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U.S. DEPARTMENT OF COMMERCE**

**HEARING ON  
OUR NATURAL RESOURCES AT RISK: THE SHORT AND LONG TERM IMPACTS  
OF THE DEEPWATER HORIZON OIL SPILL**

**BEFORE THE  
SUBCOMMITTEE ON INSULAR AFFAIRS, OCEANS AND WILDLIFE  
COMMITTEE ON NATURAL RESOURCES  
U.S. HOUSE OF REPRESENTATIVES**

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Thank you, Chairwoman Bordallo and Members of the Subcommittee, for the opportunity to testify on the Department of Commerce's National Oceanic and Atmospheric Administration's (NOAA) role in the response to the Deepwater Horizon oil spill.

My name is David Westerholm and I am the Director of NOAA's Office of Response and Restoration. I appreciate the opportunity to discuss the critical roles NOAA serves during oil spills and the importance of our contributions to protect and restore the natural resources, communities, and economies affected by this tragic event. Before I discuss NOAA's efforts, I would first like to express my condolences to the families of the eleven people who lost their lives in the explosion and sinking of the Deepwater Horizon platform.

NOAA's mission is to understand and predict changes in the Earth's environment and conserve and manage coastal and marine resources to meet our Nation's economic, social, and environmental needs. NOAA is also a natural resource trustee and is one of the federal agencies responsible for protecting, assessing, and restoring the public's coastal natural resources when they are impacted by oil spills, hazardous substance releases, and impacts from vessel groundings on corals and seagrass beds. As such, the entire agency is deeply concerned about the immediate and long-term environmental, economic, and social impacts to the Gulf Coast and the Nation as a whole from the Deepwater Horizon oil spill. NOAA is fully mobilized and working tirelessly to lessen impacts on the Gulf Coast and will continue to do so until the spill is controlled, the oil is cleaned up, the natural resource damages are assessed, and the restoration is complete.

My testimony today will discuss NOAA's role in the Deepwater Horizon response; natural resource damage assessment; short and long-term environmental impacts of this oil spill; and community outreach efforts.

## **NOAA'S ROLES DURING OIL SPILLS**

NOAA has three critical roles mandated by the Oil Pollution Act of 1990 and the National Contingency Plan:

1. During the emergency response, NOAA serves as a conduit for scientific information to the Federal On-Scene Coordinator. NOAA provides trajectory predictions for spilled oil, conducts overflight observations of oil on water, identifies highly valued or sensitive environmental areas, and conducts shoreline surveys to determine clean-up priorities.
2. As a natural resource trustee, NOAA conducts a joint Natural Resource Damage Assessment (NRDA) with co-trustees to assess and restore natural resources injured by the oil spill. NRDA also assesses the lost uses of those resources, such as recreational fishing, canoeing, and swimming, with the goal of implementing restoration projects to address these injuries.
3. Finally, NOAA represents the Department of Commerce in spill response decision-making activities through the National Response Team.

### ***Response***

The U.S. Coast Guard (USCG) is the Federal On-Scene Coordinator and has the primary responsibility for managing coastal oil spill response and clean-up activities in the coastal zone. During an oil spill, NOAA's Scientific Support Coordinators deliver technical and scientific support to the USCG. NOAA's Scientific Support Coordinators are located around the country in USCG Districts, ready to respond around the clock to any emergencies involving the release of oil or hazardous substances into the oceans or atmosphere. Currently, NOAA has all of its Scientific Support Coordinators located throughout the country working on the Deepwater Horizon oil spill.

With over twenty years of experience and using state-of-the-art technology, NOAA continues to serve the Nation by providing its expertise and a suite of products and services critical for making science-based decisions. Examples include trajectory forecasts on the movement and behavior of spilled oil, overflight observations, spot weather forecasts, emergency coastal survey and charting capabilities, aerial and satellite imagery, and real-time coastal ocean observation data. Federal, state, and local entities look to NOAA for assistance, experience, local perspective, and scientific knowledge. NOAA's Office of Response and Restoration (OR&R) was called upon for scientific support 200 times in 2009 for issues related to oil and hazardous substance spills.

