

### St Lawrence Environment Natural Resource Damage Assessment

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# What is Natural Resource Damage Assessment?

- Regulatory authority: CERCLA, Oil Pollution Act, Clean Water Act
- A process to determine
  - Injuries and service losses
  - Appropriate amount & type of restoration needed
- Goal is to "make public whole" following release of hazardous substances & oil
- "Trustees" act on behalf of public
- NRDA success:
  - Measured by amount of appropriate restoration achieved

#### NRDAR Trustees

State Governors

- Tribes/Indian Nations
- Secretaries of Federal Agencies (Agriculture, Commerce, Interior, Energy, Defense)

# St. Lawrence NRDAR Trustees

- NYS Department of Environmental Conservation
- St Regis Mohawk Tribe
- U.S. Dept Interior
- U.S. Dept Commerce



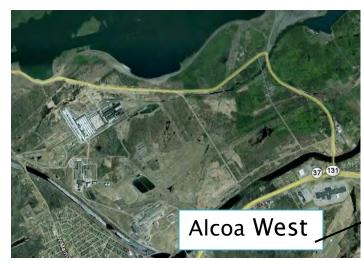


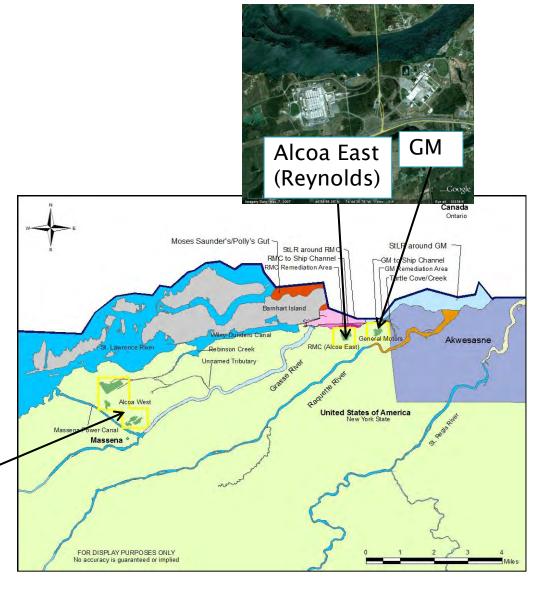




#### St. Lawrence NRDAR Assessment Area







#### St. Lawrence NRDAR Case Background

- Responsible parties:
  - ALCOA (Reynolds)
  - General Motors
- Trustees:
  - St. Regis Mohawk Tribe
  - Department of the Interior (US Fish and Wildlife Service)
  - National Oceanic and Atmospheric Administration
  - New York State Department of Environmental Conservation
- Multiple Contaminants: PCBs, PAHs, Fluoride, metals
- One of first cooperative NRDAR cases
- One of first cultural assessments



#### Cooperative NRDAR

- Companies fund Trustee injury and compensation determination
- Parallel remedial efforts
- Enhances exchange of information and expertise
- Goal is to reduce interim losses, achieve settlements and restoration sooner than through litigation
- Challenges: trust, agreement, agree to disagree



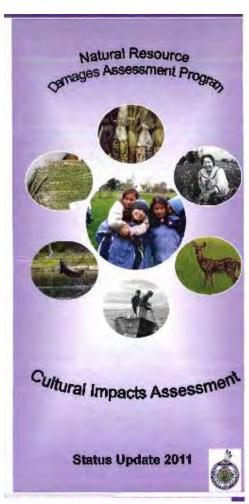
### Three-Pronged Approach to Damage Assessment

- Ecological Injury/Losses
  - Injury to natural resources
- Human Use Recreational Fishing Losses
  - Lost fishing opportunities
- Cultural Injury
  - Injury to natural resources that affects significant cultural uses of those resources

#### **Restoration Planning**

 Press release and letters sent to potentially interested individuals, agencies, organizations in 2006

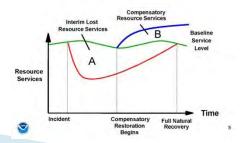
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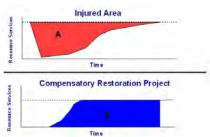


St. Regis Mohawk
Tribe: Community
Advisory
Committee, Oral
History Project,
surveys, radio
announcements,
Cultural Impacts
DVD

#### **Ecological Injury**

- Quantified injury to birds, fish and benthic organisms for PCBs, benthic organisms for PAHs and mammals for fluoride using Habitat Equivalency Analysis (HEA)
  - additional qualitative injury associated with other contaminants
  - toxicity thresholds from the literature
- Calculated interim (past and future) injury from contaminants
- Final output for HEA is acre-years of habitat loss
- Restoration projects have nexus to injury
  - selected to provide similar acre-years of habitat gain





#### Challenges to Assessing Ecological Injury

- Geographical scope
- Contaminants of concern
- Receptors
- Background
- Effects thresholds
- Service losses over time and space

