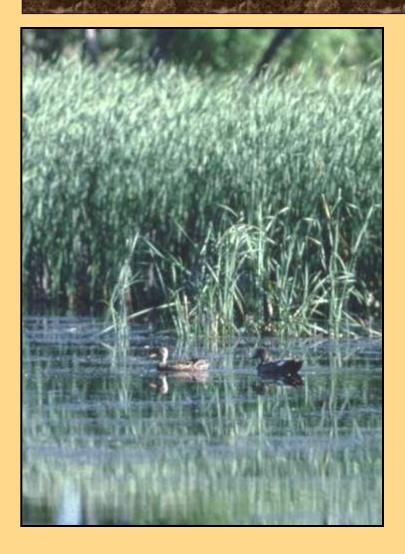
#### Natural Resource Damage Assessment and Restoration – an Overview

Steve Glomb and Susan Kenned DOI Office of Restoration and

**Damage** A

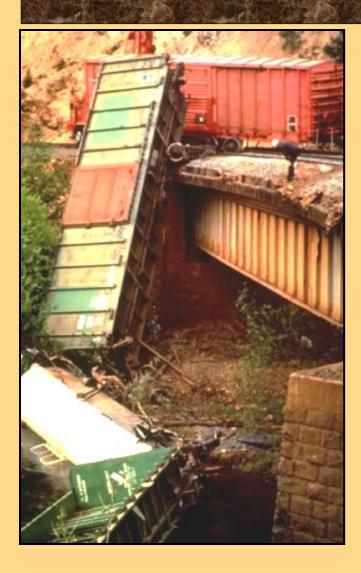
## What is Ecological Restoration?



- 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**

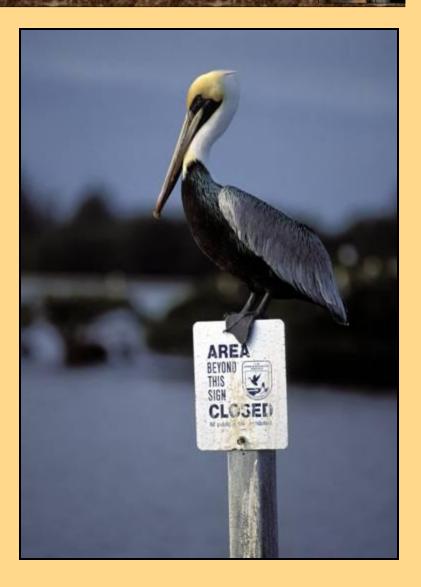
The NRDAR process involves scientific, legal, and economic support.

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?

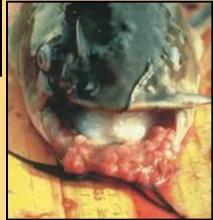
## **Injuries to Fish and Wildlife**



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*