### ***Natural Resource Damage Assessment (NRDA)***

Stewardship of the Nation's natural resources is shared among several federal agencies, states, and tribal trustees. NOAA, acting on behalf of the Secretary of Commerce, is the lead federal trustee for many of the Nation's coastal and marine resources, and is authorized by the Oil Pollution Act of 1990 to recover damages on behalf of the public for injuries to trust resources resulting from an oil spill. The Oil Pollution Act encourages compensation in the form of restoration and appropriate compensation is determined through the NRDA process.

NRDA in NOAA is conducted by the Damage Assessment, Remediation and Restoration Program (DARRP). Established in 1990 after the Exxon Valdez oil spill, DARRP is composed of a team of scientists, economists, restoration experts, and attorneys to assess and restore injured resources. Since the enactment of Oil Pollution Act, NOAA, together with other federal, state, and tribal co-trustees have recovered over \$500 million for restoration of natural resources injured by oil, hazardous substances and vessel groundings. NOAA works cooperatively with co-trustee agencies and (in the case of a cooperative assessment of injuries) the responsible party (or parties) to share data and information collected during the spill and during the injury assessment. Working cooperatively with the responsible party and co-trustees can save time and money and can result in restoration being implemented faster and more efficiently.

### ***National Response Team***

The National Oil and Hazardous Substances Pollution Contingency Plan, more commonly called the National Contingency Plan, is the federal government's blueprint for responding to both oil spills and hazardous substance releases. The purpose of the National Contingency Plan is to develop a national response capability and promote overall coordination among the hierarchy of responders and contingency plans. NOAA represents the Department of Commerce on the National Response Team and works closely with regional response teams and local area committees to develop policies on dispersant use, best clean-up practices, and communications, and to ensure access to science-related resources, data, and expertise.

## **NOAA'S RESPONSE EFFORTS**

NOAA's experts and ship and aircraft assets have been assisting with the response to the Deepwater Horizon oil spill from the beginning, providing coordinated scientific services when and where they are needed most.

At 2:24am (central time) on April 21, 2010, NOAA's OR&R was notified by the USCG of an explosion and fire on the Mobile Offshore Drilling Unit Deepwater Horizon, approximately 50 miles southeast of the Mississippi Delta. The explosion occurred at approximately 10:00pm on April 20, 2010. Two hours, seventeen minutes after notification by the USCG, NOAA provided our first spill forecast predictions to the Unified Command in Robert, Louisiana. NOAA's National Weather Service Weather Forecast Office in Slidell, Louisiana, received the first request for weather support information from the USCG at 9:10am on April 21, 2010, via telephone. The first graphical weather forecast was sent at 10:59am to the USCG District Eight Command Center in New Orleans.

Support from NOAA has not stopped since those first requests for information by the USCG. Over the past seven weeks, NOAA has provided scientific support, both on scene and through our headquarters and regional offices. NOAA's support includes daily trajectories of the spilled oil, weather data to support short- and long-range forecasts, and hourly localized 'spot' forecasts to determine the use of weather dependent mitigation techniques such as oil burns and chemical dispersion applications. We develop custom navigation products and updated charts to help keep mariners out of oil areas. NOAA uses satellite imagery and real-time observational data on the tides and currents to predict and verify oil spill location and movement. To ensure the safety of

fishermen and consumer seafood safety, NOAA has closed oil-impacted areas to commercial fishing. NOAA scientists are in the spill area taking water and seafood samples to determine which areas are safe for commercial fishing. NOAA will reopen these areas only if it is assured that fish products within the closed area meet the Food and Drug Administration (FDA) standards for public health and wholesomeness. To that end, NOAA, in conjunction with FDA, is continuing to refine a reopening protocol based on both chemical and sensory analysis of seafood within the closed area. NOAA's marine animal health experts are providing expertise and assistance with stranded sea turtles and marine mammals. NOAA is flying multi-spectral scanning missions over the spill to determine oil density and thickness, and has dedicated ship and aircraft assets to determine the influence of the Gulf of Mexico Loop Current on transporting the oil outside of the Gulf of Mexico. The influence of the Loop Current and the presence of submerged oil plumes are areas of ongoing research that NOAA and its federal and academic partners are investigating.