## Types of Ecological Restoration Projects Under Consideration

- Wetland Enhancement/Restoration
- Fishery Enhancement/Restoration
- Benthic Restoration
- Streambank Enhancement/Restoration
- Upland Enhancement/Restoration
- Avian Enhancement/Restoration
- Amphibian and Reptile Enhancement/Restoration
- Submerged Aquatic Vegetation Restoration
- Beluga Conservation Measures
- Fisheries Assessment and Management Plan
- Land Acquisition

### **Ecological Restoration Project Examples**



Coles Creek Blandings Turtle Habitat Acquisition and Restoration



Dickerson Island/Murphy Islands Predator Control, Revegetation

#### **Ecological Restoration Project Examples**



Fish Passage - Hogansburg & Madrid Dams/Little Sucker Brook

Habitat Acquisition - Snye Marsh (RAMSAR) and Wilson Hill

#### Ecological Restoration Project Examples



Habitat restoration and stocking of lake sturgeon, Atlantic salmon, northern pike



Native warm season grassland restoration



Riparian buffers

#### **Human Use Recreational Losses**

- Fish consumption advisories for PCBs exist for the Grasse River, and St. Lawrence River
- Used data from "RTI/TER St. Lawrence Area Outdoor Recreation Survey, 1991"
- Random Utility Model used to estimate loss to recreational fishing
  - calculated "lost" fishing trips between 1981 and 2030
- Restoration projects sought to replace lost recreational opportunities: shoreline fishing and boat access



# Challenges to Assessing Recreational Fishing Injury

- Source data was planned and gathered without Trustee input.
- Double-counting potential with Cultural Methodology necessitated removal of any Tribal responses from the data (subsistence vs. recreation)
- Random Utility Models are less transparent than HEAs challenging for most of the group
- Output in trips; damages also expressed in dollars.

#### Recreational Projects Considered

Boar Canoe Shore thoughade New

Mid-Raquette River Boat Launch	<b>✓</b>	<b>✓</b>	<b>✓</b>	<b>✓</b>	<b>✓</b>	
Lower Grasse River Boat Launch	<b>✓</b>	<b>✓</b>	<b>✓</b>	<b>✓</b>		
Lower Raquette River Canoe Launch		<b>✓</b>	<b>✓</b>	<b>✓</b>		<b>✓</b>
Upper Grasse River Boat Launch	<b>✓</b>	<b>✓</b>	<b>✓</b>	<b>✓</b>	<b>✓</b>	
Middle Grasse River Boat Launch	<b>✓</b>	<b>✓</b>	<b>✓</b>	<b>✓</b>		<b>✓</b>

#### Recreational Fishing Projects Considered



Mid-Raquette River Launch



Lower Raquette River Launch



Upper Grasse River Launch

### **Cultural Injury**



- Impact on uses of natural resources for cultural purposes
- Community driven approach
- Interviews with elders and others to understand sense of cultural loss and identify compensatory restoration projects
- Professional Anthropologist -Cultural Restoration Plan

### Challenges to Assessing Cultural Injury

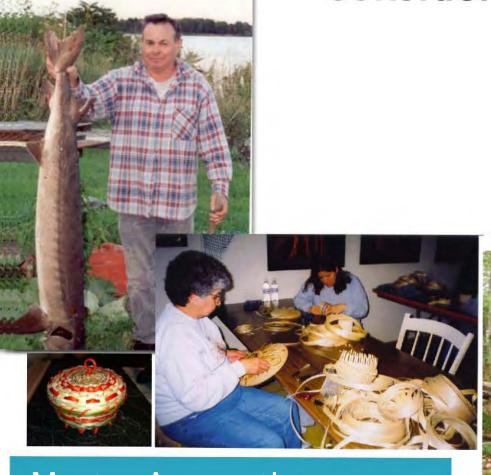
- Culture as practice
- Different world views of all parties
- Isolate the effects of contamination from other influences on culture
- Community-based research approach \*control of research given to Tribe\*

Ultimate Goal: Restore ecosystems to full function (ecosystems include the people)

#### **Cultural Services Restoration Goals**

- Seek to promote the restoration of land-based cultural practices and traditional economic activities within the community and preservation of the Mohawk language
- Four areas of traditional cultural practice
  - Water, fishing, use of the river
  - Medicine plants and healing
  - Hunting and trapping
  - Horticulture, farming, basket-making

# Cultural Restoration Projects Under Consideration



Master Apprentice Program

Youth Programs

### Cultural Restoration Projects Under Consideration





Promote traditional use of natural resources

#### Status of NRDA and Next Steps

- 2011 Settlement of GM NRD claim
- Future resolution of remainder of NRD claim
- Release of Restoration Determination and Compensation Plan (RCDP) for public comment
- Restoration Planning, Implementation and Monitoring

### Summary

- Fifteen year process
- Evaluate and quantify effects of contaminants on natural resources and the services they provide
- Develop restoration projects to compensate for impacts to natural resources/services
- Positive relationship with responsible parties
- For more info:
  - http://www.srmtenv.org/index.php?spec=nrda\_main\_
  - http://www.fws.gov/northeast/nyfo/ec/nrda.htm
  - http://www.darrp.noaa.gov/northeast/lawrence/index.html
  - http://www.dec.ny.gov