**Factors to Evaluate Proposed Restoration Projects under the Oil Pollution Act**

**Delaware River/ *M/T Athos I* Oil Spill**

On November 26, 2004, the 750-foot tanker *M/T Athos I* struck submerged objects in the Delaware River near Philadelphia. The collision created a tear in the vessel's hull that breached a center cargo tank and a portside water ballast tank, spilling about 265,000 gallons of Venezuelan crude oil into the river.

The trustees[1] are assessing the nature and extent of natural resource injuries. Based on initial shoreline and wildlife surveys and analysis of oil, water, sediment, fish, and shellfish tissue samples, the trustees have identified potential impacts to the following natural resources and associated services:

- **Shoreline habitat.** About 220 miles of shoreline were oiled to varying degrees, threatening marsh vegetation and beach resource services.

- **Aquatic resources (including fish and shellfish) and their habitats.** Due to the heavy nature of the oil, benthic habitat and species have had a high risk of exposure. The trustees are also concerned about fish (including juveniles and larvae). The short-nosed sturgeon, a federally endangered species known to use the Delaware River, is of particular concern.

- **Birds/wildlife.** Preliminary estimates are that approximately 166 dead birds were recovered; another 400 birds were rehabilitated and released. Other wildlife, including 6 mammals, 23 fish, and 4 reptiles were found. Because the number of dead birds recovered typically represents only a fraction of the total birds impacted by a spill, the trustees are conducting an assessment to determine the full impact.

- **Recreational uses.** The State of Delaware closed hunting following the spill. The trustees are investigating the impact of this closure, as well as other potential recreational losses, including fishing and boating.

Under the Natural Resource Damage (NRD) Regulations implementing the Oil Pollution Act (OPA), 15 C.F.R. Part 990, the goal is to make the environment and public whole for injuries to natural resources and natural resource services resulting from a discharge of oil. This goal is achieved through the restoration, rehabilitation, replacement, or acquisition of equivalent natural resources and/or services. Restoration is comprised of primary and compensatory restoration activities. Primary restoration activities are designed to restore an injured resource to its baseline condition; that is its condition but for the injury from the oil release. Compensatory restoration focuses on activities that compensate the public for the loss of those resources and their services from the time of

[1] The Natural Resource Trustees are the State of New Jersey, Commonwealth of Pennsylvania, State of Delaware, the National Oceanic and Atmospheric Administration, and the U.S. Fish and Wildlife Service.

injury until such time as the injured resources are fully restored to their baseline condition. Further, these regulations require the trustees to identify a reasonable range of restoration alternatives, evaluate and select the preferred alternative(s), and develop a Draft and Final Restoration Plan.

The OPA regulations identify six "factors" which, at minimum, the trustees should consider when evaluating restoration options.[2] The trustees have supplemented these factors with additional ones to further aid in evaluating restoration. The factors have been divided into primary and secondary categories with the greatest weight assigned to those in the primary category. Each of these factors is discussed below (OPA factors are identified with an asterisk (*)).

**PRIMARY FACTORS**

**1. Return Injured Natural Resources to Baseline and/or Compensate for Interim Losses.* This factor requires that the restoration alternative demonstrate a rational relationship to the injuries giving rise to the claim for natural resource damages.**

The OPA regulations require that the trustees' "goals and objectives" for restoration be considered. To ensure that the injured resources are returned to baseline and that interim losses are properly compensated for, the restoration projects must demonstrate a rational relationship to the injuries giving rise to the claim for natural resource damages. There are three main components to evaluating the relationship: similarity in attributes to the injured habitat; proximity to the affected area; and the projects must be of the appropriate scale. Determining whether a rational relationship exists will depend on the site and case-specific facts.

**a) Similarity in Attributes to the Injured Habitat**

The NRD regulations implementing OPA require that "When identifying the compensatory restoration components of the restoration alternatives, trustees must first consider compensatory restoration actions that provide services of the same type and quantity, and of comparable values as those lost." Restoration options are evaluated to determine how well the restoration alternative would address the injuries to natural resources that occurred as result of the incident. Screening questions include: Does the option provide the same type of natural resources and services, both on site and off-site, that are lost due to the injury? If not, will the proposed option result in resources and services that are similar or complimentary to the injured natural resources and services? Alternatives that come closest to restoring the same type of organisms and habitats as those injured by the incident are more likely to be selected than those projects where the nexus is not so close.

