Fact Sheet

Columbia Slough Sediment Update

State of Oregon
Department of Environmental Quality

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Introduction

This fact sheet provides an update on recent sediment investigation and cleanup work completed by the Department of Environmental Quality on the Columbia Slough in NE Portland.

Cleanup and investigation of slough sediment has been made possible by funds DEQ obtained through settlement with 14 parties in the Columbia Slough watershed for liability associated with their potential contribution to sediment contamination in the slough. Negotiations with five additional parties are underway. The sediment investigation and cleanup actions are consistent with the Record of Decision for the Columbia Slough.

In addition to settling liability for sediment cleanup costs, DEQ, in collaboration with Oregon Department of Fish and Wildlife, also developed an option for settling state natural resource damages associated with contaminant-related impairment of the Columbia Slough beneficial uses. The payments are dedicated to habitat restoration within the slough watershed.

Background

Development along the Slough has resulted in the accumulation of a variety of contaminants in Slough sediments, some of which bioaccumulate and have also been found at unhealthy concentrations in fish tissue collected from the Slough. In 2005, the DEQ issued a Record of Decision for the Columbia Slough that described the framework for cleanup of sediment contamination in the Slough. The three primary components of the sediment cleanup approach are:

- Pollutant source reduction
- Specific site cleanup
- Long-term monitoring

There are currently over 30 active cleanup projects in the Columbia Slough watershed. These projects are in various stages of investigation or cleanup. A number of parties have resisted conducting site-specific Columbia Slough sediment investigations due to concerns that DEQ would hold them responsible for investigation and cleanup of contamination caused by others. Investigation and cleanup of contaminated sediments is difficult to implement using a site-specific approach without costly litigation because of intermingled liability among multiple potential contributors to slough contamination through stormwater and wastewater discharges, bank erosion and other methods.

To address this issue, DEQ created a process through which parties can settle potential Columbia Slough-related liability with the State of Oregon by paying an amount, based on number of site outfalls and other site information, into a fund that DEQ can use to address the sediment contamination. DEQ requires each facility to complete necessary upland cleanup and associated source control measures under existing agreements with DEQ. In the summer of 2009 DEQ used some of the money to conduct a sediment study in a priority segment of the Lower Columbia Slough. DEQ issued a report on this study available at: http://www.oregon.gov/deq/FilterDocs/ColSlo-SedStudy2012Update120131.pdf. In the winter of 2011, DEQ completed a similar sediment investigation in the Whitaker Slough with a report available at: http://www.oregon.gov/deq/FilterDocs/ColSlo-SSWhitakerSlough.pdf. Previous fact sheets summarized these studies.

Between November 2013 and February 2014, DEQ implemented a cleanup action at one of the areas of elevated sediment contamination in the Whitaker Slough, Portland Willamette Inlet; and in the summer of 2016, DEQ implemented a pilot study cleanup action at Pacific Meat, one of the areas with elevated sediment contamination in the Lower Slough. These actions, along with habitat improvement projects in the Columbia Slough watershed to which DEQ natural resource damages funds have contributed are summarized in this fact sheet.

Portland Willamette inlet location

Portland Willamette Cleanup

One of the areas identified for active sediment cleanup in the Whitaker Slough investigation

was a small inlet off the main channel referred to as the Portland Willamette Inlet based on the adjacent settling facility. The inlet is located approximately 1.1 to 1.2 miles upstream of the Whitaker Slough's confluence with the main stem of the Columbia Slough.

Elevated concentrations of copper and lead detected in inlet sediment were likely associated with stormwater discharges which are now controlled. DEQ completed a feasibility study and issued a Record of Decision for the inlet in 2013. The selected remedy consisted of removing contaminated sediments and, to the extent practicable, using deeper clean sediment from the inlet to cap residual contamination. Remedial action objectives were to reduce surface sediment concentration of copper and lead to Whitaker Slough baseline concentrations (45 mg/kg and 74 mg/kg, respectively).

