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**HEARING ON
ASSESSING NATURAL RESOURCE DAMAGES RESULTING FROM THE BP
DEEPWATER HORIZON DISASTER**

**BEFORE THE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
WATER AND WILDLIFE SUBCOMMITTEE
U.S. SENATE**

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Thank you, Chairman Cardin 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 assessing natural resource damages resulting from the Deepwater Horizon BP oil spill.

My name is Tony Penn, and I am the Deputy Chief of the Assessment and Restoration Division of NOAA's Office of Response and Restoration (OR&R). I appreciate the opportunity to discuss the critical role NOAA serves in the Natural Resource Damage Assessment (NRDA) process following oil spills and the importance of our contributions to protect and restore the natural resources affected by this tragic event.

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, acting on behalf of the Secretary of Commerce, is also a natural resource trustee and is one of the federal agencies responsible for protecting, assessing, and restoring the public's coastal and marine natural resources when they are impacted by oil spills, hazardous substance releases, and, in some cases impacts from vessel groundings on corals and in seagrass beds. For over 20 years, NOAA has assessed and restored coastal, marine, and riverine habitats impacted by oil spills. During this period, NOAA was instrumental in evolving the field of restoration ecology and is one of the Nation's leaders in environmental restoration following an oil spill.

The Deepwater Horizon BP oil spill, the largest accidental oil spill in history, is only the most recent example of the environmental and socioeconomic damage caused by oil spills, and underscores the importance of and the linkage between healthy environments and our socioeconomic wellbeing. As such, the entire Department of Commerce 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 BP oil spill. NOAA and our co-trustees have been working tirelessly to assess the ecological impacts and identify restoration opportunities along the coastal and offshore areas of the Gulf of Mexico, and will continue to do so until restoration from those impacts is complete.

My testimony today will discuss NOAA's involvement in the NRDA process, the status of the NRDA for the Deepwater Horizon BP oil spill, successes and challenges of the Deepwater Horizon NRDA, and the current status of restoration efforts.

NOAA's Natural Resource Damage Assessment Role

NOAA has several critical roles mandated by the Oil Pollution Act (OPA) of 1990 (33 U.S.C. 2701 *et seq.*), one of which is as a natural resource trustee. As a trustee, NOAA, along with our co-trustees, is charged with conducting a NRDA to assess and restore natural resources injured by an oil spill. The NRDA process is a legal process that is resolved through a claim for restoration submitted to the courts. The essence of the process is to determine the type and amount of restoration needed to compensate the public for harm or injury to our collective natural resources that occur as a result of an oil spill. Inherent in this process is the need to assess the injuries to natural resources that are caused by the oil spill itself, as well as those caused by actions carried out as part of the oil spill response. According to NOAA's regulations implementing the OPA, injury is determined relative to baseline, which is "the condition of the natural resources and services that would have existed had the incident not occurred" (15 C.F.R. §990.30). For restoration, OPA requires the trustees to restore, rehabilitate, replace, or acquire the equivalent of the injured natural resources and services (33 U.S.C. 2705, *see also* 15 C.F.R. §990.30) and in doing so seeks a nexus between the types and magnitude of the injury and the restoration.

In assessing the injuries to the suite of ecological services provided by the natural resources, NRDA also assesses the public's lost uses of those resources, such as recreational fishing, recreational boating, hunting, and swimming. The goal is to implement a comprehensive package of restoration projects that compensate the public for all of the ecological and human use loss injuries.

Stewardship of the Nation's natural resources is shared among several federal agencies, states, and tribal trustees that conduct NRDA's. NOAA, acting on behalf of the Secretary of Commerce, is the lead federal trustee for many of the Nation's coastal and marine resources. NDRA regulations explicitly seek participation by both responsible parties and government (15 C.F.R. § 990.14(c)(1)) to facilitate the restoration of natural resources and their services injured or lost by hazardous substance releases and oil spills. OPA also encourages compensation of injured natural resources in the form of restoration, with public involvement in determining the types and magnitudes of the restoration (33 U.S.C. 2706(c)(5)). NOAA and our fellow trustees conduct a NRDA in three main phases:

- **Preassessment** – The trustees evaluate injury and determine whether they have jurisdiction to pursue restoration and if it is appropriate to do so.
- **Restoration planning** – The trustees evaluate and quantify potential injuries and use that information to determine the appropriate type and scale of restoration actions.
- **Restoration implementation** – The trustees and/or the responsible parties implement restoration and monitoring. This may include corrective actions if necessary.

Within NOAA, the Damage Assessment, Remediation, and Restoration Program (DARRP) conducts NRDA. 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 1990, NOAA, together with other federal, state, and tribal co-trustees recovered over \$800 million for restoration of natural resources injured by oil, hazardous substances, and vessel groundings, including the recent early restoration agreement with BP. 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.

