



# Beneficial Use and Sustainable Sediment Management in the Pacific Northwest



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# Topics Covered

- Overview of sediment beneficial use regulations
  - Oregon
  - Washington
- Case studies
  - Oregon
    - Lake Oswego Interceptor Sewer (LOIS) Project
    - Willamette River Superfund Site
    - Multnomah County Drainage District (MCDD)
  - Washington
    - Whatcom Waterway
    - Port Gamble Bay
    - Gate 3 Sediments

Oregon

# Beneficial Use Regulations

# Oregon Beneficial Use Regulations



The Oregon Department of Environmental Quality (DEQ) defines **beneficial use** as, “the productive use of solid waste in a manner that will not create an adverse impact to public health, safety, welfare, or the environment.”



# Oregon Beneficial Use Determination (BUD) History

- DEQ evaluated the beneficial use programs adopted in other states in 2008 and adopted rules in 2010 (Oregon Administrative Rules [OAR] 340-093-0260 through -0290)
- Rules established standing beneficial uses and a process for DEQ review of case-specific beneficial use proposals
- DEQ may issue a BUD as alternative to disposal permit
- DEQ no longer regulates the waste as a solid waste, as long as the waste is used in accordance with the BUD



# Standing Beneficial Uses

- Asphalt grindings or scrap asphalt roofing shingles used as aggregate in new asphalt pavement
- Use of dredged sediments, lightly contaminated soil, or foundry sand for construction fill on commercial or industrial property
- Use of spent foundry sand, slag from the steel industry, or wood-derived boiler ash as aggregate in asphalt or concrete
- Re-use of street sweepings from winter road sanding



# Case-specific BUD Criteria

1. Demonstrate compliance by characterizing the solid waste
2. The use is productive
3. The use will not create an adverse impact to public health, safety, welfare, or the environment

Not hazardous waste under OAR 466.005

Hazardous substances do not

Significantly exceed the concentration in a comparable raw material or commercial product

Exceed naturally occurring background concentrations

Exceed acceptable risk levels when the material is managed according to a BUD

# Case-specific BUD Tiers

1

Tier One

- Use of a solid waste that does not contain hazardous substances exceeding the concentration in a comparable raw material or commercial product and will be used in a manufactured product

2

Tier Two

- Use of a solid waste that contains hazardous substances significantly exceeding the concentration in a comparable raw material or commercial product, or **involves application on the land**

3

Tier Three

- Use of a solid waste that requires research, such as a literature review or risk assessment, or a demonstration project in compliance with OAR 340-093-0290

# DEQ Approved Case-specific Sediment-related BUDs

Applicant	Solid Waste	Beneficial Use Approval	Date Approved
Port of Portland	Dredged sediments from Terminal 5 (30,000 cubic yards [cy])	Fill material at the West Hayden Island Placement Facility	June 2010
Port of Portland	Dredged sediments from Post Office Bar (75,000 cy)	Fill material at the West Hayden Island Placement Facility	July 2010
Port of Portland	Dredged sediments from Terminal 6 (20,000 to 40,000 cy)	Fill material at the West Hayden Island Placement Facility	November 2011
Port of Toledo	Transit dock dredge spoils (1,800 cy)	Upland fill material; raise elevation above flood level	November 2011
Port of Portland	Dredged sediments from Terminal 2 (10,000 to 40,000 cy)	Fill material at the West Hayden Island Placement Facility	June 2012
Portland Harbor Holdings, Inc.	Lightly contaminated excavated soils from channel and tidal mud flat	Alder Creek Restoration Project on Sauvie Island; area to be planted as forest	June 2013
Port of Portland	Dredged sediments from Terminal 4 (5,000 cy)	Fill material at the West Hayden Island Placement Facility	July 2013
CRP/FPC Riverscape LLC	Soil from Riverscape site (approximately 60,000 cy)	Fill and/or surcharge material for industrial site development	October 2013 (Amended July 2014)
Port of Portland	Dredged sediments from Terminal 5 (30,000 cy)	Fill material at the West Hayden Island Placement Facility	June 2010

Washington

# Beneficial Use Regulations

# Washington Beneficial Use Guidelines



Washington's Dredged Material Management Program (DMMP) defines **beneficial use** as, "the placement or use of dredged material for some productive purpose."



