

NATURAL RESOURCE DAMAGE ASSESSMENT (NRDA) PRIMER

for

*“NRDA in Arctic Waters:
The Dialogue Begins”*

Presented by
Gordon Robilliard, Ph.D.
ENTRIX, Inc.

Anchorage, Alaska
April 20-22, 2010

What is NRDA?

- Natural Resource Damage Assessment
- A process to:
 - Determine & quantify the injury (~impact) to natural resources & resulting service losses
 - Scale injuries and interim “lost use”
 - Scale appropriate & cost-effective restorations
 - Determine damages (\$\$\$) to implement
- Ultimate goal -- “restore, rehabilitate, replace or acquire equivalent resources and services”
- Key – restoration services must equal lost services

Legal Basis for NRD Claims

- Federal
 - Oil Pollution Act 1990 (OPA)
 - Clean Water Act
 - CERCLA (for contaminated sites)
- State
 - NRD-specific (e.g., WA, TX, CA, FL, NJ, LA)
 - Fish and Game Codes
 - Common Law Causes of Action

Key NRDA Concepts

- Natural resources provide services to people (e.g. recreational fishing) and other resources (e.g. prey)
- Trustee agencies hold natural resources in trust & manage them for the public (i.e., you and me)
- Spills and releases may injure (~impact) natural resources & reduce services
- “PRPs” obligated to pay **Natural Resource Damages** for:
 - Restoration of injured natural resources and lost services
 - Trustees’ reasonable assessment costs
- NRD is not a fine or penalty, or part of response costs

Natural Resources Defined

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, any state or local government or Indian [or Alaska Native] Tribe, or any foreign government,...

OPA 33 U.S.C. 2701, Sec. 990.30

Typical Natural Resources – Arctic Alaska

- Subsistence areas (species and habitats)
- Whales and their migration and feeding areas
- Marine mammal rookeries and calving areas
- Rare, threatened, endangered or protected species
- Bird breeding, nesting, molting and concentration areas
- Archaeological and cultural sites
- National Parks and Historic sites
- Wildlife refuges or reserves and similar areas
- Species of recreational/commercial value (e.g., salmon, ciscoes, crabs)
- Recreational areas (e.g., fishing and hunting)

Other Key Definitions

- **Services** - functions performed by a natural resource that benefit other resources and/or public
- **Injury (~impact)** - measurable adverse change or impairment of natural resource or service
- **Interim Losses** - reduction in services from beginning of injury until services recover to baseline
- **Damages** - cost of primary restoration + compensatory restoration + Trustees' reasonable assessment costs
- **Baseline** - condition of resources "*but for*" the release; includes natural and human impacts
- **Reference** – site or conditions not impacted by release but with similar biological, physical, chemical and/or human uses (& usually in the same area)
- **Trustees (in Arctic)** – NOAA, DOI (USFWS), ADFG, ADEC, ADFG, ADL, Alaska Natives

Services – Some Arctic Examples

- Ecological
 - Prey and feeding areas
 - Breeding/nesting/spawning/denning areas
 - Resting/molting areas
 - Shelter
- Human (Active)
 - Subsistence hunting and fishing
 - Cultural areas and activities
 - Recreation

Baseline Conditions

- Status of natural resources and services “but for” the spill or release impacts
- Injury ends when natural resources recover to baseline conditions
- Sufficient “on-site” baseline data may not be available prior to or during the spill or release
- Often based on data from reference areas
- May include: chemicals in sediments; “health” of individuals or populations; biological abundance, diversity, distribution, behavior; etc.
- **Fundamental to an NRDA & this Workshop**

Reference Area

- Areas with associated habitats, species, and human uses that are not exposed to spill or release
- Ideally, reference areas will be
 - “Identical” or very similar to injured area in biological, physical, and chemical conditions and/or human uses
 - Located nearby
- Used to measure present baseline conditions and as a reference for natural or people-assisted recovery of resources and services
- A fall back if baseline data are insufficient
- *aka control area*

NRDA Phases (OPA)

- Pre-spill Planning
 - NOAA included in preamble to regulations
 - This workshop is an example
- Pre-assessment and Injury Determination
- Restoration Planning
 - Injury Assessment and Quantification
 - Restoration Scaling and Selection
- Restoration Implementation

Pre-assessment and Injury Determination Phase

- Trustees decide whether to pursue NRDA
- Injury Determination (*Is there a problem?*)
 - Which trust resources been exposed to oil?
 - Are they probably injured?
 - Can service losses be measured?
- Do feasible restoration options exist?
- May include limited data collection
- Initiate during or soon after initiation of response actions (cleanup is not restoration)

Restoration Planning Phase

- Link between determination of injury & restoration
- Type and magnitude of injuries and service losses determines need for and scale of restoration
- 2 major components:
 - Injury Assessment (=quantification)
 - Restoration Selection and Implementation

Injury Assessment Step

- *“How big is the problem?” “How bad is it?”*
- Quantify type, magnitude, extent & duration of injury
- Quantify impacts of response actions
- Conduct essential studies; collect samples
- Compare post-incident conditions to baseline (or reference) conditions; (note: Post-incident recovered conditions may not be the same as pre-incident conditions, especially over extended time period)
- Scale resource and service losses