## **NATURAL RESOURCE IMPACTS FROM THE DEEPWATER HORIZON**

The effects of the Deepwater Horizon oil spill on natural resources are dependent on multiple factors including oil composition, oil quantity, dispersal techniques, and contact with organisms. Offshore oil can impact the upper meter or so of the water column, mixed layer deep water, and the sea floor. When the oil moves onshore, the shoreline, nearshore waters, and coastal habitats may be impacted.

### ***Shorelines and coastal wetlands in the Gulf of Mexico***

Gulf of Mexico coastal areas contain more than half of the coastal wetlands within the contiguous United States (Louisiana alone contains approximately 40 percent of the total). These coastal areas play a vital role in the reproductive cycle of many fish species, serving as important nursery grounds, for example. These coastal areas also serve an important role in the protection of human life and property, by providing a natural buffer to protect coastal communities from coastal storms, for example. The Gulf of Mexico region has been losing coastal land at a very high rate over the last 50 years. The effect of the Deepwater Horizon oil spill and the dispersants used, on coastal wetland loss will be determined by how much oil reaches coastal wetlands, and how long the oil persists. Large amounts of oil resting on vegetated coastal shorelines could cause the vegetation to become stressed and die. This could cause the roots to die, which would weaken marsh soils. Weakened marsh soils would then be at risk of accelerated erosion from waves and storms. The long-term effects to these habitats have yet to be determined.

### ***Fisheries and Fisheries Habitat in the Gulf of Mexico***

Ninety-seven percent (by weight) of the commercial fish and shellfish landings from the Gulf of Mexico are species that depend on estuaries and the adjacent wetlands at some point in their life cycle. Landings from the coastal zone in Louisiana alone make up nearly one-third (by weight) of the fish harvested in the continental United States. In such an incredibly productive area, important habitat covers nearly every part of the ecosystem. Some examples of important habitat include the open water column, floating sargassum mats, deep-sea soft corals, hard coral reefs, rocky hard-bottom substrates, ledges and caves, limestone outcroppings, artificial reefs,

mangroves, sandy bottom, muddy bottom, marshes, submerged aquatic vegetation, bays, lagoons and even the sandy beach, which turtles use for laying eggs. In federal waters, species that use the surface would be most impacted by the early stages of the oil spill. As the crude oil sinks, the bottom-oriented fish community may be impacted. In general, the 42 reef fish species managed by NOAA in the Gulf of Mexico are often found in bottom areas with high relief, such as coral reefs, artificial reefs, and rocky hardbottom surfaces. If the oil slick reaches the bottom or nearshore/inshore areas, a majority of the reef fish species could be affected. Some reef fish spawn in spring, and their eggs and larvae are usually planktonic, carried by currents rather than through their own control. These larvae would not be able to avoid or escape the oil if currents brought them together. Sargassum mats are nursery habitat for some species, including gray triggerfish and amberjacks. Sargassum mats that intersect the oil could affect these species. In state waters, all coastal species could be affected if the oil spill reaches nearshore waters. In addition, shrimp larvae usually spend the early months of their life in inshore waters before migrating toward the ocean. Brown shrimp postlarvae migrate from February to April, and white shrimp begin their migration from May through November. Additionally, during the spring and summer months, several Gulf shark species use coastal habitats as nursery areas. If oil were to reach any of the coastal areas where these species occur, they could also be affected.

