

## **NRDA PROCEDURES AND TERMS**

(Paraphrased from the National Oceanic and Atmospheric Administration  
*Guidance Documents for Natural Resource Damage Assessment Under the  
Oil Pollution Action of 1990*)

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- Incident
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### **INTRODUCTION**

Oil spill incidents have the potential to cause significant environmental injuries to a wide range of natural resources and services. The extent of injuries resulting from an incident depends upon such factors as the circumstances of the incident and the prevailing environmental conditions. Preventing the discharge of oil or a threat of such a discharge is the most logical means of avoiding problems associated with oil spills. However, when oil spill incidents cannot be prevented, measures must be in place to address effects resulting from the incident.

The Oil Pollution Action of 1990 (OPA) was established to provide such measures. OPA highlights the initial response activities needed to contain and clean-up oil and to protect natural resources and services from the imminent effects of oil. In addition, OPA authorizes the use of natural resource damage assessments (NRDA) to address residual injuries resulting from the incident.

A major goal of NRDA is to make the environment and public whole for injury to or loss of natural resources and services as a result of a discharge or substantial threat of a discharge of oil (referred to as an "incident"). This goal is achieved through returning injured natural resources and services to the condition they would have been in if the incident had not occurred (otherwise referred to as "baseline" conditions), and compensating for interim losses from the date of the incident until recovery of such natural resources and services through the restoration, rehabilitation, replacement, or acquisition of equivalent natural resources and/or services.

In 1996, NOAA issued regulations and guidance documents, which provide an approach that public officials (natural resource trustees) may use when conducting NRDA. These NRDA regulations and guidelines describe a process by which trustees may:

- Identify injuries to natural resources and services resulting from an incident;

- Provide for the return of injured natural resources and services to baseline conditions and compensation for interim lost services; and
- Encourage and facilitate public involvement in the restoration process.

The guidance documents cover:

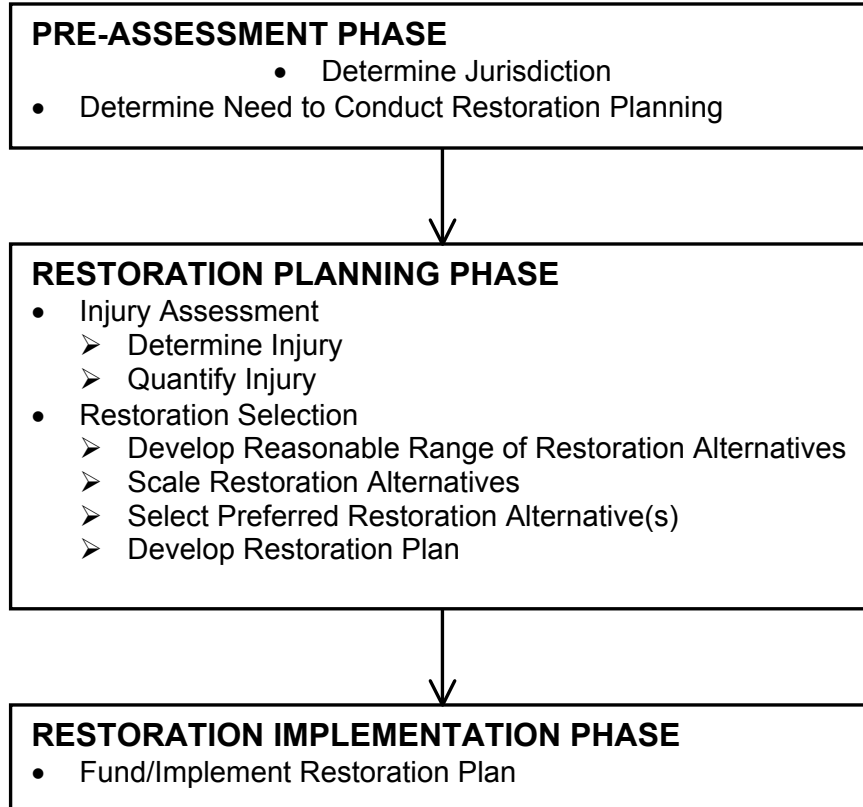
- *Pre-assessment Phase* -- activities providing guidance in determining whether to pursue restoration under OPA;
- *Injury Assessment* – activities providing guidance on identifying and evaluating natural resource and service injuries, based upon pre-assessment information and the need to restore natural resources and compensate for interim lost services;
- *Compensation Formulas* – activities providing guidance in developing simplified formulas for coastal and marine environments based on the NRDA Model for Coastal and Marine Environments;
- *Primary Restoration* -- activities providing a review of the state-of-the-art for restoration of habitats and biological natural resources and an evaluation of potential restoration actions following injury to natural resources; and
- *Restoration Planning* -- activities providing guidance on developing restoration plans under OPA that comply with the National Environmental Policy Act (NEPA).