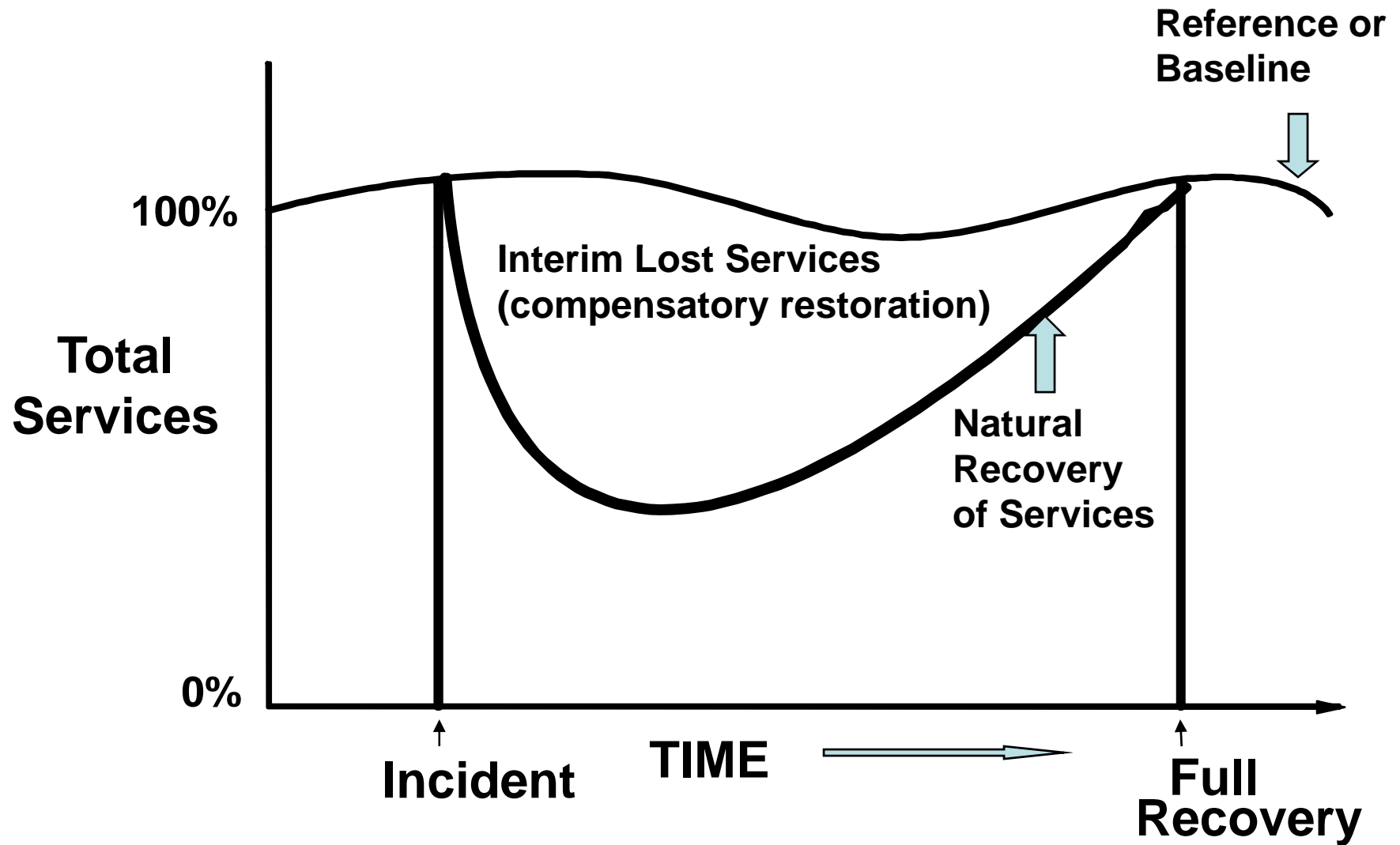
Restoration Selection & Implementation Step

- Plan for restoring natural resources & services
- Identify reasonable range of restoration options
- Scale service benefits of restoration option(s) against service losses due to injury
- Public review process
- Determine damages and settle with PRP(s)
- Implement restoration

Restoration

- **Primary Restoration**
 - Restoration of directly-impacted resources to baseline
 - Usually occurs through natural recovery processes, esp. in oil spills
 - In-kind, in-place usually
- **Compensatory Restoration**
 - Compensates for the interim lost services from initial spill or release until recovery to baseline
 - Usually requires direct human intervention
 - May be in-kind, in-place; in-kind, out-of-place; or out-of-kind, out-of-place.
- **Topic of a future workshop**

Compensatory Restoration





The End

Restoration Nexus to Service Loss

- Trustees must develop a reasonable range of restoration options and identify preferred alternative based on:
 - Cost
 - Extent to which alternative returns injured resources to baseline or compensates for lost services
 - Likelihood of success
 - Prevention of future or collateral injury
 - Multiple resource benefits
 - Effect on public health and safety
- Additional criteria
 - Cost effectiveness
 - Geographic connection
 - Partnerships
 - Compliance with laws and policies