
PORTLAND HARBOR
Natural Resource Trustee Council



Phase 2 Assessment Meeting
February 16, 2010

Agenda

- Overview of Phased Process
- Phase 2 Highlights
- Phase 2 Assessment
- Potential Navigation Claim
- Restoration Overview
- Settlement Process
- Budget
- Next Steps

Phased Approach Portland Harbor

Phase 1: Develop Assessment Plan, three early studies

Phase 2: Cooperative assessment through settlement-oriented work plan

Phase 3: Formal assessment to perfect trustee legal claims

Phase 4: Settlement/litigation

Recap of Phase 1

- 20 Participating Parties
- Assessment Plan released for public comment on December 7, 2009
 - response to comment will be included as appendix to final plan
- Three early studies
 - Salmon
 - Lamprey
 - Osprey

Phase 2 Overview

- Phase 2 focus on the Willamette River and Multnomah Channel only;
- Trustees will use a combination of Habitat Equivalency Analysis and Benefits Transfer; employ reasonable, conservative assumptions and "off ramp" for studies if the participating parties (PPs) do not agree to stated assumptions;
- Key resources : juvenile salmon, lamprey ammocoetes, sturgeon, sediment, benthos, piscivorous birds (osprey/bald eagle), piscivorous mammals (otter/mink), other fish with advisories and recreational value;

Phase 2 Overview

- Phase 1 lamprey study will be completed;
- In-depth data compilation and review for Multnomah Channel: develop reasonable conservative assumptions regarding habitat injuries based on review (with "off-ramp" for additional data collection if PPs do not agree to assumptions);
- Trustee Council expects to enter into settlements with PPs at or around the time of the ROD to resolve NRD liability

Timeline to Begin Phase 2

- Statement of intent to participate from PRPs by April 16
- Negotiate Funding and Participation Agreements and finalize by June 15
- Phase 2 Kick-off: early July

Phase 2 Outline

- Overview of Phase 2
- Baseline
- Recreation
- Tribal resources

Overview: Site Background

Phase 2 Assessment Area

- Where hazardous substances released to the PH Superfund site have come to be located
- Phase 2 will focus on the remedial investigation/feasibility study (RI/FS) study area and immediate surrounding areas (including Multnomah Channel) and will not include the Columbia River