These guidance documents are available through the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161; phone: (703) 487-4650. For further information on these guidance documents, please contact: NOAA, Damage Assessment Center, Attn: Eli Reinharz, Ecologist, 1305 East-West Highway, SSMC #4, Room #10218, Silver Spring, MD 20910-3281, 301-713-3038 ext. 193 (phone), 301-713-4387 (fax), [ereinharz@spur.nos.noaa.gov](mailto:ereinharz@spur.nos.noaa.gov) (e-mail).

## THE NRDA PROCESS

The NRDA process includes three phases outlined below: Pre-assessment; Restoration Planning; and Restoration Implementation (Figure 1).

Figure 1. NRDA process under OPA regulations



### Pre-assessment Phase

The purpose of the Pre-assessment Phase is to determine if trustees have the jurisdiction to pursue restoration under OPA, and, if so, whether it is appropriate to do so. This preliminary phase begins when the trustees are notified of the incident by response agencies or other persons.

Once notified of an incident, trustees must first determine the threshold criteria that provide their authority to initiate the NRDA process, such as applicability of OPA and potential for injury to natural resources under their trusteeship. Based on early available information, trustees make a preliminary determination whether natural resources or services have been injured. Through coordination with response agencies, trustees next determine whether response actions will eliminate the threat of ongoing injury. If injuries are expected to continue, and feasible restoration alternatives exist to address such injuries, trustees may proceed with the NRDA process.

### Restoration Planning Phase

The purpose of the Restoration Planning Phase is to evaluate potential injuries to natural resources and services and use that information to determine the need for and scale of restoration actions. The Restoration Planning Phase provides the link between injury and restoration. The Restoration Planning Phase has two basic components: injury assessment and restoration selection.

### Injury Assessment

The goal of injury assessment is to determine the nature, degree, and extent of any injuries to natural resources and services. This information is necessary to provide a technical basis for evaluating the need for, type of, and scale of restoration actions. Under the OPA regulations, injury is defined as an observable or measurable adverse change in a natural resource or impairment of a natural resource service:

- Trustees determine whether there is Exposure, a pathway, and an adverse change to a natural resource or service as a result of an actual discharge; or an injury to a natural resource or impairment of a natural resource service as a result of response actions or a substantial threat of a discharge.
- To proceed with restoration planning, trustees also quantify the degree, and spatial and temporal extent of injuries. Injuries are quantified by comparing the condition of the injured natural resources or services to baseline, as necessary.

### Restoration Selection

- *Develop a Reasonable Range of Restoration Alternatives*

Once injury assessment is complete or nearly complete, trustees develop a plan for restoring the injured natural resources and services. Under the OPA regulations, trustees must identify a reasonable range of restoration alternatives, evaluate and select the preferred alternative(s), and develop a Draft and Final Restoration Plan. Acceptable restoration actions include any of the actions authorized under OPA (restoration, rehabilitation, replacement, or acquisition of the equivalent) or some combination of those actions

Restoration actions under the OPA regulations are either primary or compensatory. Primary restoration is action taken to return injured natural resources and services to baseline, including natural recovery. Compensatory restoration is action taken to compensate for the interim losses of natural resources and/or services pending recovery. Each restoration alternative considered will contain primary and/or compensatory restoration actions that address one or more specific injuries associated with the incident. The type and scale of compensatory restoration may depend on the nature of the primary restoration action, and the level and rate of recovery of the injured natural resources and/or services given the primary restoration action.

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 quality and of comparable value as those lost. If compensatory actions of the same type and quality and comparable value cannot provide a reasonable range of alternatives, trustees then consider other compensatory restoration actions that will provide services of at least comparable type and quality as those lost.

