



# Natural Resource Damage Assessment and Restoration – an Overview

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# What is Ecological Restoration?



- **Ecological restoration - assisting the recovery of degraded ecosystems.**
- **Initiates or accelerates an ecological pathway or trajectory towards a reference state**
- **Goal - Ecosystems resilient and self-sustaining with respect to structure, species composition and function.**

Gann and Lamb 2006,  
<http://www.ser.org/content/Globalrationale.asp>

# What is Natural Resource Damage Assessment?



- **Restore natural resources injured by an oil spill or release of a hazardous substance.**
- **Damage assessments provide the basis for determining restoration needs that address the public's loss and use of these resources.**

# How is the NRDAR Program Authorized?



**CERCLA**

**Clean Water Act**

**Oil Pollution Act**

**Hazardous Substances  
(DOI rule)**

**Discharges of Oil  
(NOAA rule)**



# Elements of Authorizing Legislation



**Trustees may seek recovery from responsible parties for restoration of injured resources.**



## **Elements of NRDAR Recoveries:**

- **Cost of restoring injured natural resources**
- **Diminished or lost use of resource services**
- **Damage assessment costs**

# Who Are the Natural Resource Trustees?



## ❖ Federal Resource & Land Management Agencies

- Department of the Interior
- Department of Commerce
- Department of Agriculture
- Department of Defense
- Department of Energy

## ❖ Federally Recognized Tribes

- ❖ State Governments – Governor's delegate state agencies or local entities to act as trustees

# Major Concepts of the NRDAR Process



- **Restoration of injured resources is the primary objective.**
- **Coordination with co-trustees is fundamental to success.**
- **The public and responsible parties are involved in the NRDAR process.**
- **Compensatory – not a punitive process.**
- **No double recovery for the same resource.**

# Major Concepts of the NRDAR Process



**The NRDAR process involves scientific, legal, and economic support.**

- **The science must support the economic and the legal claim.**
- **The legal case must be developed in conjunction with the economics and the science.**



# General Steps in the NRDAR Process



- **Assessment:**
  - Injury Determination**
  - Injury Quantification**
- **Damage Calculation**
- **Restoration Options**
- **Settlement or Litigation**
- **Restoration Implementation**
- **Restoration Monitoring**



# What Are Natural Resource Injuries?



**Air**

**Water**

**Soil and Sediment**

**Biota**



# What Are Biological Natural Resource Injuries?



## Injuries to Fish and Wildlife



- ❖ Death
- ❖ Disease
- ❖ Cancer
- ❖ Genetic Mutations
- ❖ Physical Deformities
- ❖ Behavioral Abnormalities





# What Is Restoration?



**Returning resources to the condition they would have experienced if the hazardous exposure had never occurred.**

**Locating an alternative site that provides suitable replacement for the lost resource.**

# Restoration Accomplishments



**Habitat acquisition and restoration on Federal, State, Tribal, and private lands**

**Re-introduction of endangered species and restoration of endangered species habitat**

**Migratory Bird nesting site restorations**

**Fish passage and fishery restoration**



# Restoration Example



## Lavaca Bay, Texas

**700 + acres of wetland and coastal prairie restored and transferred to Aransas National Wildlife Refuge**

**Habitat for endangered whooping crane, migratory waterfowl, shorebirds, fish and invertebrates**





# Restoration Example



## New Carissa Spill, Oregon

3,850 acres of uplands - nesting habitat for threatened marbled murrelet

30 acres of coastal dunes - nesting habitat for threatened snowy plover

400 acres of salt marsh on Brandon Marsh NWR

Planned acquisition of lands for seabird colonies at Oregon Islands NWR



# Restoration Involves Everyone



# Today's Two NRDAR Sessions

- **8 coordinated presentations**
  - Overview
  - Economic tools in NRDAR
  - Nexus to Injury
  - Restoration Monitoring
  - Restoring Cultural Resources
  - Climate Change and Restoration
  - Case Study - An Industry Perspective
  - Looking to the Future



# Natural Resource Damage Assessment and Restoration Program – [restoration.doi.gov](http://restoration.doi.gov)