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 many diverse factors that affect how quickly resources are assessed and restoration and recovery occurs. OPA requires that the trustees be able to demonstrate connections between the release of the oil, the pathways the oil moves along from the release point to the resources, exposure of the resources to the oil, and finally a causal connection between exposure and resource injury. The litigation context in which NRDA is conducted requires an elevated level of scientific rigor for the studies that are required to demonstrate these connections in order to ensure that our studies are accepted into court as evidence in the case. This level of scientific rigor coupled with the complexity of the ecosystems that are impacted by the spill means that the studies necessary to prove injury to resources and services may also take years to implement and complete. The NRDA process seeks to ensure an objective, scientifically rigorous, and cost-effective assessment of injuries – and that harm to the public's resources is fully addressed.

Current Status of NOAA's Natural Resource Damage Assessment Efforts

At the outset of the Deepwater Horizon BP oil spill, NOAA quickly mobilized staff from DARRP to begin coordinating with federal and state co-trustees and the responsible parties to collect a variety of ephemeral data that are critical to help inform the NRDA. The trustees are currently assessing the injuries to the Gulf of Mexico and soliciting public involvement in various restoration initiatives. On September 29, 2010, the trustees sent BP a Notice of Intent to Conduct Restoration Planning. This indicates that the trustees determined they have the jurisdiction to pursue restoration under OPA and moves the case from Pre-assessment Phase into

the Restoration Planning Phase. In this phase, the trustees formally identify and document impacts to the Gulf's natural resources, and the public's loss of use and enjoyment of these resources in order to determine the appropriate restoration projects to compensate for those losses.

The Deepwater Horizon NRDA focuses on assessing the injuries to all ecosystem resources from the deep ocean to the coastlines of the Gulf of Mexico. Information continues to be collected to assess potential impacts to fish, shellfish, terrestrial and marine mammals, turtles, birds, and other sensitive resources, as well as their habitats, including wetlands, beaches, mudflats, bottom sediments, corals, and the water column. Lost human uses of these resources, such as recreational fishing, hunting, and beach use, are also being assessed. Technical teams consisting of scientists from state and federal agencies, from academic institutions, and from BP have been in the field conducting daily surveys and collecting samples for multiple resources, habitats, and services. To date, several hundred scientists, economists, and restoration specialists have been and continue to be involved in our NRDA activities.

These assessment teams, called technical working groups (TWG) have been established to determine the oil spill's impact on multiple trust resources. The TWGs are responsible for identifying endpoints and developing procedures and methods to measure potential injury to their respective resources in study plans. Currently, there are thirteen TWGs divided into the following categories: water column and sediments, turtles and marine mammals, shorelines, terrestrial species, human use, shallow water corals, oysters, birds, submerged aquatic vegetation, and deep sea benthos. Several support TWGs have also been established to help ensure TWGs have the resources and data that they need. The study plans are selected and designed based upon our experiences from past oil spills and sound science with the main purpose of documenting and quantifying injury to a particular trust resource or service.

There are several steps in the development of a NRDA study plan. First, the TWG members identify an injury assessment approach or methodology for a particular resource. They then design and draft the study plan to address one or more questions related to the release, pathway, exposure, and injury resulting from the release of oil. The study plan is reviewed within the TWG, for scientific and statistical rigor, before the plan is reviewed by Deepwater Horizon case managers. As prescribed under the Oil Pollution Act NRDA regulations, the trustees afford BP the opportunity to review and provide input to the trustees in the development of study plans and many of the plans have been agreed to by representatives of the trustees and BP. Cooperation facilitates the cost effective collection and sharing of data, while allowing all parties to conduct their own analysis and interpretation of that data. It is important to note that at any time the trustees have the authority to withdraw from any cooperative assessment. Current study plans are focused on the causal connections between documented exposure to oil and injury to resources and services.

Once BP or their contractor weigh in, the trustees then decide which, if any, of BP's comments to accept. The plans are then submitted to BP, as one of the responsible parties, to either approve and fund or decide not to fund. When trustees cannot reach agreement with BP, or BP decides not to fund the study, the trustees use their own funding sources (e.g., from the Oil Spill Liability

Trust Fund) to conduct the study. Once the source of funds has been identified, the study plan is sent to contracting for processing if necessary. Studies have been developed over the course of days to weeks, and have not been delayed by the source of funds. It should be noted that even if the agencies fund the study, they still expect to recover those costs as “reasonable costs” of the assessment (33 U.S.C. 2702(b)(2)(A)).