➤ *Scale Restoration Alternatives*

To ensure that a restoration action appropriately addresses the injuries resulting from an incident, trustees must determine what scale of restoration is required to return injured natural resources to baseline levels and compensate for interim losses. The approaches that may be used to determine the appropriate scale of a restoration action are the resource-to-resource (or service-to-service approach) and the valuation approach. Under the resource-to-resource or service-to-service approach to scaling, trustees determine the appropriate quantity of replacement natural resources and/or services to compensate for the amount of injured natural resources or services.

Where trustees must consider actions that provide natural resources and/or services that are of a different type, quality, or value than the injured natural resources and/or services, or where resource-to-resource (or service-to-service) scaling is inappropriate, trustees may use the valuation approach to scaling, in which the value of services to be returned is compared to the value of services lost. Responsible parties (RPs) are liable for the cost of implementing the restoration action that would generate the equivalent value, not for the calculated interim loss in value. An exception to this principle occurs when valuation of the lost services is practicable, but valuation of the replacement natural resources and/or services cannot be performed within a reasonable time frame or at a reasonable cost. In this case, trustees may estimate the dollar value of the lost services and select the scale of the restoration action that has the cost equivalent to the lost value.

➤ *Select Preferred Restoration Alternative(s)*

The identified restoration alternatives are evaluated based on a number of factors that include:

- Cost to carry out the alternative;
- 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;
- Likelihood of success of each alternative;
- Extent to which each alternative will prevent future injury as a result of the incident, and avoid collateral injury as a result of implementing the alternative;
- Extent to which each alternative benefits more than one natural resource and/or service; and
- Effect of each alternative on public health and safety.

Trustees must select the most cost-effective of two or more equally preferable alternatives.

➤ *Developing a Restoration Plan*

A draft restoration plan will be made available for review and comment by the public, including, where possible, appropriate members of the scientific community. The draft restoration plan will describe the trustees' pre-assessment activities, as well as injury assessment activities and results, evaluate restoration alternatives, and identify the preferred restoration alternative(s). After reviewing public comments on the draft restoration plan, trustees develop a final restoration plan. The final restoration plan will

become the basis of a claim for damages.

### **Restoration Implementation Phase**

The final restoration plan is presented to the RPs to implement or fund the trustees' costs of implementing the plan, therefore providing the opportunity for settlement of the damage claim without litigation. Should the RPs decide to decline to settle the claim, OPA authorizes trustees to bring a civil action for damages in federal court or to seek an appropriation from the Oil Spill Liability Trust Fund for such damages.

## **BASIC TERMS AND DEFINITIONS**

Legal and regulatory language often differ from conventional usage. This section defines and describes a number of important terms. (See OPA regulations at § 990.30.)

### Baseline

"Baseline" means the condition of the natural resources and services that would have existed had the incident not occurred. Baseline data may be estimated using historical data, reference data, control data, or data on incremental changes (e.g., number of dead animals), alone or in combination, as appropriate.

Although injury quantification requires comparison to a baseline condition, site-specific baseline information that accounts for natural variability and confounding factors prior to the incident may not be required. In many cases, injuries can be quantified in terms of incremental changes resulting from the incident, rather than in terms of absolute changes relative to a known baseline. In this context, site-specific baseline information is not necessary to quantify injury. For example, counts of oiled bird carcasses can be used as a basis for quantifying incremental bird mortality resulting from an incident, thereby providing the basis for planning restoration.

The OPA regulations do not distinguish between baseline, historical, reference, or control data in terms of value and utility in determining the degree and spatial and temporal extent of injuries. These forms of data may serve as a basis of a determination of the conditions of the natural resources and services in the absence of the incident.

Types of information that may be useful in evaluating baseline include:

- Information collected on a regular basis and for a period of time before and after the incident;
- Information identifying historical patterns or trends on the area of the incident and injured natural resources and services;
- Information from areas unaffected by the incident, that are judged sufficiently similar to the area of the incident with respect to the parameter being measured; or
- Information from the area of the incident after particular natural resources or services has been judged to recover.

### Exposure

"Exposure" means direct or indirect contact with the discharged oil. Exposure is broadly defined to include not only direct physical exposure to oil, but also indirect exposure (e.g., injury to an organism as a result of disruption of its food web). However, documenting exposure is a prerequisite to determining injury only in the event of an actual discharge of oil. The term "exposure" does not apply to response-related injuries

and injuries resulting from a substantial threat of a discharge of oil.