# Washington Beneficial Use History

- Sediment in the State of Washington is managed under the Sediment Management Standards (SMS)
- Origin of SMS rule came from the discovery of toxic compounds in fish and the establishment of the sediment quality values (SQVs)
- SMS rule was adopted in 1991 with subsequent amendments in 1995 and 2013
- Under the SMS, beneficial re-use is the preferred disposal option



# Washington Beneficial Use History

- Cleanup actions that involve dredging and disposal of sediments should be developed and performed in coordination with the DMMP
- The DMMP is collaboratively managed by the following agencies
  - U.S. Army Corps of Engineers Seattle District (USACE) (lead agency)
  - U.S. Environmental Protection Agency, Region 10
  - Washington State Department of Ecology
  - Washington Department of Natural Resources



# Dredged Material Management Program

- Dredged material managed through DMMP may be

Disposed of in water  
at an approved site

Used for beneficial  
shoreline uses

Transferred upland  
for fill projects

Sent to an approved  
landfill



# Disposal Assessment and Evaluation

Sampling and Analysis Plan for dredge and disposal = > 1,000 cy

Each project is assigned to one of four possible ranks

- High
- Moderate
- Low-moderate
- Low

The ranking system is based on two factors

- Available information on chemical- and biological-response characteristics of the sediments
- Number, kinds, and proximity of chemical sources (existing and historical)

There are four tiers of evaluation

- Tier 1: Site Evaluation and History
- Tier 2: Chemical Testing
- Tier 3: Biological Testing
- Tier 4: Special Studies

# Examples of Approved Beneficial Use Projects

Project	Disposal Location	Project Volume (cy)	DMMP Action
Grant County Public Utility District, Frenchman Coulee Boat Ramp	Upland portion of boat launch to be upgraded	950	Tier I Evaluation (no-test)
Deer Harbor Boatworks, Orcas Island	Bank stabilization	114	Tier I Evaluation (no-test)
LD Commodities NW, Snake River	Upland disposal on property outside 100-year floodplain	45	Tier I Evaluation (no-test)
City of Chelan, Don Morse Park	Fill within Lake Chelan for beach restoration	8,000	Suitability determination
Port of Bellingham Gate 3, Squalicum Harbor	Interim cap at the Cornwall Avenue landfill	40,000	Suitability determination
Birch Bay Village Marina Entrance Channel	Upper tidal beach for beach nourishment	2,000	Tier I Evaluation (no-test)
Simpson Lumber, Oakland Bay	Dredged woody debris, disposed of upland, sorted, and recycled into mulch and topsoil	135	Anti-degradation Determination

# Oregon Case Studies



# Lake Oswego Interceptor Sewer (LOIS) Project



- Removed to support LOIS project, including trenching for new sewer line and temporary access roads
- Standing beneficial use under category (5)(d) of OAR 340-093-0270
- Re-used as non-residential construction fill

