

Habitat Restoration
in the
Lower Columbia River and Estuary

2008 Columbia River Estuary Conference
April 29, 2008

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Columbia River: Characteristics

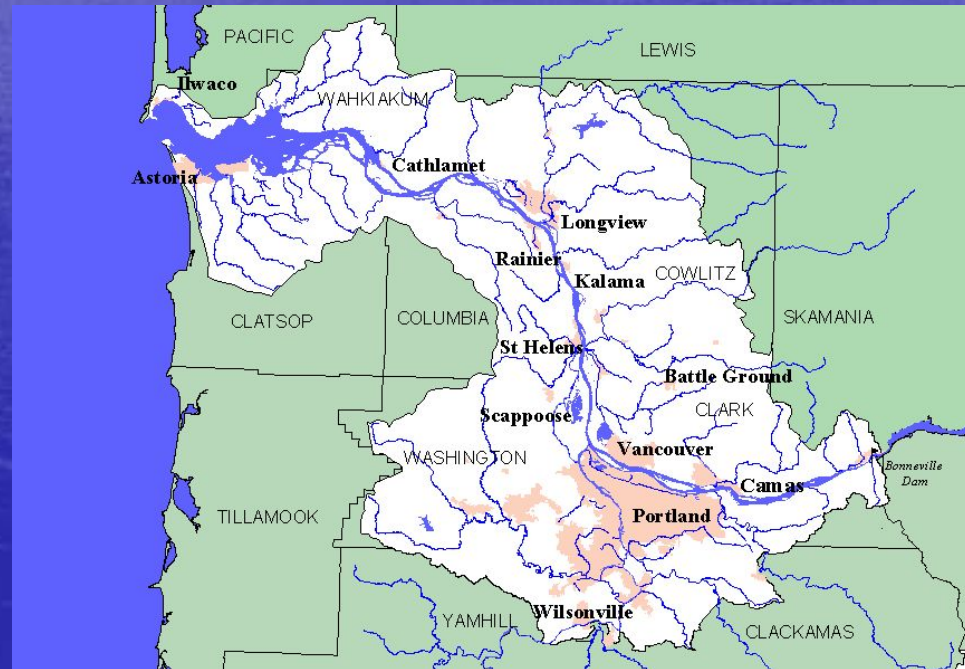
- Length - 1,200 miles
- Drainage – 259,000 sq. miles
- Watershed – includes 7 states and 2 Canadian provinces
- Volume – 2nd largest volume of flow of any river in the United States
- Average Discharge – 260,000 cubic ft./sec

Columbia River: Regional Importance

- Culture (Tribes) & History
- Economics (Cities, Ports, Fishing)
- Transportation
- Energy (Hydropower system)
- Recreation (Boating, Swimming, Fishing)
- Fish and Wildlife (13 ESA listed salmonid species)
- Degraded: Toxics in Fish Tissue, Sediment & Water