#### Incident

“Incident” means any occurrence or series of occurrences having the same origin, involving one or more vessels, facilities, or any combination thereof, resulting in the discharge or substantial threat of discharge of oil into or upon navigable waters or adjoining shorelines.

When a discharge of oil occurs, natural resources and/or services may be injured by the actual discharge of oil, or response activities related to the discharge. When there is a substantial threat of a discharge of oil, natural resources and/or services may also be injured by the threat or response actions related to the threat.

#### Injury

“Injury” means an observable or measurable adverse change in a natural resource or impairment of a natural resource service. Injury may occur directly or indirectly to a natural resource and/or service.

Natural resource trustees are authorized by OPA to assess damages for “injury to, destruction of, loss of, or loss of use of” natural resources. The definition of injury incorporates these terms. The definition also includes the injuries resulting from the actual discharge of oil, a substantial threat of a discharge of oil, and/or related response actions.

Injury can include adverse changes in the chemical or physical quality, or viability of a natural resource (i.e., direct, indirect, delayed, or sub-lethal effects). Potential categories of injuries include adverse changes in:

- Survival, growth, and reproduction;
- Health, physiology and biological condition;
- Behavior;
- Community composition;
- Ecological processes and functions;
- Physical and chemical habitat quality or structure; and
- Services to the public.

Although injury is often thought of in terms of adverse changes in biota, the definition of injury under the OPA regulations is broader. Injuries to non-living natural resources (e.g., oiled sand on a recreational beach), as well as injuries to natural resource services (e.g., lost use associated with a fisheries closure to prevent harvest of tainted fish, even though the fish themselves may not be injured) may be considered.

#### Natural Resources and Services

“Natural resources” means land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the United States.

Natural resources provide various services to other natural resources and to humans, and loss of services is included in the definition of injury under the OPA regulations.

“Services” (or “natural resource services”) means the functions performed by a natural resource for the benefit of another natural resource and/or the public.

Natural resource services may be classified as follows:

- Ecological services -- the physical, chemical, or biological functions that one natural resource provides for another. Examples include provision of food, protection from predation, and nesting habitat, among others; and

- Human services -- the human uses of natural resources or functions of natural resources that provide value to the public. Examples include fishing, hunting, nature photography, and education, among others.

In considering both natural resources and services, trustees are addressing the physical and biological environment, and the relationship of people with that environment.

### Oil

“Oil” means oil of any kind or in any form, including, but not limited to: petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil. However, the term does not include petroleum (including crude oil or any fraction thereof) that is specifically listed or designated as a hazardous substance.

Under the OPA regulations, the definition of oil includes petroleum, as well as non-petroleum oils (i.e., fats and oils from animal and vegetable sources). However, in assessing injury resulting from non-petroleum oils, trustees should consider the differences in the physical, chemical, biological, and other properties, and in the environmental effects of such oils on the natural resources of concern.

### Pathway

“Pathway” is the medium, mechanism, or route by which the incident has resulted in an injury. The term includes any link that connects the incident to a natural resource and/or service, and is associated with an actual discharge of oil. Pathways may include movement/exposure through the water surface, water column, sediments, soil, groundwater, air, or biota.

Pathway determination may include, but is not limited to, an evaluation of the sequence of events by which the discharged oil was transported from the incident and either:

- Came into direct physical contact with the exposed natural resource (e.g., oil from an incident transported directly to shellfish by ocean currents, wind, and wave action); or
- Caused an indirect injury to a natural resource and/or service (e.g., oil from an incident transported by ocean currents, wind, and wave action that causes reduced populations of bait fish, which in turn results in starvation of a fish-eating bird; or, oil transported from an incident by currents, wind, and wave action that causes the closure of a fishery to prevent potentially tainted fish from being marketed).

Pathway determination does not require that injured natural resources and/or services be directly exposed to oil. In the example provided above, fish-eating birds are injured as a result of decreases in food availability. However, if an injury is caused by direct exposure to oil, the pathway linking the incident to the injury should be determined.

As with exposure, establishing a pathway is a prerequisite to determining injury, except for response-related injuries and injuries resulting from a substantial threat of a discharge of oil.