### ***Effects of Oil on Marine Mammals and Sea Turtles***

Oil is a mixture of chemicals, each of which may have different effects on marine animals and in combination these chemicals may be even more hazardous. In addition, some of the chemicals and methods used to clean up oil spills may also have effects on marine animals. For example, dispersants are used as a mitigation tool to help prevent greater impacts on the shoreline. Decisions to use dispersants must consider the potential benefits of decreasing the risk of oiling to shoreline habitats that many sensitive species rely upon and the potential increase of the risk of dispersants to organisms in the water column and on the seafloor. The full effects marine species are exposed to depend upon:

- The mixture and types of chemicals that make up the oil or are used to clean up the oil;
- The amount of exposure (dose for internal exposures or time for external exposures);
- The route of exposure (inhaled, ingested, absorbed, or external); and
- The biomedical risk factors of the animal (age, sex, reproductive stage, and health status). For turtles, this will include differing impacts and vulnerabilities at the different life stages such as eggs, post-hatchlings, juveniles, and adults. For cetaceans, this will include neonates, calves, juveniles, and adults.

Cetaceans, manatees, and sea turtles may be exposed to chemicals in oil (or in products used to treat oil spills, such as dispersants) in two ways: internally (by eating or swallowing oil, consuming prey containing oil based chemicals, or inhaling volatile oil-related compounds) and externally (by physically coming into contact with oil or dispersants, when swimming or coming ashore).

Whales, dolphins, manatees, and sea turtles are all air breathers and must come to the surface frequently to take a breath of air. In a large oil spill, these animals may be exposed to volatile chemicals during inhalation. Depending on the size of the spill, marine mammals and sea turtles could be exposed to these chemicals for relatively long periods of time. Research on dolphins in human care has shown that the animals avoid oil on the surface of the water. However,

observations of wild dolphins have documented the animals swimming, feeding, and socializing in oiled water. Several characteristics of sea turtle biology and behavior put them at risk, including the lack of avoidance behavior of oiled waters, indiscriminate feeding behavior, and large pre-dive inhalations. Additionally, sea turtles and their eggs may experience oiling impacts on nesting beaches through chemical exposures resulting in decreased survival to hatching and developmental defects in hatchlings.

## **NOAA'S NATURAL RESOURCE DAMAGE ASSESSMENT EFFORTS**

Oil spills affect our natural resources in a variety of ways. They can directly impact our natural resources, by oiling marine mammals, for instance. They can diminish the ecological services an ecosystem can provide, such as the loss of critical nursery habitat for shrimp, fish, and other wildlife or the loss of floodwater protection resulting from an oil spill. Oil spills may also diminish how we use natural resources by affecting fishing, boating, beach going, and wildlife viewing opportunities.

At the outset of the Deepwater Horizon oil spill, NOAA quickly mobilized staff from its DARRP to begin coordinating with federal and state co-trustees and the responsible parties to collect a variety of data that are critical to help inform the NRDA. Several technical working groups (composed of NOAA, federal and state co-trustees, and representatives from one responsible party (BP)) are gathering existing scientific information and developing and implementing baseline (pre-spill) and post-impact field studies for multiple resource categories. Resources being assessed include fish and shellfish, bottom-dwelling biota, birds, marine mammals, turtles, and sensitive habitats such as wetlands, submerged aquatic vegetation, beaches, mudflats, deep and shallow corals, and the water column, including bottom sediments. The trustees are also collecting and reviewing relevant water column, shoreline, wildlife and other data being collected as part of the response and by other entities.

NOAA research ships and contracted ships have been deployed to collect chemical and biological samples pre- and post-oiling. Additional baseline and injury assessment plans are now being implemented. Existing plans will be updated and others developed going forward to determine what resources are, have been, or could be exposed to oil. The information below provides an update on the cruises and data collections efforts for various sensitive resources and habitats. The data and information being collected will be used to determine how best to restore injured resources and develop the most appropriate restoration projects to compensate the public for associated lost services.