Lower Columbia River and Estuary

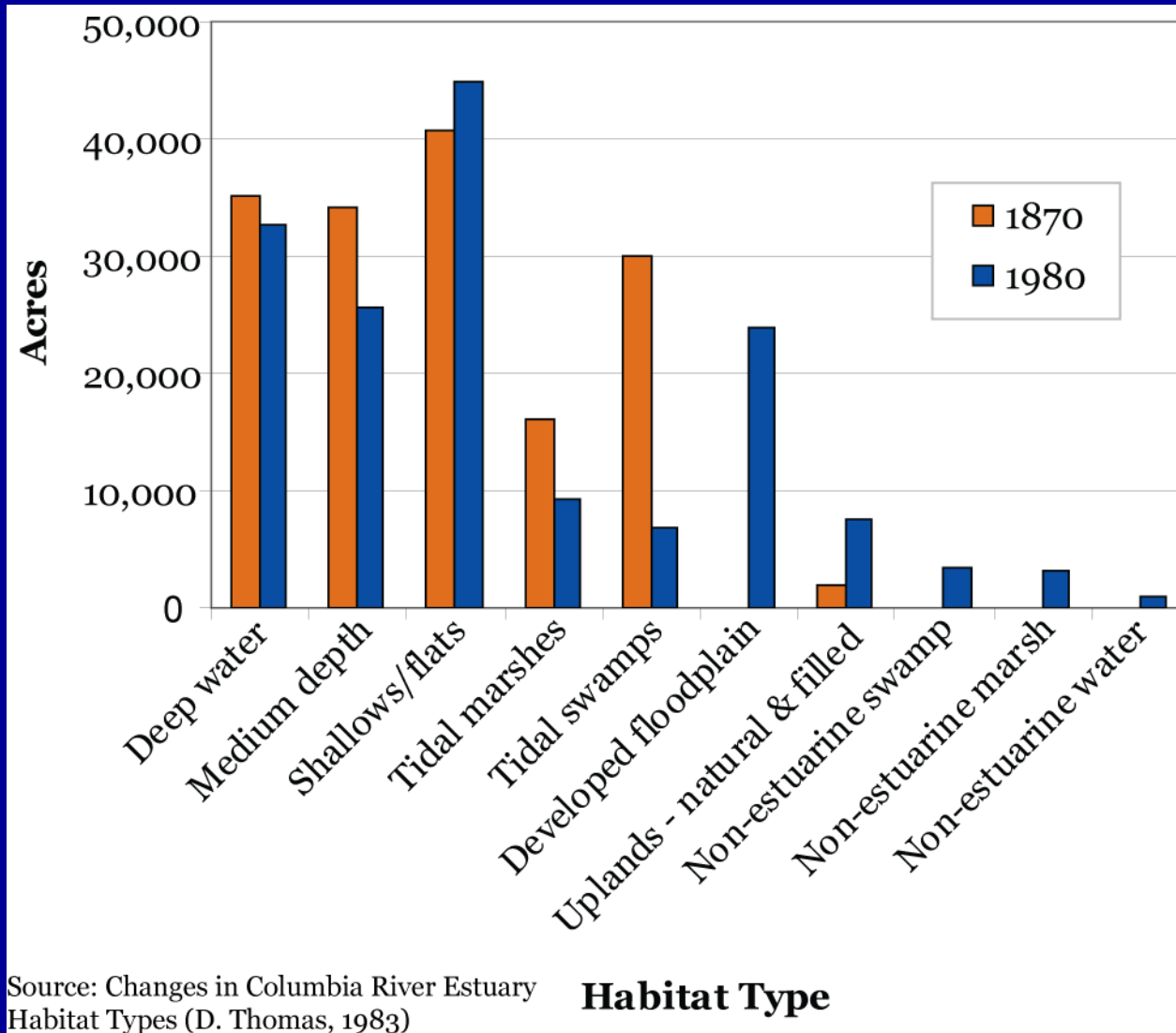
- Bonneville Dam to the mouth
 - 146 river miles
 - Tidally influenced to Bonneville Dam
 - Many areas of special biological significance
 - Critical habitat for 100's of species
- Critical transition for salmonids between freshwater habitat and ocean



Habitat Loss

- Estuary Partnership's Management Plan
 - More than 50% of tidal swamp and marsh habitat has been lost since 1870
 - Tidal wetland habitat has decreased by 70% since 1948
 - Diking, draining, filling, dredging, flow regulation, and development

Historic Habitat Loss



Source: Changes in Columbia River Estuary
Habitat Types (D. Thomas, 1983)

Habitat Type

Estuary Partnership Management Plan

- **Protect the ecosystem and species-** restoring 16,000 acres of wetlands and habitat by 2010.
- **Reduce toxic and conventional pollution-** conducting long term monitoring and partners to eliminate contaminants.
- **Provide information to a range of audiences-** focusing on children and building federal, state, local, public and private coordination.

