



Regional Sediment Management Program Portland District (NWP): Lower Columbia River – Regional Sediment Management Plan, Oregon



Description

A Regional Sediment Management (RSM) Strategy (RSMS) is needed to ensure that dredging and placement of material is done in the most efficient manner practicable, to prevent re-shoaling and to ensure a reliable Federal Navigation Channel. The US Army Corps of Engineer (USACE), Portland District (NWP) is conducting a multi-year effort to leverage appropriated and RSM funds to complete an RSMS. Shoaling in the Lower Columbia River (LCR) limits navigation throughout the Columbia River, especially during periods of low water. Due to limited funding and the availability of dredge plant, this shoaling annually causes the Columbia River Pilots to issue draft restrictions in the river. These restrictions cause an economic impact to the region. The goal of the RSMS is to meet the USACE navigation mission, while maximizing the beneficial use of material. NWP views this strategy as an opportunity to reduce programmatic dredging costs, while working with local and regional stakeholders to meet their needs.



Lower Columbia River, from the Mouth to Vancouver

Issue/Challenge To Address

Approximately 6 to 9 Million cubic yards of dredged material is removed from the Columbia River annually. Dredged material placement sites in the Columbia River have been increasingly harder to find. Historical upland and in-water placement sites are reaching their capacity and there is a need to proactively manage annual Operations and Maintenance (O&M) dredged material. Previous RSM projects have included AdH and PTM modeling of problematic reaches of the river, as well as an RSMS for the Mouth of the Columbia River. A comprehensive RSMS is needed to maximize dredging efficiency, while beneficially using the resource sediment in the process. Work will be done by Portland District staff, in conjunction with ERDC, USGS, and with input from local and regional stakeholders.



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Successes Lessons Learned

An RSMS was completed for the Mouth of the Columbia River (MCR) in 2011. The lessons learned from this exercise will be applied to the Lower Columbia RSMS, and the structure of the RSMS will be used as a template. Additionally, a working group for the adaptive management of the MCR RSMS remains in place and will help initiate the stakeholder engagement aspect of this RSMS.

Expected Products

- LCR Sediment Budget (NWP funded)
- FY16 Interim Report of Findings: expansion of efforts to develop an RSMS
- Regional Sediment Management Strategy (FY17)

Stakeholders/Users

NWP, ERDC, USGS, ODFW, WDFW, EPA, NOAA, DLCD, DOE, ODEQ, others

Projected Benefits

Benefits would include an overall reduction to the NWP dredging costs by identifying the various sources of material which enters the channel and finding ways to keep sediment from re-shoaling in problematic areas. Reducing the amount of material re-handle will maximize the effectiveness of a limited amount of dredge plant in the region. Identifying new areas to place material adjacent to the navigation channel will reduce haul costs, while allowing for the potential creation of shallow water habitat.

Leveraging Opportunities

This RSM project leverages additional NWP appropriated funds. NWP funds will be used to fund USGS and ERDC to develop a sediment budget for the LCR (below Bonneville Dam). The sediment budget will be used to project annual dredging needs by reach, and determine the best approach to meeting the NWP navigation mission, while beneficially using the material. NWP will coordinate with USGS for data from their gauging stations at RM 52 and RM 106. During the initial FY15 sediment budget development, the USGS gauging stations will be used to predict the sediment budget, in FY16 the results will be hindcast based on known dredging quantities to refine the estimating tool.

NWP will complete MMR on the two highest priority LCR pile dike structures in FY15. These reports will consider options for placing dredged material to extend the life of the structures and will also evaluate the continued function of pile dikes in passively maintaining the navigation channel (reducing the need for maintenance dredging) and protecting upland disposal sites. An expansion of the reports will be applicable to all 233 pile dike systems in the LCR, below Bonneville Dam.

The development of an RSMS for the LCR will set the framework for beneficial use projects in the future. Understanding the opportunities that exist for NWP to meet its navigation mission while also providing for ecosystem restoration, shoreline stabilization, etc; will be a driving component of this plan. The current 5-year O&M plan identifies placement sites through 2018. The district will use the RSMS to inform development of a DMMP for O&M needs after 2018.

NWP conducted a dredging Value engineering (VE) study in 2013. As part of the initial literature review a number of the recommendations for dredging and disposal methods from the VE study will be evaluated. These recommendations included both beneficial use and least cost methods for channel maintenance.



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Engineer Research and
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Participating Partners

USGS, Portland State University, others