ICCL's commitment to environmental protection, which includes procedures that meet or exceed international and national standards and are regularly audited. In addition, ICCL has partnered with Conservation International to create the Ocean Conservation and Tourism Alliance to develop better waste water practices.

**TYLER D. DUVALL:** Assistant Secretary Duvall shared his perspective as Acting Assistant Secretary for Transportation Policy at the U.S. Department of Transportation (DOT), where he is in charge of surface and marine transportation policies, and as the DOT's lead participant in the development of the U.S. Ocean Action Plan. He agreed that the dramatic increase in container vessels strongly impacts the U.S. transportation infrastructure, with negative impact on our environment, safety, and security. He said DOT representatives lobbied for two of the recommendations in the U.S. Commission on Ocean Policy Report: the creation of an elevated

Cabinet-level committee on the Marine Transportation System and a comprehensive freight action agenda to address congestion and environmental concerns, among other issues. He noted that the congestion of maritime traffic in the port of Long Beach, California is bordering on crisis, and if the U.S. doesn't want similar situations in the future, actions must be taken now with strategies that also keep in mind environmental concerns. Assistant Secretary Duvall then gave a brief overview of the DOT initiative C21, which gave tonnage tax relief to the maritime industry, and Subpart F, which provided tax relief for investors in global shipping operations. He said those two tax changes will help the U.S. shipping industry become more engaged in the global shipping business on several fronts and strengthen its hand on international environmental issues.

**GEORGE GALASSO:** Mr. Galasso shared his perspective as Assistant Manager of Olympic Coast National Marine Sanctuary, where he has been active in regional marine safety planning initiatives. He said sanctuary managers, the U.S. Coast Guard, and the maritime industry must be diligent to ensure safe marine transportation remains compatible with the protection of sanctuary resources. He briefly reviewed the National Marine Sanctuaries Act and two cases in which Congress has given sanctuaries specific guidance related to marine transportation issues. The National Marine Sanctuaries Act authorizes the Secretary of Commerce to designate and manage areas in the marine environment with special national significance. In 1990, Congress established an area to be avoided in the Florida Keys National Marine Sanctuary, restricting vessels of 50 meters or more in length from transiting in close proximity to the sensitive coral reefs of the Sanctuary. In 1992, Congress directed NOAA and the Coast Guard to work together to report to Congress on the necessity for regulating vessel traffic in Monterey Bay National Marine Sanctuary. Mr. Galasso said at Olympic Coast, marine safety studies led to changes in the 'area to be avoided' and traffic lanes. Rules were expanded to apply it to all large commercial vessels. He added that Olympic Coast education and outreach has been highly successful at increasing voluntary compliance, which was 96% in 2004. He concluded by saying that national marine sanctuaries have a demonstrated record of working with industry and the U.S. Coast Guard.

**GERRY LEAPE:** Mr. Leape shared his perspective as Vice President for Marine Conservation at the National Environmental Trust, where he oversees various active campaigns for marine mammals and fisheries management. He spoke about one of the most endangered species in the world, the North Atlantic right whale. Fewer than 350 remain. Mr. Leape explained that human activities account for more than 50% of all known right whale deaths, and those human-caused mortalities are divided equally between entanglements in fishing gear and ship strikes. He said one of the problems is that right whales spend most of their lives within just a few miles of shore, along the heavily industrialized coastlines of North America. It appears they have become so accustomed to the sound of vessel traffic that they do not try to get out of the way. In addition, right whales spend a great deal of time near the surface and are slow swimmers, compared to some other whale species. He said a coalition of environmental, conservation, and animal welfare organizations has petitioned NOAA to issue emergency regulations to protect right whales to the maximum extent practicable. These regulations would encompass many of the recommendations made by both NOAA Fisheries and an advanced notice of public rule making that was published last year. This would include slower ship speeds. He conceded that the issue is contentious, but said if restrictions were applied industry-wide and coast-wide, problems for the shipping industry could be minimized.

**BRIAN POSKAITIS:** Commander Poskaitis shared his perspective as Chief of Strategic Planning and Analysis for the USCG Office of Marine Safety, Security, and Environmental Protection and as a team leader under Homeland Security Presidential Directive 13 (HSPD-13), responsible for contributing to the national policy on issues related to maritime transportation security. He reviewed the Maritime Transportation Security Act (MTSA) of 2004, which he described as 'standards-based' and not overly prescriptive because it works on the

basic premise that vessel operators, facility owners, and port planning committees can assess and address their own security vulnerabilities. He said one of the most important requirements of the MTSA was creation of the Area Maritime Security Committees. He gave an overview of the Coast Guard's MTSA-initiated programs and policies, including the International Port Security Program, which reinforces the comprehensive international Port State Control initiative. Commander Poskaitis also reviewed the Domestic Port Security Program, which he said has undergone impressive activity in the past two years. Domestic port security assessments conducted by teams out of U.S. Coast Guard Headquarters now support the Area Maritime Security Plan. He said communication is also important, which has been helped by the formation of the National Maritime Security Advisory Committee, whose members have been appointed to provide advice on maritime security matters. Commander Poskaitis concluded by saying that effective maritime security program requires tremendous cooperation, information sharing, coordination between government and public and private sectors, and there is much more to accomplish.

## **CHALLENGES**

- Much has been accomplished since 9-11 to increase maritime security, but with increasing coastal populations and vessel traffic, a lot remains to be done
- The number of ships entering U.S. waters is increasing
- Many of the oil tankers are too large to enter U.S. ports, so they are offshore lightering, which can be risky
- The congestion of maritime traffic in the port of Long Beach, California is bordering on crisis and action must be taken now to avoid similar situations in the future
- The endangered North Atlantic right whale is highly vulnerable to vessel collisions because the species is accustomed to vessel traffic and moves too slowly to get out of the way in time

## **RECOMMENDATIONS**

- The U.S. shipping industry must become more engaged in the global shipping industry if America is to have a say in international environmental issues
- The transition from single-hull to double-hull vessels should continue in order to reduce the threat of spills
- Changes in maritime transportation regulations and policies should consider environmental impact before they are initiated to avoid creating bigger problems
- Emergency regulations, including slower ship speeds, should be put into place to protect the endangered North Atlantic right whale
- Sanctuary managers, the U.S. Coast Guard, and the maritime industry must be diligent to ensure safe marine transportation remains compatible with the protection of national marine sanctuary resources

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