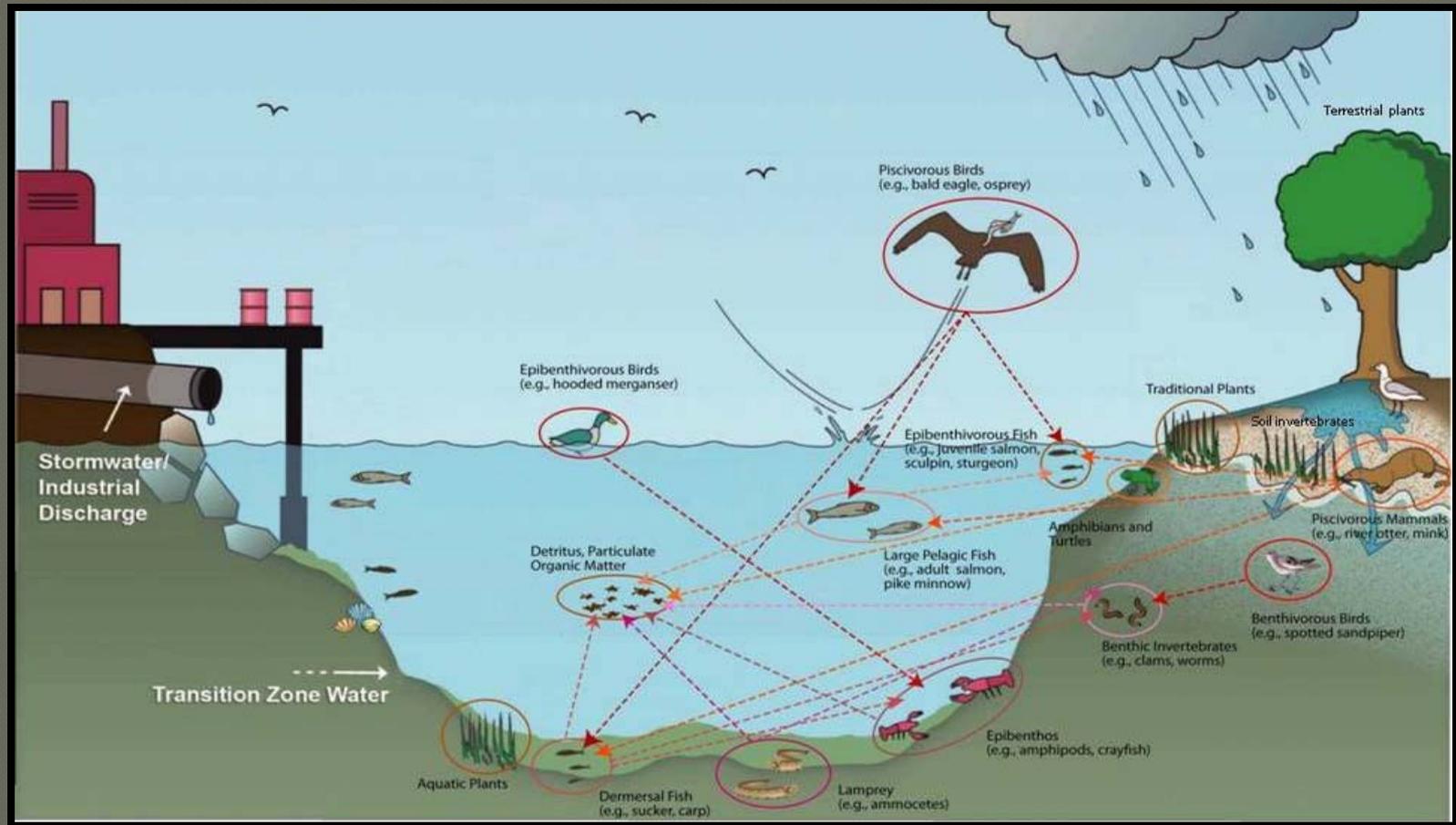
Overview: Site Background (cont.)

- Industrial & municipal activities release(d) hazardous substances, including:
 - Metals & metalloids
 - Polychlorinated biphenyls (PCB)
 - Dioxins & furans
 - Pesticides (e.g., DDT and metabolites)
 - Polycyclic aromatic hydrocarbons (PAH)
 - Volatile & semi-volatile organic compounds

Overview: Site Background (cont.)

- Transported by surface water, sediment, and biota over time and space (pathways)
- Potentially exposed natural resources
 - Surface water and sediment
 - Groundwater
 - Geologic resources (soil)
 - Biological resources (mammals, birds, fish, reptiles, amphibians, invertebrates, plants, habitats)

Overview: Site Background (cont.)



Overview: Site Background (cont.)

- **The public values many potentially injured natural resources and services**
 - Ecological: habitat, food, hydrologic system valued for beneficial use, inherent value
 - Tribal: unique services, uses and values for many tribal members
 - Recreational: fishing, boating, hiking, wildlife observation, etc.

Overview: Injury Assessment and Quantification

- General approach: evaluate concentrations of hazardous substances over time and space
 - Known sources
 - Environmental fate and transport
 - Relevant standards, thresholds, and measured injuries

Overview: Injury Assessment and Quantification (cont.)

● Iterative assessment

- Rely on existing data and assumptions where possible
- Explore additional data collection and/or study where necessary to reach resolution between Trustees and potentially responsible parties (PRP)

Overview: Injury Assessment and Quantification (cont.)

- Focus on key resources
 - Juvenile salmon, lamprey ammocoetes, sturgeon
 - Osprey, bald eagle
 - Otter, mink
 - Benthic invertebrates
 - Other fish with recreational value or advisories
 - Other natural resources with tribal use or value

Overview: Damage Assessment

- **Trustees will seek sufficient damages to pay for:**
 - Natural resource restoration to make the public whole
 - Reasonable assessment costs
- **Damage quantification**
 - Cost to implement natural resource restoration required to offset injury
 - Value of lost use of natural resources or sufficient restoration

Overview: Damage Assessment (cont.)