Regional Restoration

Plans

- FCRPS Biological Opinion
 - Draft RPAs address estuarine habitat restoration
- NOAA Fisheries' Estuary ESA Recovery Module
 - Recognizes the importance of estuarine habitat restoration
- Subbasin plans

Partners

- Federal, state, and local governments
- Tribes
- Non Governmental Organizations

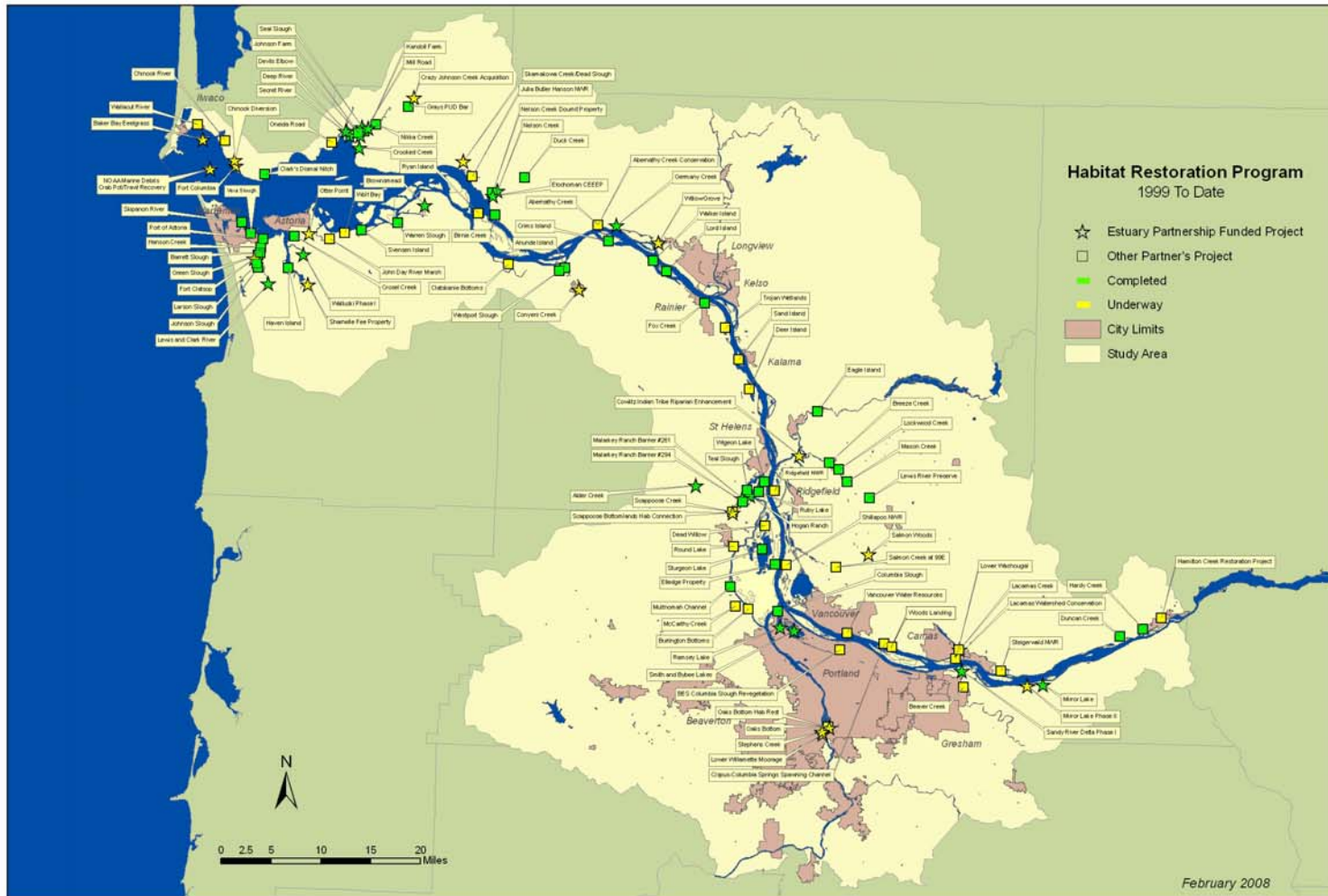
Diverse projects & methods

- Geographically
- Type of restoration
- Motivation

Why Restore Habitat

- Critical habitat for many species
 - ESA listed salmonids
- River/ecosystem health
- Water quality benefits
- Recreational/Aesthetic opportunities
- Flood attenuation
- Impacts local economy

Restoration Projects Map



Restoration Milestones

- ❑ 1999: Comprehensive Conservation and Management Plan Adopted
- ❑ 2005: Over 10,000 acres restored by key partners
- ❑ 2006: Approximately 4,200 acres restored with Estuary Partnership at 30 sites with 85 partners
- ❑ 2008: Regional strategic ecosystem approach to restoration



Restoration Tools

- ❑ **Restoration Prioritization Framework (EP)**
- ❑ **Shoreline Inventory/Digital Video (EP)**
- ❑ **Ancillary GIS Layers**
 - Dike, Flow Restriction and Dredge Materials (USACE)
 - Fish Passage Barriers (ODFW, WDFW)
 - LandSat ETM+ Classified Landcover (EP)
 - Historic Landcover and Tidal Channel Locations (NOAA, UW)
 - Merged Bathymetry/LiDAR (LCREP, USGS, UW, USACE)
 - Existing Restoration Site and Reference Site locations (EP)

Kandoll Farm

- Columbia Land Trust
- Grays River watershed, WA