# LOIS Project

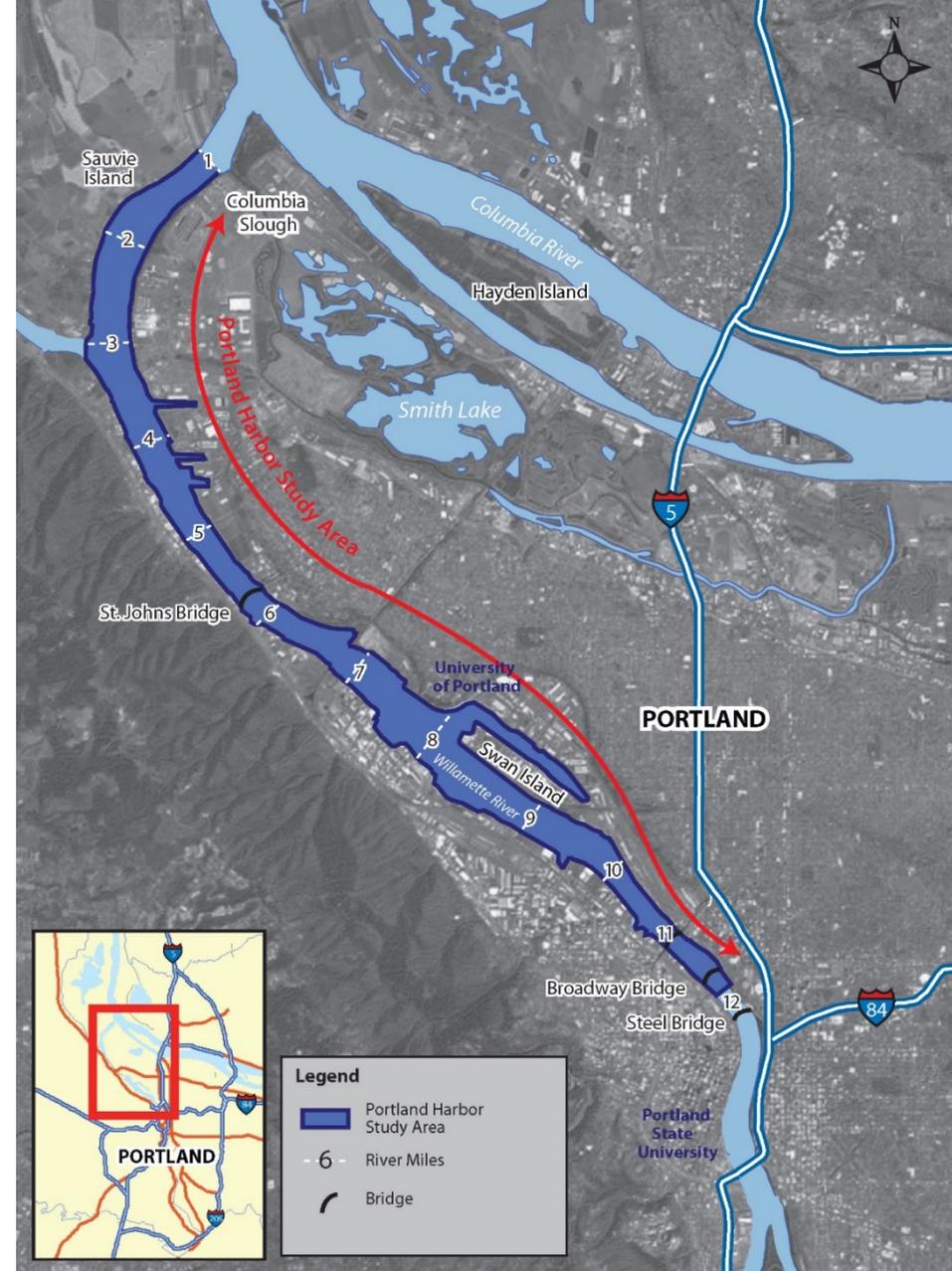
- Lake was drawn down approximately 24 feet
- 36,000 tons of lakebed sediment removed
- Excavation performed “in the dry” on exposed mud flats and deltas
- No amendments added
- Land applied at Tigard Sand and Gravel quarry