While it is still too early in the process to know what the full scope of the damage assessment associated with the Deepwater Horizon oil spill will be, NOAA and co-trustees are concerned about potential short and long-term impacts to fish, shellfish, marine mammals, sea turtles, birds, and other sensitive resources, including impacts to their habitats, such as wetlands, beaches, bottom sediments, and the water column. These areas may include National Estuarine Research Reserves and National Marine Sanctuaries that may be impacted by the oil spill. The data collected in the Gulf of Mexico and across the five Gulf states (Texas, Louisiana, Alabama, Mississippi, and Florida) will be used to determine what natural resources have been injured and

what human uses have been lost due to the spill. The information provided below outlines NOAA's cruises and data collection efforts for various sensitive resources and habitats.

### ***Water Column***

The purpose of the water column assessment is to document the persistence, fate, and transport of the oil in the water column and the resulting exposure to fish, shrimp, and other aquatic resources to this oil over time. Baseline (pre-oiling) water quality data for the coastal areas of the five Gulf states have been, and continue to be, acquired by the trustees. This includes water samples collected in near shore areas and from long-term monitoring sites from NOAA's Mussel Watch program.

Cruises aboard NOAA vessels, NOAA contracted vessels, and partner research vessels began in late April and have continued to gather data specific to the water column inside and outside of the oil slick. For example, scientists on the *M/V Jack Fitz* (a NOAA contracted vessel) are conducting water column profiling by sampling water at depths up to 800 meters to the surface for the presence of dissolved aromatic hydrocarbons and free oil droplets. During these cruises, water samples were collected to analyze for the presence of oil and whether any oil recovered matched the Deepwater Horizon oil "fingerprint." These and other data will be used to determine the presence of a submerged plume and to calibrate a 3D model of the entire oiled area.

### ***Fisheries (Nearshore & Offshore) and Plankton***

In addition to the historical baseline data on fisheries assemblages in the Gulf of Mexico, cruises are collecting pre- and post-oiling data on fish and plankton resources. An initial cruise on the *R/V Weatherbird II* (a National Science Foundation vessel) in late April collected water and biota data from outside the oiled zone. A second cruise that started on May 4, 2010, collected data on living marine resources at 32 existing Southeast Area Monitoring and Assessment Program (SEAMAP) sites off of the Florida panhandle (as baseline) and 6 stations in the vicinity of the oiled area. In addition to sampling for adult and larval fish and plankton, water samples were collected to characterize oil droplet numbers and size in the vicinity of the plume. Samples were also taken to assess toxicity, stable isotopes, sediments, and bottom-dwelling biota.

The NOAA ship *R/V Gordon Gunter* has conducted a survey of fish larvae in the Gulf, and has also been deployed to use its sonar equipment to map the presence of submerged oil. Water samples will be analyzed to confirm sonar readings. Cutting-edge technology developed by University of South Florida scientists, called the "SIPPER," will be deployed to allow scientists a view of microscopic marine life, such as zooplankton, fish eggs and larvae, as well as miniscule droplets of oil. NOAA has also chartered the *F/V Beau Rivage* to collect samples for seafood safety and analysis.

### ***Oysters and Other Nearshore Benthic Biota and Habitat***

NOAA's Mussel Watch Program quickly mobilized to sample shellfish, water, and sediments at 64 sites in the Gulf of Mexico, ranging from the Brazos River in Texas eastward to the Florida Keys, in order to establish baseline data before the oil hit the shoreline. These samples will be analyzed for 60 oil-related compounds known as polycyclic aromatic hydrocarbons (PAH). Oil from the Deepwater Horizon oil spill has a unique chemical "fingerprint" of constituent PAHs

and other compounds that will allow Mussel Watch researchers to distinguish contamination from this spill from oil coming from other sources. Once the oil hits the shoreline, new samples will be taken and tested.

