

Natural Resource Damage Assessment: Early Restoration

Kaylene Ritter, PhD
Stratus Consulting

November 17, 2010

Presentation Outline

- Background on NRDA
- Restoration
- Early restoration

NRDA and Restoration

NRDA: What Is It?

- Process of determining the adverse effects to natural resources resulting from the release of hazardous substances or oil, for the purpose of performing restoration

- Goal: “Restore, rehabilitate, replace, and/or acquire the equivalent of the injured resources”

Restoration

- Primary Restoration
  - Return the injured resource to its baseline condition
  - Over and above remedial actions
- Compensatory Restoration
  - Replace or acquire the equivalent
  - Address interim losses (past and future, until resources return to baseline or replace/acquire the equivalent)

Restoration Steps

- Establish restoration criteria
- Develop project ideas
- Evaluate projects against criteria
- Incorporate stakeholder and public input

Restoration Steps (cont.)

- Quantify benefits
- Scale gains to losses
- Implement projects
- Monitor

Restoration Criteria

Elements of “Good” Restoration Projects:

- Have a clear ecological or geographical nexus to the injured resource(s)
- Provide quantifiable benefits to resources
- Have a high likelihood of success
- Are cost-effective and technically feasible
- Are not already funded
- Are acceptable to the public

Quantifying Benefits to Resources

- Specify what resources will benefit
- Specify how the resources will benefit
  - What are the current conditions of the resources?
  - How will the project improve the condition of the resources?
  - How will the resources deteriorate if the project is not implemented?

Restoration Scaling

Service-to-service
Resource-to-resource

- Habitat equivalency analysis
- Resource equivalency analysis

Value-to-value
Value-to-cost

- Travel cost
- Benefits transfer
- Contingent valuation
- Hedonic price models

Example Restoration Projects

Habitat Restoration

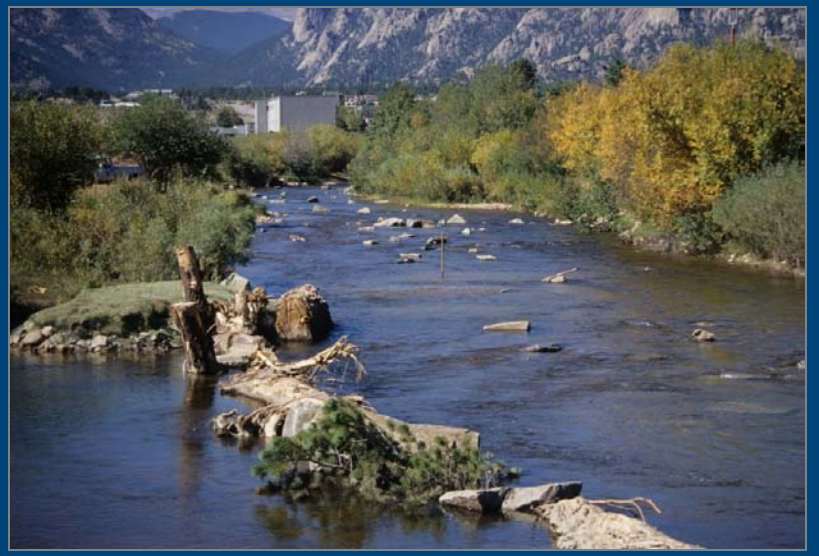
- Improve wildlife habitat
  - Revegetate to reduce surface runoff/soil erosion
  - Restore native species
  - Remove invasive species
  - Remove tiles, drainage ditches to restore wetlands
  - Improve in-stream habitat

Habitat Acquisition

- Preserve wildlife habitat
  - Purchase lands that provide good habitat and are threatened by development
    - Likelihood
      - The more likely the threat, the greater the benefit to natural resources
    - Timing
      - The sooner the threat is likely to happen, the greater the benefit to natural resources

Surface Water Restoration

- Protect surface water quality and quantity
  - Reduce non-point source pollution
- Enhance existing surface water resources
  - Restore natural hydrologic functions (e.g. Dam removal)



Groundwater Restoration

- Improve groundwater quality
  - Treat abandoned groundwater plume
  - Remove contaminant source
  - Reduce contaminant infiltration

Approaches, Advantages, and Challenges to Early Restoration

Approaches to Early Restoration

- Conduct injury determination and restoration planning in parallel (rather than sequentially)
- Consistent with regs (DOI and OPA)
  - Assessment Phase (DOI)
  - Restoration Planning Phase (OPA)

Approaches to Early Restoration (cont.)