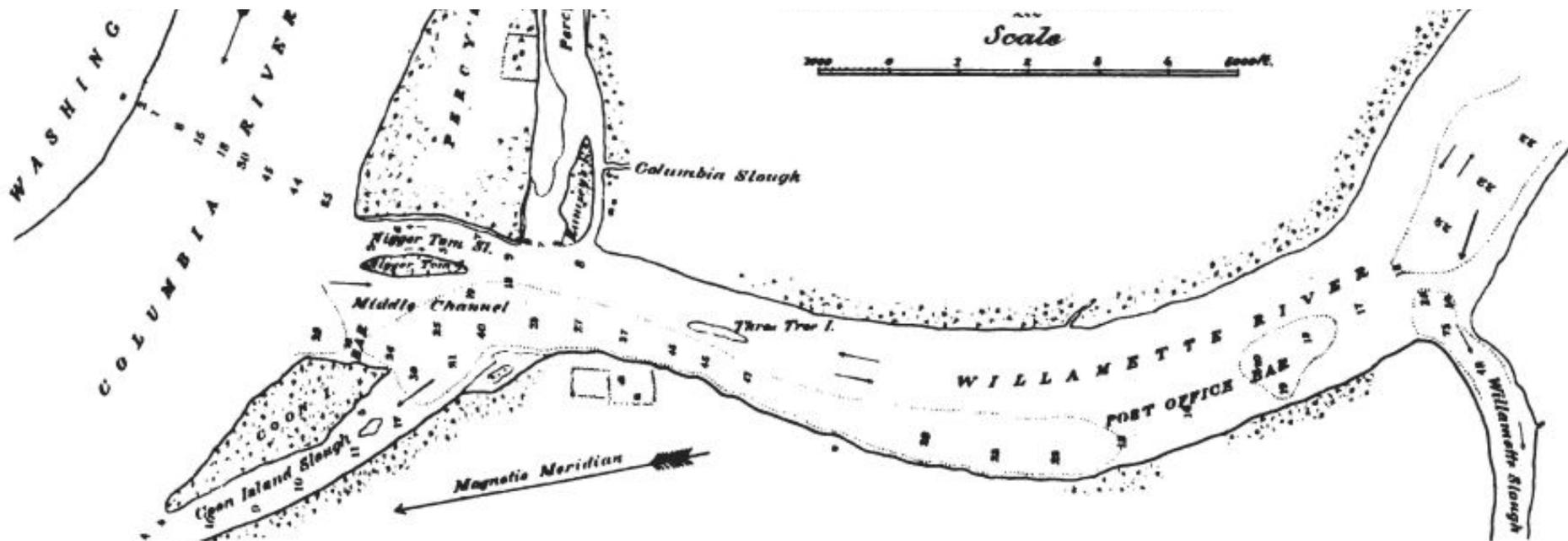
# Willamette River Superfund Site

- Listed in 2000
- Navigation dredging has not occurred since 1997
- Beneficial use projects:
  - Post Office Bar shoaling dredging
  - Alder Creek Restoration Project

*Image from EPA Portland Harbor Superfund Site*



# Post Office Bar



- Oregon DEQ approved Tier 2 BUD in June 2010
- 50,000 cy dredged from Willamette River navigation channel
- Sediments were suitable substitute for fill material



Alder Creek Site Prior to Restoration



Rendering of Proposed Restoration



Project Nearing Completion

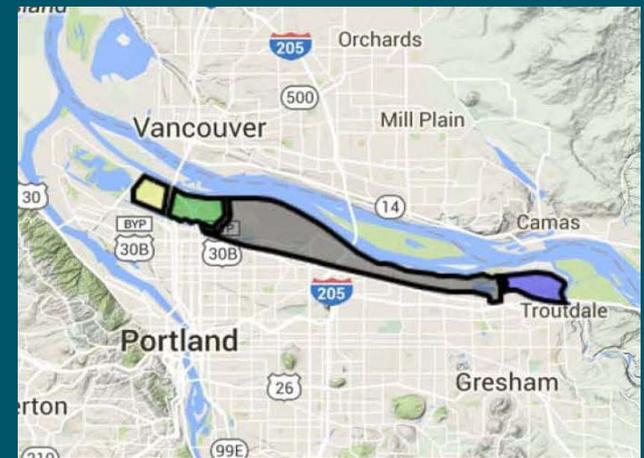
# Alder Creek Restoration

- Oregon DEQ approved Tier 2 BUD in June 2013
- 1,600 cy of sediment from Multnomah Channel and Willamette River
- Creation of forest as part of larger restoration project
- Sediment was capped after placement

*Images from NOAA*

# MCDD

- Responsible for maintaining floor control ditches along Columbia River
- In the past, placed dredge spoils on the bank in close proximity to removal area
- One BUD for levee reinforcement
- City of Portland environmental zone challenges



- 4 drainage districts
- 45 miles of ditches, slough, and streams



*Photographs from MCDD*

# Washington Case Studies



# Whatcom Waterway – Beneficial Re-use and Habitat Restoration

Port of Bellingham and Georgia Pacific

- Coordinated cleanup restoration project with maintenance dredging project
- Former log pond with wood waste and impacted sediments
- 43,000 cy of clean sediments dredged by USACE



# Whatcom Waterway

- Capping of impacted sediments
- Re-use dredge materials from two federal channel dredging projects
  - Swinomish Channel (Sandy)
  - Squalicum Waterway (Silty)
- Restoration of intertidal and shallow subtidal habitat
- Successful eelgrass colonization



# Port Gamble Bay Project



- 17,000 cy of sediments containing wood waste
- Removed as part of sediment area cleanup and restoration
- Beneficial re-use of wood waste for upland topsoil amendments

# Port Gamble Bay Project

- Sediments dredged mechanically
- Treated in upland mill site cells to reduce salinity
- Testing to verify quality of materials for re-use
- Re-used as topsoil amendments for unrestricted use





# Gate 3 Sediments Project

## Port and City of Bellingham

- 40,000 cy of sediments from marina dredging
- Not suitable for open-water disposal due to presence of low levels of dioxin/furans
- Approval granted for transfer to uplands to be used as part of landfill cap

# Gate 3 Sediments Project

- Marina sediments dredged mechanically
- Soil amendments added via pug mill to meet re-use requirements
- Stockpiled at landfill cleanup site for use as part of final environmental cap



# Questions/Discussion