### ***Shoreline Habitats***

NOAA is currently working with other resource trustees to document what shoreline habitats (e.g., beaches, mudflats, mangroves, wetlands) are, have been, or could be exposed to the oil. Trustees are working to assess pre- and post-oiled shorelines, and will document the spatial extent and degree of oiling on intertidal shoreline habitats. Aerial surveys were conducted, pre-oiling, to provide a base assessment of the shoreline. As the oil contacts the shoreline, aerial imagery will also be used to identify priority response initiatives and vulnerable habitat, to provide up-to-date information on the location of the oil, and to support field work to verify degrees of oiling. This information will be used to produce maps that will detail the extent of shoreline oiling over time. Ground survey teams will build upon these maps to create more detailed shoreline maps that will be used to identify monitoring stations for any subsequent injury-assessment studies.

NOAA has been collecting aerial photographs of our Nation's coast since the early 1900s. Following an incident such as an oil spill or a natural disaster such as a hurricane, these photos provide emergency and coastal managers with information needed to develop recovery strategies, identify hazards, and locate errant vessels.

### ***Other Resource and Habitat Assessment Efforts***

In addition to the work described above, additional assessment efforts are being conducted by the co-trustees to determine what resources are, have been, or could be exposed to oil for the following categories:

- **Submerged Aquatic Vegetation:** A work plan to assess potential impacts to this resource and document potential presence of and exposure to petroleum hydrocarbons and dispersants from discharged and dispersed oil is under development.
- **Birds:** Work plans to assess baseline conditions of pelagic, colonial marsh, and other birds are in place. Bird survey teams continue to survey beaches for birds in Florida, Alabama, and Mississippi. Work plans to assess post-oiling impacts to birds are underway.
- **Marine Mammals and Turtles:** The trustees continue to conduct marine mammal and turtle aerial surveys by fixed-wing planes and helicopter to document exposure, acute effects, and potential changes in behavior or distribution.
- **Deep- and shallow-water corals:** Trustees are compiling existing data and information about the deep- and shallow-water coral communities, as well as any information about their sensitivity to dispersed oil. More formal assessment plans to document pre- and post-oiling conditions are being developed, although data collection has already begun. A major ongoing deepwater coral study funded by Minerals Management Service and NOAA's Office of Ocean Exploration and Research is being utilized for an initial Tier 1 NRDA impact assessment of deep coral and chemosynthetic community habitats. This study includes invaluable pre-spill baseline imagery and active *in situ* experiments.



- **Terrestrial Wildlife:** Appropriate information about terrestrial wildlife communities – for example, deer, rabbits, quail, and turkeys – and information about their sensitivity to oil is being collected, and a more formal assessment protocol is under development.
- **Human Use:** NOAA and co-trustees are collecting existing information about human uses, including cultural uses. Field teams are conducting user intercept surveys from Louisiana to Florida. Overflights are being used to gather beach use information along the Gulf Coast.

### ***Sampling and Data Management***

For all the efforts listed above, NOAA, the co-trustees, and the responsible party have agreed to a data workflow process so that samples collected for analytical chemistry follow the same means of tracking, chain of custody, quality assurance/quality control, and data delivery into a unified database for analysis. NOAA, in coordination with DOI and other federal agencies, is providing geospatial support through the Environmental Response Management Application (ERMA). ERMA is a web-based Geographic Information System tool designed to assist both emergency responders and environmental resource managers who deal with events that may adversely impact the environment. ERMA is serving as a tool for coordinating information across the response teams and providing a common operational picture. Because of the demand for this capability, NOAA will soon release a public version of ERMA. The ERMA website (<http://www.geoplatform.gov/>) allows the public timely access to information cleared by the Unified Command.

### ***NOAA's Commitment to NRDA and Restoration***

Although the concept of assessing injuries may sound relatively straightforward, understanding complex ecosystems, the services these ecosystems provide, and the injuries caused by oil and hazardous substances takes time — often years. The time of year the resource was injured, the type of oil or hazardous substance, the amount and duration of the release, and the nature and extent of clean-up are among the factors that affect how quickly resources are assessed and restoration and recovery occurs. The rigorous scientific studies that are necessary to prove injury to resources and services may also take years to implement and complete. The NRDA process ensures an objective and cost-effective assessment of injuries — and that harm to the public's resources is fully addressed.