- Acquisition/Restoration (Part of a larger effort to protect and restore habitat in the Grays Bay watershed)
- Acquired 163 acres of intertidal floodplain habitat, tidegate removal/replacement, levee removal, setback levee construction
- Ongoing monitoring efforts



WA Department of Ecology

Blind Slough Restoration

- Columbia River Estuary Study Taskforce
- OR ~ River Mile 30
- Habitat enhancement
- Reestablished muted tidal connection between Cathlamet Bay and 7 miles of inland channels and sloughs
- Ongoing monitoring efforts



Crims Island

- US Army Corps of Engineers
- Mainstem – ~RM 55
- Habitat Enhancement
- Restored 94 acres of tidal marsh and channels by excavating 2 feet of soil from a reed canary dominated marsh
- Monitoring through 2008



US Army Corps of Engineers

Challenges in Restoration

- Increased effectiveness monitoring as part of estuary RME plan
- Sustained & Diversified funding for restoration projects
- Need for increased efforts on project development
- Strategic focus on restoration efforts
- Expanded collaboration among restoration practitioners, researchers, managers, and funders
- Link to Toxic Contaminants
- Strong link of estuary to basin

Estuary Research, Monitoring, and Evaluation (RME)

- Goal – “provide pertinent and timely research and monitoring information to planners, implementers, and managers of the Estuary Program”
- Plan implementation is ongoing

Research, Monitoring, and Evaluation for the Federal Columbia River Estuary Program