- Restoration planning (in progress, during Phase 1): restoration opportunities, criteria, scaling metrics and costs
- Habitat equivalency analysis (HEA) to integrate information about ecological injuries and quantify damages
- Benefit transfer (BT) to quantify damages for lost recreational

Baseline

- **Baseline evaluation will account for:**
 - Reductions in habitat quality not associated with PH hazardous substances
 - Injuries caused by hazardous substances not associated with PH potentially responsible parties
- **How baseline will be determined**
 - Historical data
 - Reference area data
 - Modeling

Recreational Losses

- Knowledge of contamination and presence of fish consumption advisories (FCA) may affect how and where people recreate, and affect use values
 - Fishing
 - Other water-based recreation

Recreational Losses (cont.)

- Contamination and FCA-driven changes in recreation can be a service loss compensable under CERCLA
- Commonly included in NRDA assessment (e.g., Hudson River, NY; Green Bay, WI; Lavaca Bay, TX; Tittabawassee River, MI)

Recreational Losses: Assessment Approach

● BT for Phase 2 assessment

- Accepted methodology under federal regulations at 43 CFR §11.83
- Relies on existing recreational use information to extent practical: minimum augmentation to fill information gaps
- Relies on existing economic literature for recreational user-day values

Recreational Losses: Assessment Approach (cont.)

- Recreational losses = affected recreation days
X value of a recreation day
- Damages based on a “value-to-cost” approach
 - Lost value to be applied to restoration actions
 - Cost of restoration scaled to lost value

Recreational Losses: Proposed Schedule

● 3-year assessment

- **Year 1:** review of existing information and identification of data gaps and potential restoration options
- **Year 2:** resolution of data gaps, estimation of damages, and scaling of restoration
- **Year 3:** final assessment

Tribal Losses

- Goal: ensure that key resources and services of particular tribal interest are evaluated
 - Aquatic
- If additional restoration is necessary, integrate with ongoing restoration where practical
 - Identify additional restoration opportunities if necessary

Tribal Losses: Two-part Approach

● Aquatic resources and services

- Ensure that HEA adequately reflects resources of special interest to tribes (e.g., lamprey)
- Mix of restoration options
- Evaluate the need for restoration focused on specific uses

● Riparian plants

- No separate assessment planned
- Ensure that restoration actions promote use of native plants

Tribal Losses: Phase 2 Activities

- Evaluation of HEA for inclusion of tribal resources
- Evaluation of potential gathering/fishing service losses
 - Lamprey, salmon, sturgeon
 - Distinct from general recreational fishing (e.g., species, rates of use, types of use)
- Identification of potential restoration opportunities
 - Enhancement of existing opportunities
 - Additional opportunities

State Proposal

- The State of Oregon proposes including Navigational Services in the Phase 2 NRDA to ensure injuries caused by releases of hazardous substances are assessed and restored

Navigation: Introduction

- Prescreen Assessment indicates hazardous substances have impacted sediments in the Lower Willamette River and caused injury
- Further analysis necessary to assess lost navigational services and quantify the resulting injury
- Draft Assessment Plan, issued in December 2009, did not include an evaluation of impacts to Navigation Services