Coffer dam at Portland Willamette inlet

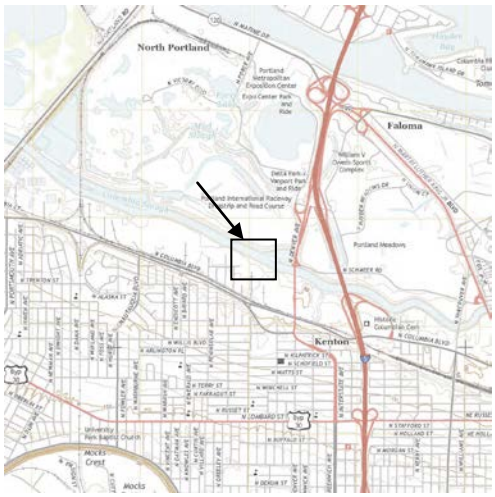
DEQ implemented this action in 2013/2014. A coffer dam was constructed with sheet pile to isolate the inlet from the Whitaker Slough during the sediment work.

Dredging at Portland Willamette inlet

Sediment was dredged from the inlet using a spyder hoe and materials barge operated by the Multnomah County Drainage District. A total of 1,283 tons of sediment were removed from the inlet and disposed of at Wasco County Landfill in The Dalles, Oregon. Confirmation samples were collected post dredging to assess achievement of remedial action objectives and additional removal conducted where necessary until those values were achieved.

Pacific Meat pilot study

One of the locations identified for cleanup in the Lower Slough was an area of elevated PCB contamination adjacent to the former Pacific Meat site.



Pacific Meat site location

DEQ implemented a pilot study at this location to evaluate performance and implementability of two forms of activated carbon sediment amendments to reduce the bioavailability of PCBs in sediment. Information gathered from this pilot study will be used to evaluate whether activated carbon would be a viable option for treating other PCB "hot spots" within the Columbia Slough.

Baseline sampling, consisting of incremental and discrete sediment samples and ex situ and in situ analyses of freely dissolved PCB concentrations in pore water, was conducted in 2016. Sedimite and Aquagate activated carbon amendments were placed in the impacted area in late summer 2016.

Sedimite, an agglomerate comprised of activated carbon and a weighting agent, was applied using a blower truck to a thickness of approximately 0.6 inches over the Sedimite application area. AquaGate, a composite-aggregate comprised of a dense aggregate core surrounded by a layer of clay, polymers, and fine-grained activated carbon, was applied using a telebelt to a thickness of 1.7 inches over the AquaGate application area.

Sedimite™ application at Pacific Meat

Application methods were determined in a pre-pilot test which indicated that, while the blower truck method could successfully place the Sedimite without significant loss of activated carbon, a less abrasive method was required for placement of AquaGate.

AquaGate™ application at Pacific Meat

The first performance monitoring event will be conducted in the summer 2017 using protocols similar to those applied during the baseline sampling. Results will be available in 2018.

Habitat Enhancements

DEQ contributed Natural Resource Damages funds to several habitat enhancement projects within the Columbia Slough basin. In 2015, the City of Portland placed 35 engineered log structures in the lower Columbia Slough to increase shelter for juvenile salmon as they migrate to the ocean and increase in-stream habitat complexity to benefit other native fish and wildlife.

DEQ also contributed funds to Portland Parks and Multnomah County Drainage District for improvements at several parks including Whitaker Ponds Nature Park, Cully Park, Columbia Children's Arboretum and Blue Heron Wetlands. This work is currently in progress.

Engineered log structures in Lower Slough

Whitaker Ponds improvements will include removing invasive terrestrial and aquatic plants, diversifying understory vegetation, stabilizing Slough banks and converting a small grass field to a native cottonwood/ash forest. The ponds provide important native turtle habitat along with excellent turtle viewing opportunities.

Cully Park improvements focus on the North Bank Slope of the former KFD Landfill. The work will create a prairie meadow by planting shrubs, flowering forbs and grasses.

Columbia Children's Arboretum and Blue Heron Wetland enhancements focus on removing invasive aquatic and terrestrial plants, and re-establish riparian canopy, where many trees are at the end of their lifespans. The work is expected to improve native turtle habitat and wildlife corridors within the Slough watershed.

For more information:

For information on these actions and the Columbia Slough sediment project in general: http://www.oregon.gov/deq/Hazards-and-Cleanup/CleanupSites/Pages/Columbia-Slough.aspx**.** A report on the Portland Willamette cleanup can be found at http://www.oregon.gov/deq/FilterDocs/colslo-ProjCompReport.pdf. A report on the Pacific Meat Pilot study can be found at http://www.oregon.gov/deq/FilterDocs/PilotImpReport.pdf.

Alternative formats

Documents can be provided upon request in an alternate format for individuals with disabilities or in a language other than English for people with limited English skills. To request a document in another format or language, call DEQ in Portland at 503-229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696; or email deqinfo@deq.state.or.us.