- Cooperative Assessment
  - Can identify potential opportunities and evaluate them early in the process
  - Possible early progress, cooperative success
  - No commitment required

Approaches to Early Restoration (cont.)

- Habitat Equivalency Analysis (HEA)
  - Make simplifying assumptions
  - Assume reasonable worst-case scenarios
  - Easier if injuries and damages are relatively small

Advantages to Early Restoration

- Goal of NRDA is to restore injured resources in order to make the public whole
- Early restoration provides greater benefits (greater “credit”)

Advantages to Early Restoration (cont.)

- Coordination with response actions
  - Maximize efficiency, minimize costs
- May facilitate implementation of time-sensitive projects
- Provides a “road test” for cooperative assessments

Challenges to Early Restoration

- RPs typically seek (and deserve) credit for early restoration
- May be difficult to agree on amount and approach prior to completing the NRDA
  - How to quantify benefits and scale prior to determining injuries?
- May be challenging if multiple RPs

Challenges to Early Restoration (cont.)

- May be challenging Trustees to prioritize projects prior to knowing full scope of
  - Injuries (type and spatial, temporal extent)
  - Remedial actions (benefits and timing)

- May be challenging for multi-agency Trustee groups to agree on early restoration priorities

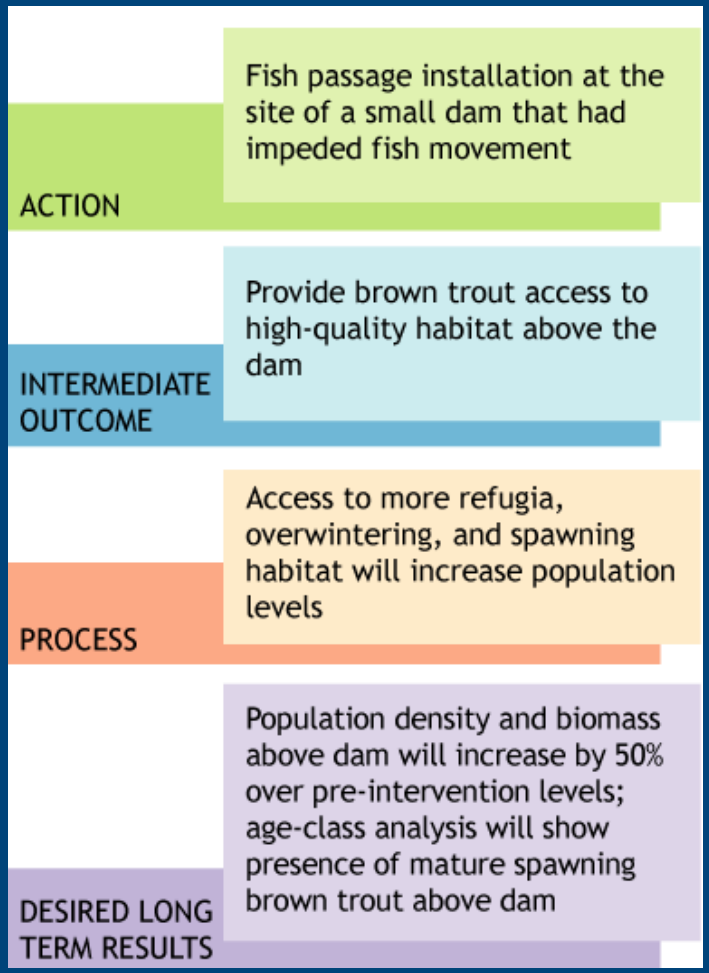
Early Restoration: Summary

- There are advantages and challenges to early restoration
- May not be feasible in all cases
- Provides the possibility for early progress and success, without commitment requirements

The End

- Extra Slides

Quantifying Benefits to Resources



- Consider logical chain that links action to the desired long-term benefits for the resource

Trout Habitat Restoration

NRDA: What Is It (cont.)?

- NRDA restoration complements, but is distinct from, cleanup (response) actions
- Environmental response
  - Remove/contain contamination
  - Protect human health and the environment
- Environmental restoration
  - Restore natural resources to baseline and compensate for losses over time

NRDA Administrative Process