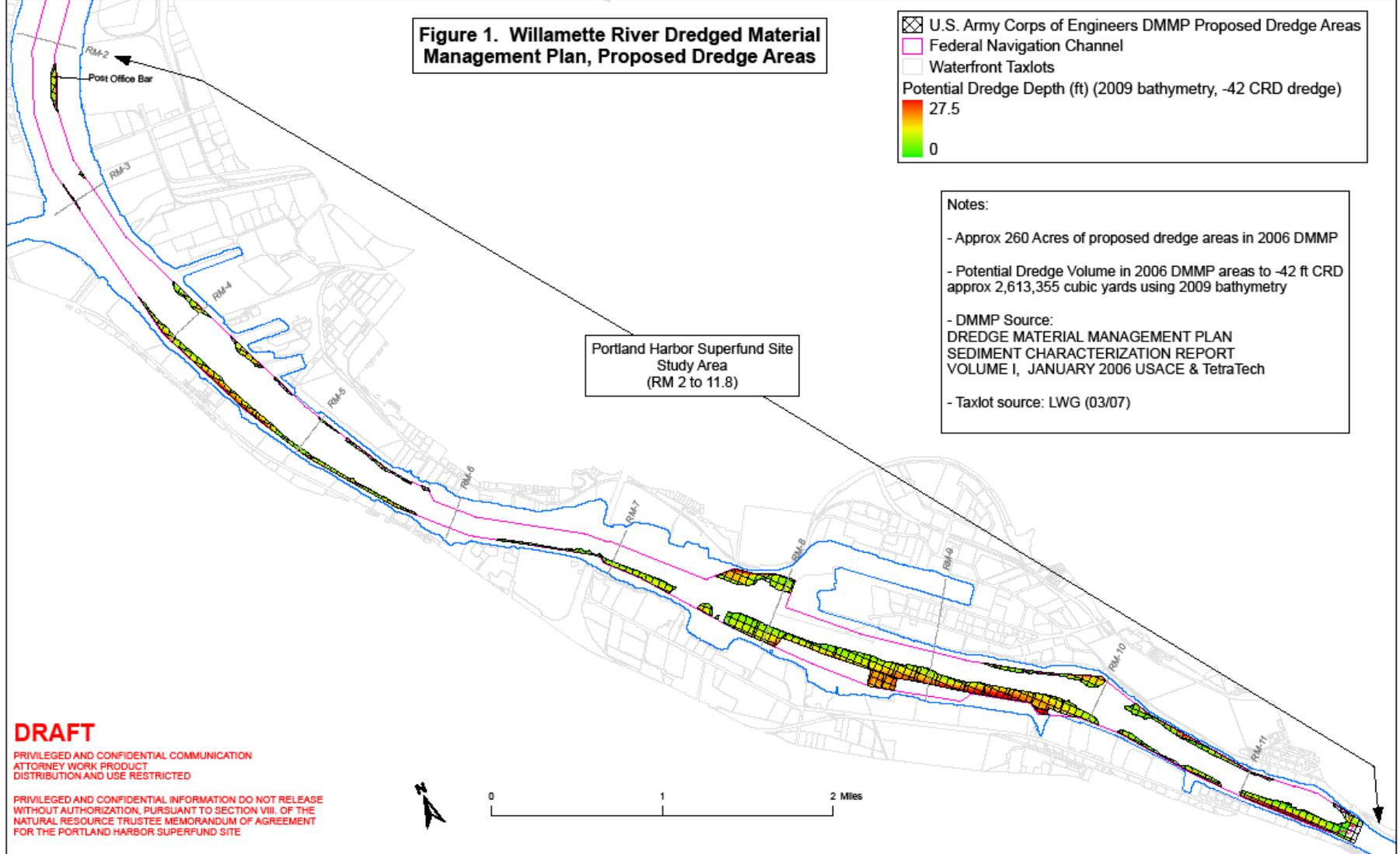
Navigation: Problem Statement

- Lower Willamette River has supported navigation since before statehood
- Natural sedimentation requires periodic dredging to maintain federal navigation channel
- Army Corps of Engineers (ACOE) lead federal agency; State of Oregon designated Port of Portland as local sponsor
- ACOE typically removes 500,000 to 750,000 cubic yards every three to five years from Lower Willamette River
- No maintenance dredging since 1997 (the year EPA conducted preliminary study of Portland Harbor Superfund Site)

Navigation: Problem Statement (cont.)

