USACE Regional Sediment Management
Portland District Overview

Science-Policy Workshop

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Basic RSM Principles

RSM Operating Principles

- Recognize sediment as a regional resource
- Evaluate use of all sediment resources
- Optimize operational efficiencies & natural exchange of sediments
- Balanced, economically viable, environmentally sustainable solutions
- Improve economic performance by linking projects
- Consider regional impacts
- Monitor to evaluate physical, environmental, social impacts
- Apply/develop technical knowledge/tools to optimize system
- Share information and data to reduce data duplication
- Coordinate/Communicate/Collaborate with stakeholders, partners, sponsors to identify solutions and combine resources
Portland District RSM Projects

Previous/Completed

- 2011
  - MCR RSMP
- 2012
  - South Jetty Site Development
  - Columbia River Adaptive Hydraulic Modeling at Westport
- 2013
  - Port Orford Sediment Transport Analysis
- 2014
  - Yaquina Bay – Oregon Shoreface Sediment Stabilization
- 2015
  - Columbia River RSMP

Current/Future

- Columbia River RSMP
Columbia River Adaptive Hydraulic Modeling at Westport - 2012

**Approach**

- Use new flow lane sites in FY12 based on present operational challenges and taking advantage of RSM – AdH hydro to work with nature.
- Assess the performance of these flowlane sites as using AdH with PTM with hydro survey data to inform fate and estimated volumes.
- Select areas that will allow the material to dissipate over the entire river, based on depth and velocity.
- Thin layer placement

**Benefits to O&M, FRM, Environmental**

- Reduced Overall O&M dredging cost
- Limit the re-handle of material, allowing the dredges to work multiple reaches instead of continuously addressing the same problem areas.

**Models, Tools, Databases, etc Used**

- Adaptive Hydraulic Modeling
- NCDB geodatabase
- Continuous use of hydrosurvey data
- Particle Tracking Model (PTM)
- Channel Condition
Port Orford Sediment Transport Analysis - 2013

Objectives
- Define littoral sediment transport pathways that affect shoaling at Port Orford, Oregon
- Evaluate alternatives to reduce reoccurring shoaling/dredging costs
- Build on the MMR completed in 2011
- Propose a long term solution to shoaling

Description/Challenges
- Maintain a federal navigation channel at the Port of Port Orford
- Evaluate alternatives to reduce reoccurring shoaling/dredging costs
- Build on the MMR completed in 2011
- Propose a long term solution

BLUF: Dredging needs at low-use ports in Oregon are not being met in the current budgetary climate. Determining sediment pathways and looking at alternative solutions to dredging may be a way to meet stakeholders needs without regular maintenance dredging.
**BLUF:** The Portland District speculates that increased shoaling in the Yaquina Entrance channel is a result of aeolian transport. Sand fencing is proposed to interrupt a circular pattern of accretion on the south jetty, migration into the channel and movement out of the channel back to the jetty.

**Description/Challenges**
- Increased shoaling at Yaquina Entrance
- Limited federal/state resources
- City of Newport - South Beach State Park Master Plan
- Public perception of sand fences
- Stakeholder/Interest in the project area
- Recreational use of the site

**Objectives**
- Reduce aeolian transport from the dunes and beaches south of the Yaquina South Jetty
- Reduce dredging need in the FNC
- Reduce funding and equipment constraints
- Leverage construction funds from the Port of Newport
**Problem Statement/Issue**

- Due to limited funding and the availability of dredge plant, shoaling annually causes the Columbia River Pilots to issue draft restrictions in the -43’ channel.
- Historical upland and in-water placement sites are reaching their capacity and there is a need to proactively manage annual O&M dredged material.
- Prevent wasting and/or rehandle of dredged material.

**Approach to Address Problem (non-technical)**

- Use previous RSM Plans in the region (MCR, LCREP, etc) as a template and lessons learned.
- Complete a literature review of dredging and beneficial use opportunities in the LCR.
- Engage a stakeholder working group.
- Develop a sediment budget using USGS stations monitoring suspended sediments.
- Identify unique opportunities by reach.
- Evaluate a range of a beneficial use opportunities, including: ecosystem restoration and habitat creation; shoreline placement to protect levees, upland disposal sites, and other infrastructure; commercial use; and, extending the useful life of existing pile dike systems.
- Initiate CAP Section 204 Project to evaluate placement sites.
- Coordinate with long-term pile dike repair effort.
- Combined effort with updated DMMP.
- Include non-federal dredging as a consideration in the RSMP.
Approach to Address Problem  
(Tools, Models, Technologies)

- Development of a sediment budget for LCR.
- RSM FY12 Initiative AdH modeling of problematic reaches of the river (Westport).
- Hindcasting results of informed dredging/placement seasons as a metric for success.
- JALBTCX data to inform placement of material in upland and beach nourishment areas, this will support a CAP Section 204 project to explore areas for habitat creation.
- DOTS request to determine best leave morphology for habitat creation and evaluation of best vegetation alternatives.
- Discussion with ERTG for scoring criteria of habitat creation areas for salmonids.
- Complete sediment sampling and sediment characterization of the river from MCR to Vancouver.
Constraints of RSM Program

**Constraints**
- Proposals compete annually, and funds typically don’t arrive until late Q1.
- Funding ranges from $30k-$100k.
- RSM funds cannot be used for construction.
- Funds need to be executed in a short window, typically by the end of the FY.

**Opportunities**
- Leveraging funds with other stakeholders.
- Collaborating with other USACE Districts.
- Implementation of successful projects (past successes).
- Shift toward publications to highlight RSM projects.
Future of Nearshore Placement