

# NRDAR: How It Works

Federal and state entities with natural resource trust responsibilities have initiated a Natural Resource Damage Assessment and Restoration (NRDAR) process to assess natural resource injuries caused by the spill and to identify appropriate restoration actions. To guide this process through the preliminary stages, the trustees have formed a Trustee Steering Committee to facilitate cooperation and coordination among the participating state and federal agencies. The committee includes representatives from Texas, Louisiana, Mississippi, Alabama, Florida, the Department of Commerce, and the Department of the Interior. Because they have jurisdiction over natural resources in the area, the Departments of Defense and Agriculture along with affected tribes in the Gulf are also invited to participate in the NRDAR action. A memorandum of understanding establishing the Deepwater Horizon Oil Spill Trustee Council that will ultimately oversee the steering committee and the NRDAR process is under development.

### Technical Working Groups

Thirteen technical working groups have been established by the trustees based on broad resource categories that include natural resources, human use of impacted natural resources, and cultural sites. Each group is developing studies to assess injuries pertaining to its resource area taking into account impacts from the oil spill and response actions. In addition to these studies, the trustees are reviewing and, as appropriate, incorporating the vast amount of monitoring data on the Gulf of Mexico to better understand and assess injuries that may potentially result from the BP oil spill.

### Bird Technical Working Group

The NRDAR trustees are in the review or implementation process for 11 study plans for birds. Some of these efforts, like the beach bird and aerial bird studies, provide data on a wide range of birds. Other studies focus on impacts to particular groups of birds, such as secretive marsh birds and colonial waterbirds, while one study

is devoted to piping plover, a species on the federal list of threatened and endangered species. A twelfth study, focusing on wintering waterfowl, is currently being developed.

### Water Column Technical Working Group

The long-term release of oil and dispersants in the open water of the Gulf has contributed to a complex exposure regime for biological resources (i.e., plankton, fish, invertebrates, turtles, mammals and birds) in the water column. The Water Column Technical Working Group is working to determine the fate and transport of the oil, taking into account the application of dispersants, both on the surface and by subsurface injections. Initial data collection has focused on physical and chemical characteristics of water, oil, dispersant, and possibly other response-related water additives, in both impacted and non-impacted areas. Physical and chemical measurements of temperature, salinity, dissolved oxygen, fluorescence, light, currents, and other conditions are being taken.

### The Trustee Council

Texas, Louisiana, Mississippi, Alabama, Florida, the Department of Commerce, and the Department of the Interior.

### Invited to participate:

Departments of Defense and Agriculture, and Tribal Governments.

### The Steering Committee (NRDA case managers representing each agency)

Texas, Louisiana, Mississippi, Alabama, Florida, the Department of Commerce, and the Department of the Interior.

### The NRDAR Working Groups:

- Bird Technical Working Group
- Water Column Technical Working Group
- Fish Technical Working Group
- Marine Mammals and Sea Turtles Technical Working Group
- Submerged Aquatic Vegetation Technical Working Group
- Coral Technical Working Group
- Shoreline Technical Working Group
- Terrestrial and Freshwater Technical Working Group
- Human Uses Technical Working Group
- Chemistry Technical Working Group
- Cultural Resources Technical Working Group
- Data Management Technical Working Group
- Aerial Imagery Technical Working Group

### Fish Technical Working Group

The Fish Technical Working Group has the responsibility of evaluating injuries to fish, shellfish, and their supporting habitats. Due to the complexity of the Gulf fishery, this group has divided into several subgroups to evaluate injuries to various ecosystem components, such as coastal zone fisheries, deepwater fisheries, shellfish, and bottom-dwelling organisms. In addition to studies to assess broad fishery impacts, the trustees are developing plans to assess injuries to specific species of concern, such as threatened Gulf sturgeon and whale sharks.

### Marine Mammals and Sea Turtles Technical Working Group

The Marine Mammal and Sea Turtles Technical Working Group is implementing plans for conducting aerial surveys of offshore marine mammals and sea turtles and assessing potential injuries to manatees. Plans have been developed for assessing potential injuries to turtles in the water, nesting females, eggs, and hatchlings. These plans focus on the loggerhead and Kemp's Ridley sea turtles and

## Deepwater Horizon Oil Spill Trustee Council

encompass nesting populations along the Gulf coast. In addition to impacts from oil, these plans address potential injuries from spill response activities.