- Shoaling areas significantly impact navigation and create hazards
- ACOE suspended Dredge Material Management Plan in 2008 pending resolution of Superfund issues
- There is a potential service loss and potential damages that have occurred or will occur as a result of the injuries to the sediment component of the surface water resource
- The State of Oregon manages the Willamette River for Navigational Services and is responsible for assessing potential losses to the public from these injuries

Figure 1. Willamette River Dredged Material Management Plan, Proposed Dredge Areas



Legend:

- U.S. Army Corps of Engineers DMMP Proposed Dredge Areas
- Federal Navigation Channel
- Waterfront Taxlots

Potential Dredge Depth (ft) (2009 bathymetry, -42 CRD dredge)

27.5

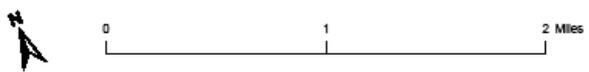
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Notes:

- Approx 260 Acres of proposed dredge areas in 2006 DMMP
- Potential Dredge Volume in 2006 DMMP areas to -42 ft CRD approx 2,613,355 cubic yards using 2009 bathymetry
- DMMP Source: DREDGE MATERIAL MANAGEMENT PLAN SEDIMENT CHARACTERIZATION REPORT VOLUME I, JANUARY 2006 USACE & TetraTech
- Taxlot source: LWG (03/07)

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NATURAL RESOURCE TRUSTEE MEMORANDUM OF AGREEMENT
FOR THE PORTLAND HARBOR SUPERFUND SITE



Structure for Navigation Services Assessment

- ◎ **Three main categories of potential loss:**
 1. Damages resulting from restriction or loss of access by deep draft vessels to terminals on the Lower Willamette River, and associated loss of public revenue
 2. Increased operational costs, including:
 - Reducing cargo loads in order to reduce the draft of ships
 - Maneuverability
 - Awaiting tidal windows
 - Lightering of vessels at mouth of Willamette River to reduce draft
 3. Increased costs for maintenance of the navigation channel

Structure for Navigation Services Assessment (cont.)

● Temporal Components per US DOI NRDA regulations:

- **Past Damages**- between 1980 and start of cleanup or restoration
- **Interim Damages**- between start of cleanup/restoration and completion/recovery
- **Future Damages**- costs incurred after cleanup/recovery

Legal Framework for Navigation NRD Assessment

“This report describes how PCBs released by GE have adversely affected the public’s ability to use the Upper Hudson River and the Champlain Canal for navigation and documents the legal basis for the State’s claim for damages.”

Injuries to Hudson River Surface Water Resources Resulting in the Loss of Navigational Services, Hudson River Natural Resource Damage Assessment, NY Dept. Env. Conservation (July 31, 2006)

[http://www.darrp.noaa.gov/northeast/hudson/pdf/Navigational Injury Report FINAL.pdf](http://www.darrp.noaa.gov/northeast/hudson/pdf/Navigational_Injury_Report_FINAL.pdf)

Path Forward

- By end of March 2010, Trustee Council will decide whether to incorporate a navigational assessment into Phase 2
- If approved, the plan for a navigation assessment will go out for 30-day public comment
- State of Oregon, through Trustee ODFW, will lead evaluation of navigational services

Path Forward (cont.)

- Port of Portland will provide the State with technical and funding assistance for the assessment
 - Experience with historical operations and impacts
 - Experience with interim impacts to navigational services and public losses
 - Projections of future added impacts and costs to continued maintenance of the navigational channel
- Trustee Council and its technical consultant will provide oversight and coordination