Due to the size of the Deepwater Horizon release and the large potential for injury, NRDA field efforts have far surpassed any other for a single oil release. As of June 9, 2011, the trustees had approved over 115 study plans and collected more than 36,000 water, tissue, sediment, soil, tarball, and oil samples. More than 90 oceanic cruises have been conducted since early May 2010 and many more are scheduled for the summer and fall of 2011. From these sample collection efforts, more than 21,300 laboratory analyses have been completed. Of those, more than 20,400 have been validated through a rigorous quality assurance process. Once these data clear the validation process, they are then made publicly available; a new milestone in NRDA public transparency.

Current Status of Restoration Efforts

The NRDA regulations define three types of restoration: emergency (15 C.F.R. § 990.26), primary (15 C.F.R. § 990.30), and compensatory (15 C.F.R. § 990.30). Emergency restoration is undertaken during the response phase to minimize or prevent (further) injury to natural resources. Primary restoration is any action, including natural recovery that returns injured natural resources and services to baseline. Compensatory restoration is any action taken to compensate for interim losses of natural resources and services that occur from the date of the incident until recovery.

To date, the trustees and BP have agreed to implement several emergency restoration projects designed to curtail further injury to different resources. In particular, the trustees will implement a project to mend scars created in submerged aquatic vegetation (seagrass) beds caused by response equipment, namely boat props, in Florida. Designated areas in Mississippi Wildlife Management Areas have been flooded to attract migratory birds that otherwise may gather in oil impacted areas. One initiative will collect, store, and propagate plants, and replant damaged shorelines along the Gulf Coast to prevent further injury and erosion. Another project will improve the nesting and rearing success of endangered sea turtles on the Padre Island National Seashore.

Early restoration is the implementation of projects prior to the final quantification of injury. It is an emerging tool in NRDA that is not defined in the regulations and thus requires a great deal of discussion and agreement on how it will be implemented. It can fall under the purview of either primary or compensatory restoration.

On April 21, 2011, the trustees announced an agreement, called the Framework Agreement, whereby BP agreed to fund \$1 billion in early restoration projects. Under a separate allocation agreement the Department of the Interior (DOI), NOAA, and each of the five Gulf States (Florida, Alabama, Mississippi, Louisiana, and Texas) will receive \$100 million to implement

projects. The remaining \$300 million will be used for projects selected by NOAA and DOI in coordination with the State trustees. All projects must meet the other requirements of the Framework Agreement, which insure a consistency with OPA, and be approved by the Trustee Council (comprised of all the natural resource co-trustees) and BP. Public input on proposed early restoration projects has already begun and will continue through this summer, and will culminate in a formal opportunity for comment once Phase 1 of the Draft Early Restoration Plan has been completed (some time in the fall).

The benefits provided by these early restoration projects will eventually offset a portion of the Responsible Parties' total liability. Under the Framework Agreement, BP and the trustees must agree to the "offsets" that each project will generate. Each project will have its own stipulation, which will be filed with the court hearing the multi-district litigation on the accident. BP, all trustees, and the Department of Justice will sign each stipulation. This restoration should not compromise or negatively impact the NRDA process. Rather, it provides a rare opportunity for active restoration to begin prior to the full quantification of injury, a process that can often take years.

Next Steps

The immediate next steps for the Deepwater Horizon NRDA are to: 1) continue with the injury assessment; 2) implement early restoration with public input; and 3) continue broader restoration planning also with public input.

The trustees have assessment activities planned throughout 2011 and into 2012. These activities will continue to assess impacts to habitats and resources as warranted. This year of field activity is crucial for discerning sub-lethal and temporal changes in populations or habitats; a key component to any damage assessment.

A draft Programmatic Environmental Impact Statement will be available for public review and comment in early 2012. This document will identify the range of restoration alternatives that the trustees will consider to compensate the public for lost natural resources and services and lost human use. Concurrently, the trustees are focused on engaging the public to identify early restoration projects and begin the implementation process.

Highlights of Success in the NRDA

To meet the requests from academia, non-governmental organizations, and the general public regarding data and ongoing NRDA actions, NOAA and co-trustees have developed data sharing and other outreach practices that have resulted in one of the most transparent damage assessments in history. As noted previously, NRDA is a legal process, designed to resolve liability through restoration for the American public. The legal nature of damage assessment requires a degree of confidentiality to preserve the government's ability to make the strongest damage claim possible on behalf of the public in settlement negotiations and litigation. Nonetheless, the trustees have developed new public information sharing protocols to address the American public's unprecedented request for NRDA information, while at the same time,

preserving the trustees' responsibility to ensure a strong legal case. The Administrative Record can be found online at <http://www.doi.gov/deepwaterhorizon/adminrecord/index.cfm>.