[2] Under the regulations, the trustees are to evaluate restoration alternatives based "at minimum" upon the following: (1) the costs to carry out the alternative; (2) the extent to which each alternative is expected to meet the trustees' goals and objectives in returning the injured natural resources and services to baseline and /or compensating for interim losses; (3) the likelihood of success of each alternative; (4) the extent to which each alternative will prevent future injury or avoid collateral injury as a result of implementation; (5) the extent to which each alternative benefits more than one natural resource or service; and (6) the effect of each alternative on public health and safety. 15 C.F.R. § 990.54(a).

Examples of restoration projects that would provide similar attributes to injured resources would include, but are not limited to: fish passageway construction or oyster bed creation projects to compensate for fish or shellfish injuries (so long as the damage assessment concludes that there is finfish or shellfish injury), marsh enhancement/ restoration to compensate for marsh injury (so long as the damage assessment concludes that there is a marsh injury), habitat enhancement for birds to compensate for bird injury (so long as the damage assessment concludes that there is a bird injury), and fish stocking to compensate for lost human use such as fishing (so long as the damage assessment concludes that there is lost human use associated with the incident).

**b) Proximity to Affected Area**

Proximity addresses whether the restoration alternative is located within the area injured or is within a reasonable distance of the affected area (e.g., same watershed, ecosystem, and/or political boundary). It also considers the extent to which the option directly or indirectly benefits injured habitats or compensates for lost use within the affected area. For example, a habitat restoration project located some distance from the habitat injured may be sufficiently related to the injured resources, based on species migratory patterns, patterns of habitat use, affected life stages, or predator/prey relationships to warrant consideration. Similarly, a project in one location which is intended to restore human uses lost in another location may be reasonably related to the lost uses if there is evidence indicating that the affected user groups would likely benefit from the project. For the *Athos* I oil spill, the affected area may be defined as the region approximately 15-20 miles above Philadelphia downstream approximately 15-20 miles below the Delaware Memorial Bridge. However, projects located in other areas of Delaware River and Bay may also be considered if a relationship to the injured resource can be demonstrated.

**c) Compensatory Restoration Must Be Scalable**

The compensatory restoration projects selected must be scaled in order to compensate for the injury. Accordingly, the gains in resources and/or services provided by the compensatory projects must be equal to the resources and/or services lost as a result of the injury.

**2. Likelihood of Success and Technical Feasibility of Each Alternative***

This factor considers whether a restoration project can be successfully implemented in a reasonable amount of time, given available technology and expertise. Generally, the likelihood of a project's success is evaluated based on whether the methods: (1) are proven; (2) have a high rate of success as documented in the literature; (3) are capable of being implemented in a cost effective manner; and (4) characterize the natural resource service gains stemming from the project. This does not preclude the use of existing technology in new and creative ways so long as there is a significant likelihood of successful implementation. Nevertheless, for new or unproven technologies, the trustees should provide technical justification demonstrating that there is a reasonable basis to believe that the project will be successful. This factor also considers project and site-specific considerations that may influence project success. For example, for an oyster bed project, project attributes that may affect technical feasibility include sediment type, adjacent sources of pollution, salinities, and navigation needs. For a marsh creation

project, project attributes that may affect technical feasibility include the availability of a suitable sediment source, and the potential for wave or storm stress.

**3. Regulatory Considerations***
Restoration projects must comply with applicable federal, state, and local laws and regulations.

**SECONDARY FACTORS**

**4. Cost to Carry Out the Restoration Alternative* (Cost Effectiveness)**
This factor considers the relationship of restoration project costs to natural resource benefits. Favored projects are those that provide the most benefit for the least cost expended. However, the Department of Interior (DOI) in its preamble to the 1991 and 1993 proposed natural resource damage regulations implementing the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) explicitly stated that the relationship of costs to benefits was not to result in a "straight cost/benefit analysis." Rather, DOI directed trustees to examine both the circumstances unique to each assessment and the expected alternative costs.[3] DOI was clear that any discussion of the costs and benefits of a given project had to be considered in light of a number of restoration factors that were contained in the regulations. Factors that may influence project costs include methods and procedures for project implementation, materials, equipment, project design, permitting, oversight, maintenance (including contingency funds), and monitoring.

**5. Consistency with Local, Regional, and National Restoration Goals and Initiatives**
This factor considers the extent to which a restoration project supports or is consistent with national, regional, and local restoration initiatives and mandates, local resource management plans, town ordinances, and the goals of various community groups. Examples of applicable objectives and initiatives for this case might include those developed under regional planning groups such as the Delaware National Estuary Program.