Restoration Planning

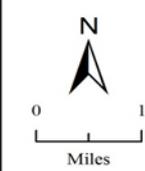
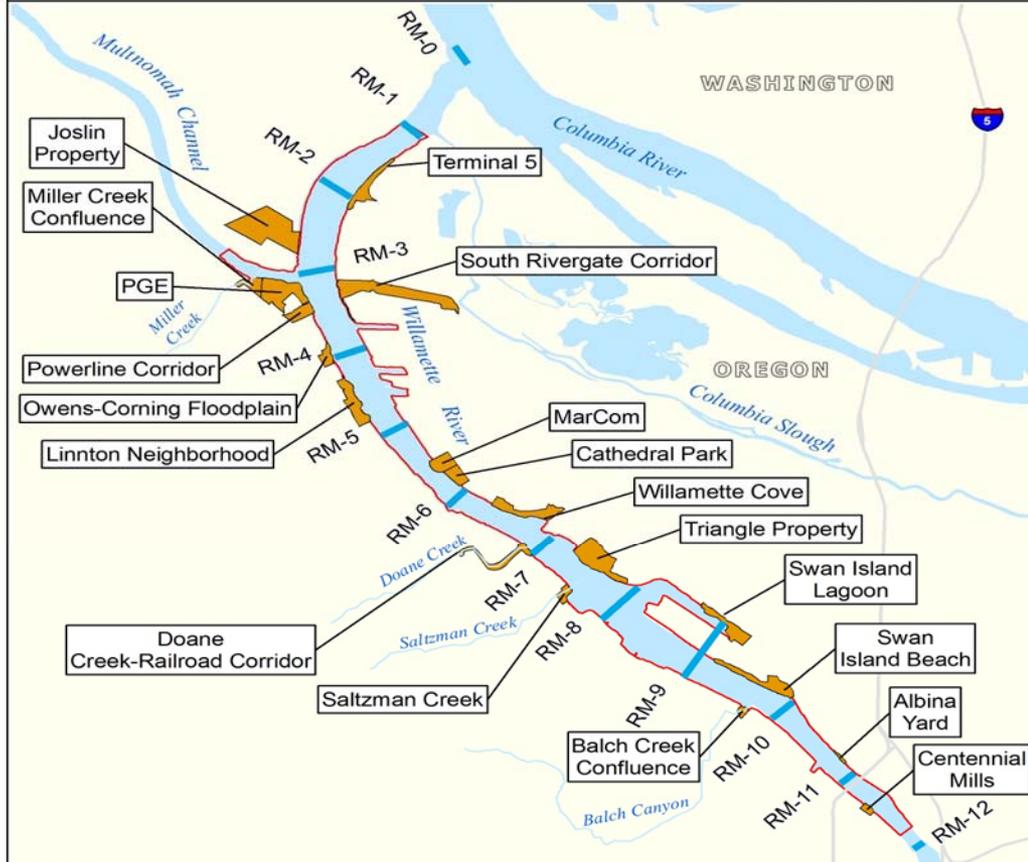
- NRDA Restoration planning underway since 2007
- Restoration planning goals:
 - Identify, evaluate and preserve high value restoration opportunities
 - Identify partners to help implement, monitor and maintain restoration sites
 - Solicit community input on potential restoration opportunities
 - Meet NEPA and other compliance requirements for restoration (Programmatic EIS)

Accomplishments to Date

- Developed restoration project screening criteria for salmon, lamprey, sturgeon, osprey, bald eagle, spotted sandpiper and mink
- Applied screening criteria and identified 20+ potential restoration projects inside SA
- Developed conceptual designs for restoration
- Convened “expert panel” to inform restoration planning for juvenile Chinook (may convene additional experts for other species)