## **NOAA'S COMMUNITY OUTREACH EFFORTS**

During a NRDA, there are a number of opportunities where input and guidance from citizens and local and regional environmental groups are needed. Perhaps the most substantive way communities and environmental groups have helped during past damage assessments is by informing the trustees about potential restoration projects that address the injured resources and services. For example, an environmental group has been contracted to implement a restoration project addressing injuries from the 2004 Athos I oil spill in the Delaware River. Additionally, for past damage assessments, trustees have surveyed and held workshops with communities and environmental groups to identify potential restoration projects.

NOAA and co-trustees and responders are already informing citizens about the Deepwater Horizon response effort and the damage assessment through a variety of mechanisms. Although not an exhaustive list, a few examples are highlighted below:

- Representatives from NOAA have participated in multiple public meetings throughout the Gulf region. Two weeks after the oil spill, NOAA met with representatives from nine national environmental groups to inform them about our response and NRDA efforts. NOAA is participating in weekly conference calls organized by the Council on Environmental Quality with these and other local and regional community and environmental groups.
- To support the local communities as they deal with the economic, social, and environmental impacts of the spill, NOAA is working with Gulf of Mexico Sea Grant Programs to host a series of town hall meetings in Louisiana, Mississippi, and Alabama. The meetings are designed to assemble subject-matter experts on the issues of most concern to the public. Within each town hall meeting there will be a series of “open house,” issue-specific workstations (e.g., tax issues for fisherman and others that have lost jobs and income). These town hall meetings will allow the public to receive direct information and ask questions. Similar meetings in Florida and Texas will be conducted in the coming weeks.
- NOAA is assisting with outreach to various academic groups in the Gulf, including the Northern Gulf Institute (a NOAA Cooperative Institute), National Estuarine Research Reserves and Sea Grant to ensure that their capabilities can be effectively used in the oil spill response and recovery effort.
- Gulf State Coastal Management Programs, keystone NOAA partners, are contributing to the response by participating in sampling operations, serving on NRDA assessment working groups, staffing state command posts, and providing assistance to local governments. NOAA is acting as an information clearinghouse on issues such as availability of training, assessment protocols, and general information sharing.
- NOAA is working through its Gulf Coast regional offices, state, local, NGO, and academic partners to provide opportunities to volunteer and participate. For example, NOAA helped organize volunteer beach clean-ups to remove pre-spill debris from state beaches, which eliminates obstacles and improves access, thereby helping to facilitate easier oil shoreline cleanup. In Alabama, ten volunteer beach clean-up events were organized and 125 volunteers picked up 4,000 to 5,000 pounds of debris from Alabama’s beaches.
- To facilitate on-the-ground understanding of the spill, NOAA is awarding grants for rapid response projects to monitor the impacts of the oil spill on Louisiana’s coastal marshes and fishery species through the Sea Grant Program.
- In addition, NOAA’s Gulf Coast Sea Grant Programs are developing a web site to serve as a central database listing ongoing research activities and identify funding opportunities for oil-spill related research, whether conducted by government, academic, or privately-supported scientists. The intent of this website is to provide a single, comprehensive view of research activities in the Gulf that are being undertaken in connection with the Deepwater Horizon oil spill, to foster coordination of these efforts.

## **CONCLUSION**

I would like to assure you that we will not relent in our efforts to protect the livelihoods of Gulf Coast residents and mitigate the environmental impacts of this spill. In the wake of such an event, we are reminded of the fragility of our coastal ecosystems and the dependence of coastal economies on the health and prosperity of our seas. Thank you for allowing me to testify on NOAA's response and damage assessment efforts. I am happy to answer any questions you may have.