### **Submerged Aquatic Vegetation Technical Working Group**

Submerged aquatic vegetation are rooted vascular plants that, except for some flowering structures, live and grow below the water surface. They include seagrasses growing in the Gulf of Mexico and saline estuaries, as well as brackish and freshwater plant species. These plants provide food and habitat for many aquatic animals, help maintain water quality, and protect shorelines from erosion. Pre-impact samples and data within these vegetation communities are being collected to document pre-oiling conditions, where possible, for the purposes of assessing potential injury.

### **Coral Technical Working Group**

Both shallow and deep-water corals from Texas to Florida may be affected by the spill. This includes the Florida Reef Tract, the most extensive living coral reef system in North American waters and the third largest system in the world, extending approximately 530 km from Martin County, on the Atlantic coast, to the Dry Tortugas, west of Key West, in the Gulf of Mexico. Several coral reef monitoring programs have existed for years and those efforts help form the foundation of our current work to document pre-impact condition of the corals.

### **Shoreline Technical Working Group**

Shoreline assessment provides information on the degree and extent of oiling on intertidal shoreline habitats and vegetation. The primary intertidal shoreline habitats being examined include marsh, dune, beach, man-made structures, mud and tidal flats, debris, rip rap, and forested wetlands. We expect to use this information to develop a statistically rigorous sampling effort to determine the magnitude of injury to natural resources in the intertidal zone. Shoreline assessments have been conducted on much of the Louisiana coast by state and federal trustees, and efforts are now increasing to assess shorelines in Mississippi, Alabama, Florida, and Texas.

### **Terrestrial and Freshwater Technical Working Group**

The Terrestrial and Freshwater Working Group is responsible for assessing potential damage to natural resources above the mean high tide line, including terrestrial and freshwater habitats. Assessments are in development for terrapins, beach mice, otter, mink, alligator, crocodile, and possibly coastal dunes.

### **Human Uses Technical Working Group**

The Human Uses Technical Working Group is responsible for the assessment of potential direct, human-use injuries related to this event, including impacts to outdoor recreation, commercial navigation, travel, and increases in market prices for consumer goods, such as seafood. We are currently implementing three studies – general shoreline use, recreational boating, and shoreline fishing. We are also collecting information on navigation delays from port authorities, seafood markets on prices, fishery closures, public health advisories, and changes in numbers of visitors.

### **Chemistry Technical Working Group**

The Chemistry Technical Working Group has developed a Quality Assurance Plan (QAP) and protocols for sampling and fingerprinting water, stranded oil, and oil in vegetation or on other environmental media for the purpose of documenting the presence and current condition of oil believed to be from the BP/Deepwater Horizon event on shorelines in different habitats in the Mississippi River delta region. The number of samples collected will be commensurate with the extent of oiling and/or conditions at each site. Samples collected by the trustees are being analyzed to determine the general and specific character of the oil in accordance with the QAP and data will be delivered in accordance with the approved data sharing agreement between the trustees and BP.

### **Cultural Resources Technical Working Group**

Most of the trustees' Cultural Resources Working Group efforts have focused on the compilation of information regarding archaeological sites, historic buildings, traditional cultural properties, historic or cultural landscapes, and traditional

resource uses; conducting baseline resource inventories/condition assessments; developing protocols to document and treat different types of historic properties; and establishing a framework for consulting with other Trustees, the State Historic Preservation Offices, and Indian Tribes pursuant to Section 106 of the National Historic Preservation Act.

### **Data Management Technical Working Group**

The Data Management Technical Working Group serves all resource groups by helping collect and securely store data gathered during NRDAR activities. The group also provides data and reports to trustees.

### **Aerial Imagery Technical Working Group**

The trustees are relying on a variety of aerial and satellite imagery to facilitate injury studies for many of the Technical Working Groups. Scientists in the Department of the Interior have taken the lead in evaluating existing imagery, assisting in imagery interpretation, and identifying additional imagery needs.

### **Work Underway**

The trustees are finalizing and implementing the first round of injury studies from data that was collected in the first few weeks of the spill. We are planning for the assessment of future injuries that may result as seasons and species assemblages change. We also are developing additional studies to evaluate broad injuries across the Gulf of Mexico ecosystem.

The collective effort and integration of all technical working groups will provide a comprehensive picture of the nature, extent, and magnitude of natural resource injuries across the Gulf of Mexico ecosystem. This comprehensive assessment will provide the basic information to guide Gulf-wide restoration efforts through the NRDAR process. The trustees plan to utilize existing restoration efforts underway throughout the Gulf to achieve the most expedient and beneficial restoration of the ecologically and economically important Gulf of Mexico ecosystem.

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