Potential Restoration Site Map

Map prepared for Portland Harbor
Natural Resource Trustees

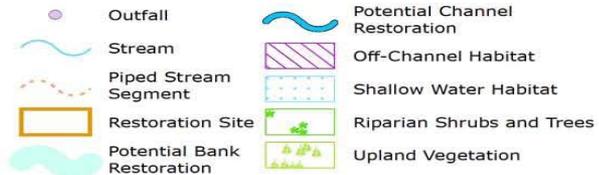
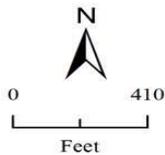
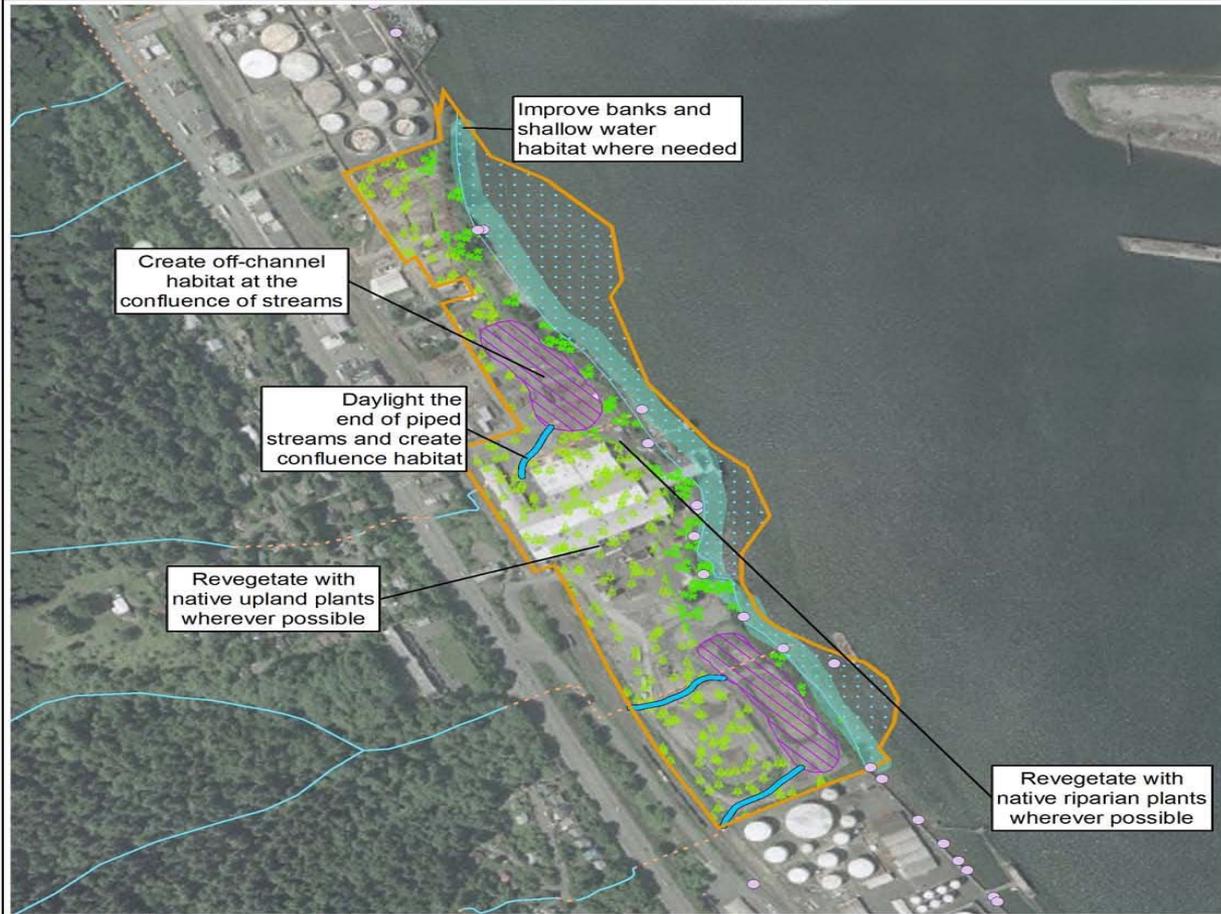


- Restoration Site
- River Mile Marker
- Portland Harbor Superfund Study Area

This map represents conceptual fish and wildlife habitat restoration opportunities which have been screened against criteria developed by the Portland Harbor Natural Resource Trustees. Further analysis of this site will occur to determine the feasibility, cost, and habitat value of the restoration concepts on a finer scale. This map was prepared using a geospatial database provided by the City of Portland's Bureau of Environmental Services.

Linnton Neighborhood

Map prepared for Portland Harbor
Natural Resource Trustees



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Accomplishments to Date

- Identified local, community-based entities that can assist with long-term stewardship of restored sites
- Discussion with third-party restoration “bankers” who can help facilitate project development and implementation
- Issued Notice of Intent to begin scoping for Restoration Plan/Programmatic EIS
- Scoping meeting scheduled for March 3, 6-8pm, Water Pollution Lab in St. Johns

Expert Panel

- Panel met on Nov. 30 and Dec. 1, 2009
- Purposes
 - identify relevant scientific literature and technical resources to guide restoration planning;
 - understand primary habitat requirements and limiting factors for juvenile Chinook in the Lower Willamette River; and
 - identify types, characteristics and geographic locations of habitat restoration actions that would provide greatest benefit for juvenile Chinook