**6. Alternative Prevents Future Injury as a Result of the Incident and Avoids Collateral Injury as a Result of Implementing the Alternative* (Avoids Additional Injury)**
This factor considers the potential for a restoration project to aggravate or cause additional natural resource or habitat injuries.

**7. Alternative Benefits More than One Natural Resource and/or Service* (Multiple Benefits)**
A restoration project that not only restores an injured resource but provides incidental benefits to other resources whether injured or not is generally preferable. For example, the placement of beacons as navigational aids in the Florida Keys to prevent large vessel groundings on coral reefs also had the incidental benefit of preventing injury to seagrass beds. Similarly, salt marsh habitat could be created to compensate not only for injured

[3] 56 Fed. Reg. AR 19,758 (1991)

salt marsh but also through a service linkage, for bird injuries or aquatic injuries as well. However, the trustees must balance this preference for benefiting multiple resources with the statutory goal of restoring the injured resource-giving rise to the claim for natural resource damages.

**8. Longevity of the Restoration Project**

This factor considers the expected lifespan of the project. Projects that are permanent or have long expected lifespans are generally favored over projects with temporary, short-term lifespans/benefits. Where possible, projects involving land acquisition, or other constraints on title (e.g., riparian buffers) should be in perpetuity.[5] Since many types of projects can take several years to reach maturity, longevity is important in order to increase the likelihood of success. Additionally, temporary projects may require termination activities thereby increasing administrative costs. However, projects that are not considered permanent can be acceptable if the trustees determine that the scale of the project is such that it fully compensates for the injuries that gave rise to the claim.

**9. Integration With Existing Management Programs/Duplication or Substitution for other Authorities**

This factor considers if the project can "stand-alone" or could be integrated into an existing resource management program or larger project. Projects that can be integrated may leverage the environmental benefits of the existing program and realize significant administrative cost savings. For example, the channel marking projects referenced in 7. above can be integrated into existing Coast Guard marking programs avoid future injury to resources in a National Marine Sanctuary. Supplemental planting of marsh vegetation on an existing marsh platform which was created as part of another project can provide additional environmental benefits by stabilizing the platform and providing water quality benefits and wildlife habitat. However, although integration with other programmatic efforts may be beneficial, the trustees need to ensure that constraints that may be imposed by those programs do not conflict with the trustees' restoration goals under OPA. For example, mitigation of the effects of dredge and fill activities required as part of the issuance of a permit for filling of wetlands under 404 of the Clean Water Act may not be used to fulfill the separate and independent natural resource restoration requirements under OPA. Property interests should be transferred to a permanent entity capable of continuously enforcing the property interests.

**10. Adjacent or Nearby Affecting Land Uses**

This factor considers the impact of adjacent or nearby land uses on the functional value of the restoration project. Industrial, residential, or agricultural land use may negatively or positively impact the functionality of a project. For example, noise, lights, non-point runoff, and vessel traffic associated with an adjacent industrial site may limit the use of a riparian buffer or wetland habitat by wildlife. Conversely, non-point runoff from an adjacent agricultural site may increase the opportunity for a riparian buffer or wetland project to provide improvements in water quality. Likewise, acquisition of adjacent or nearby land that is pristine or protected (e.g., conservation areas) may provide greater and longer-term benefit for wildlife use.

**11. Site Ownership**
This factor considers whether potential terrestrial or sub-tidal sites (e.g., sites for riparian buffers, oyster leases) are publicly or privately held and for private property, whether landowner permission (easement) has been granted for the project.

**12. Logistical Considerations**
This factor considers issues directly related to project coordination, oversight, and implementation such as site access, availability of equipment and materials, the ability to move crews and equipment, seasonal timing constraints (planting windows, nesting/breeding times), special status species or historical property consultations, and permitting complexity. It also considers whether a proposed project type (e.g., dam removal or riparian buffer creation) is linked to a specific project location. Projects where a specific site has been identified and where the logistical complexity is minimal are favored.

**13. Long Term Operation and Maintenance**.
Where possible, the trustees should choose projects that minimize operation and maintenance (O&M) requirements for several reasons. First, such projects avoid long-term commitment of personnel or fiscal resources. Second, such projects tend provide a more permanent restoration solution. Third, even where the RP agrees to undertake the O&M, the trustees must nevertheless dedicate personnel for oversight and review.

**14. Public Health, Safety, and Welfare***
This factor evaluates the potential for a given restoration project to negatively impact public health, safety, and welfare.