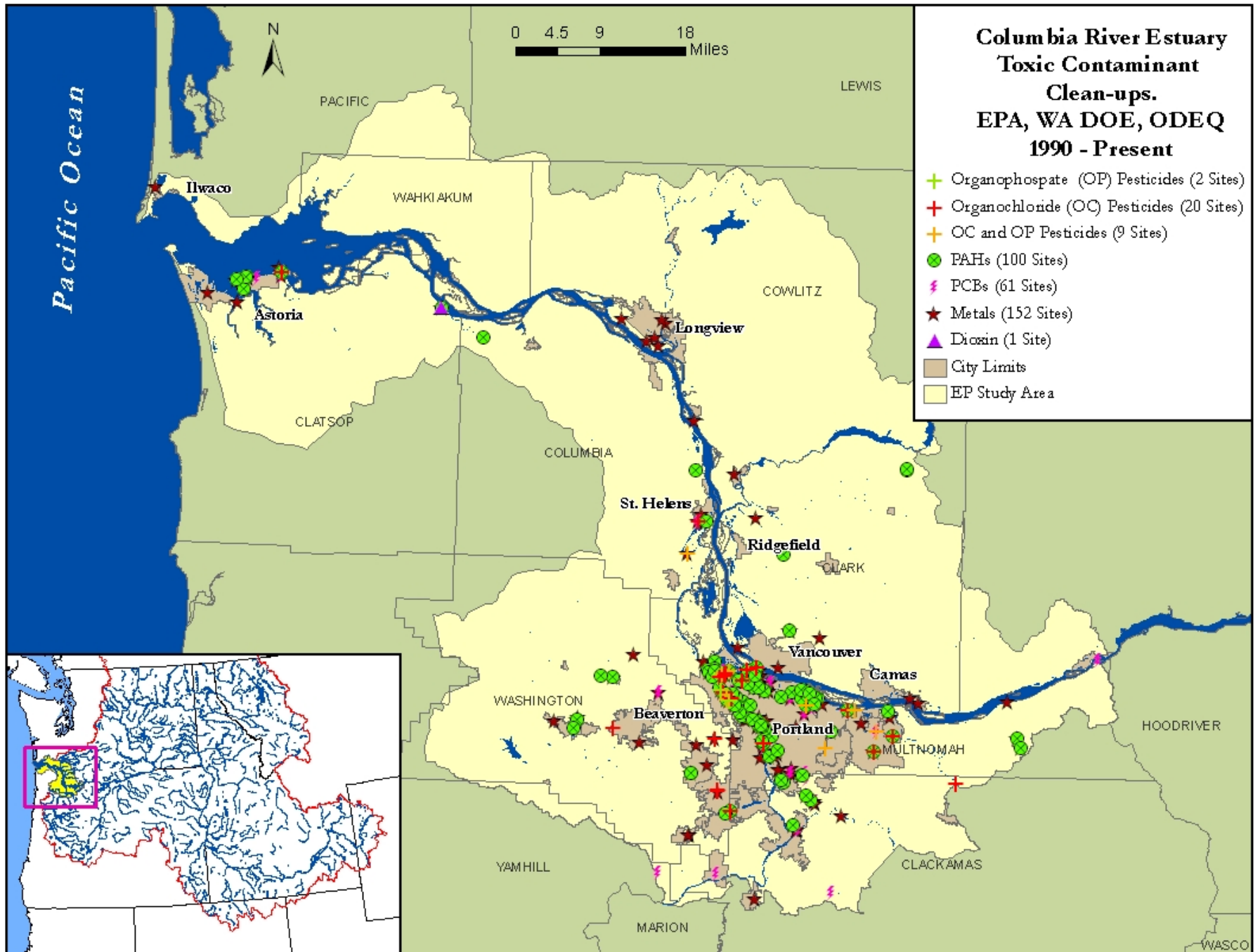


January 31, 2008

Prepared for the Bonneville Power Administration
by the Pacific Northwest National Laboratory
under a Related Services Agreement with the U.S. Department of Energy
Contract DE-AC05-76RL01830
in conjunction with NOAA Fisheries and
the U.S. Army Corps of Engineers, Portland District
with the collaboration of the Lower Columbia River Estuary Partnership



US Army Corps
of Engineers



Previous Estuary Conferences

- 2008 conference: 5th in a series
- Previous conferences include
 - Biological Integrity 1999
 - Habitat Restoration 2001
 - Research Needs 2003
 - Estuarine/Ocean Ecology 2006

Conference Sessions

- Restoration Planning and Implementation
- Research to Reduce Restoration Uncertainties
- Wetlands and Flood Management
- Action Effectiveness Monitoring
- Policy Implications