Expert Panel

● Expert Panelists:

- Tom Friesen, Fish Biologist, Oregon Department of Fish and Wildlife's Corvallis Research Lab
- Stan Gregory, PhD, Professor of Fisheries, Oregon State University
- Nancy Munn, PhD, Aquatic Ecologist and Policy Analyst, National Marine Fisheries Service, Habitat Division
- Chris Prescott, Watershed Ecologist, City of Portland's Bureau of Environmental Services

Expert Panel

Juvenile Chinook salmon utilize the Lower Willamette River for feeding and rearing before entering the Columbia River Estuary to a greater extent than previously believed. Chinook salmon are present almost year-round in the Lower Willamette.

Expert Panel

- **Most important areas for juvenile Chinook:**
 - From Willamette Falls to the mouth of the Willamette (inclusive of confluences of major tributaries)
 - Lower Columbia from Sandy River confluence to Multnomah Channel outlet
 - Multnomah Channel

Expert Panel

The extreme scarcity of key habitat types within the Portland Harbor study area makes it the expert panel's highest priority for restoration actions

Expert Panel

● The panel also:

- Identified most important habitat types to restore
- Identified characteristics that increase a project's value
- Developed a table of initial relative values for each existing and potentially restorable habitat type (HEA)
- Recommended an approach to geographic distribution of compensatory restoration

Geographic Priority

- **Trustee Council has adopted policy on compensatory restoration for settling parties:**
 - At least one half of credit DSAYs must be provided inside the Portland Harbor study area.
 - Remaining DSAYs can be provided outside the study area but within the broader focus area (including Multnomah Channel, up to Willamette Falls, Oregon side of Lower Columbia between Sandy River and Multnomah Channel outlet).
 - Restoration outside of the broader focus area will not be accepted.

NEPA Schedule

- NOI published in Federal Register on February 1, 2010
- Scoping meeting scheduled for March 3, 2010
- Written comments due March 15, 2010
- Scoping report to Trustees by June 2010
- Draft Restoration Plan/PEIS by June 2011
- Final Restoration Plan/PEIS by June 2012
- Record of Decision by October 2012

Negotiated Settlements

- Goal of Phase 2 is to develop data, information and assumptions needed to support settlement of natural resource damage claims
- Options:
 - Build or contribute habitat restoration projects
 - Enter into cash-based settlements
 - Purchase credits from other parties/restoration banking projects
 - Combination of above

Negotiated Settlements

- <http://www.darrp.noaa.gov>
 - Regions (Northwest)
 - States
 - Case name (Commencement Bay)
 - Settlements or documents
- <http://www.cbrestoration.noaa.gov/settlements.html#bhp>

Liability Allocation Alternatives

- Trustees develop independent liability allocation
- Trustees and Participating Parties conduct cooperative NRDA allocation building on remedial allocation

Phase 2 Budget

Project Element	Year 1 Subtotal	Year 2 Subtotal	Year 3 Subtotal	TOTAL
General Council Activities	\$ 1,043,588	\$ 1,096,127	\$ 1,112,275	\$ 3,251,990
Phase 1 Studies Continued	\$ 70,205	\$ -	\$ -	\$ 70,205
Injury Assessment	\$ 732,439	\$ 827,470	\$ 463,881	\$ 2,023,791
Public Involvement - General	\$ 8,973	\$ 19,475	\$ 57,595	\$ 86,043
Restoration Planning	\$ 513,363	\$ 519,532	\$ 353,598	\$ 1,386,492
Allocation	\$ 1,042,905	\$ 644,722	\$ 434,652	\$ 2,122,279
Navigational Claim	\$ 49,917	\$ 50,447	\$ -	\$ 100,364
Legal	\$ 99,822	\$ 77,766	\$ 81,646	\$ 259,234
Column TOTAL	\$ 3,561,213	\$ 3,235,539	\$ 2,503,646	\$ 9,300,398

Next Steps

- Expressions of interest to participate from PRPs by April 16
- Negotiate Funding and Participation Agreements and finalize by June 15
- Phase 2 Kick-off: early July

Contact

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