One of the key actions the trustees have taken to ensure enhanced transparency is the public distribution of cooperative assessment work plans and data during the NRDA process. Early in the Deepwater Horizon NRDA process, NOAA developed a NRDA Deepwater Horizon website (<http://www.gulfspillrestoration.noaa.gov>) which has become an effective tool in providing the public with important information. This website currently provides access to over 80 pre-assessment work plans and resulting validated data that are normally kept internal to the trustees until the NRDA has reached a legal settlement. These efforts to make data publicly accessible as soon as possible while ensuring that rigorous scientific protocols are upheld has required substantial coordination efforts.

In addition, NOAA has continued to update its publicly accessible Gulf Environmental Response Management Application (ERMA) website (<http://www.geoplatform.gov/gulfresponse>), a NOAA tool that served critical operational and situational awareness roles during the response and will continue to be a vital tool during the assessment and restoration planning phases of the NRDA. The team that developed and evolved ERMA was recently named a finalist for the Homeland Security Medal for helping crisis managers respond to the Gulf oil spill by providing critical information on the flow of oil, weather conditions, location of response vessels, and the impact on fisheries and wildlife.

Along with providing an unprecedented amount of data during the NRDA, NOAA and the other trustee agencies have sustained efforts to educate and communicate with the public. Since the beginning of the spill, NOAA has conducted numerous roundtable discussions with stakeholder groups and has facilitated stakeholder field trips where NRDA actions were observed and discussed. NOAA has also used multiple social media tools and videos to help disseminate information regarding the NRDA's status and the opportunities for public involvement. As part of the Programmatic Environmental Impact Statement process to solicit restoration project ideas, eleven public meetings were held across the Gulf States and in Washington, DC. More than 500 citizens attended these meetings. The trustees received several hundred comments on restoration alternatives at the meetings, through a website, and via mail. Throughout the rest of the NRDA process, NOAA and our co-trustees envision holding public meetings where input will be formally sought on the damage assessment and restoration planning process.

Conclusion

The task of quantifying the environmental damage from this spill is no small feat. NOAA knows that our efforts are just one of the many pieces required to restore the larger ecosystem within the Gulf. 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 damage assessment efforts. I am happy to answer any questions you may have.

ASSESSING THE IMPACTS OF OIL: FIRST STEPS

Who is assessing the impacts of oil?

Efforts to understand the impacts of oil on ocean life, coastal habitats, and human use began shortly after the spill through the **Natural Resource Damage Assessment (NRDA)** process.

Through NRDA, state and federal partners called "Trustees" are examining oil in the open water, near shorelines, and on land to assess the scope and scale of the damage.

Together the Trustees will determine how much work is necessary to restore the Gulf of Mexico.



OIL IN THE OPEN WATER

Oil in the open water may affect the health of microscopic plants and animals that form the basis of the oceanic food web. The eggs and larvae of shrimp, fish, and other commercially and recreationally important species are at risk, as are adult fish, sea turtles, marine mammals, and ocean-going birds. Far beneath the surface, corals and other deepwater communities also might be affected.

WATER COLUMN AND SEDIMENTS

- Water quality surveys
- Transect surveys to detect submerged oil
- Oil plume modeling
- Sediment sampling

TURTLES AND MARINE MAMMALS

- Aerial surveys
- Tissue sampling
- Acoustic monitoring
- Satellite tagging

FISHERIES

- Plankton surveys
- Invertebrate surveys
- Adult fish surveys
- Larval fish surveys

OIL IN NEARSHORE HABITATS

Sensitive nearshore communities such as oyster beds and shallow-water corals may lie directly in the path of underwater oil and surface mousse riding the waves to shore. When the oil does hit land, it can severely impact coastal habitats including marshes, mudflats, mangrove stands, and sandy beaches. Organisms that use these habitats, such as birds, crabs, turtles, and other aquatic and terrestrial species also are at risk.

SHORELINES

- Aerial surveys
- Ground surveys
- Observations of the quality of habitat
- Measurements of subsurface oil near the shore

TERRESTRIAL AND AQUATIC SPECIES

- Ground surveys
- Observations of the quality of habitat

AQUATIC VEGETATION

- Aerial surveys
- Field surveys in large beds of aquatic vegetation

BIRDS

- Aerial surveys
- Ground surveys
- Nearshore boat surveys
- Offshore boat surveys
- Radio telemetry

SHELLFISH

- Oyster surveys
- Tissue and sediment sampling
- Shrimp collection

CORALS

- Coral surveys
- Tissue collections
- Contaminant surveys

OIL AND HUMAN USE

From fishing and water sports to sunbathing and birdwatching, humans enjoy and recreate on Gulf Coast waters and nearshore environments in many different ways.

HUMAN USE

- Aerial surveys
- Ground surveys

