

Willamette River Downtown Reach and Upriver Reach Sediment Investigation, Cleanup and Source Control

The Willamette River Downtown Reach extends from River Mile (RM) 11.8 to RM 16.6 – approximately the Broadway Bridge to the Sellwood Bridge. This reach is just upriver of the Portland Harbor Superfund Site. The Upriver Reach extends from RM 16.7 to RM 26 – approximately the Sellwood Bridge to Willamette Falls in Oregon City. These reaches have been assigned Environmental Cleanup Site Information (ECSI) numbers [4956](#) and [6220](#), respectively.

The Oregon Department of Environmental Quality (DEQ) began investigating contamination and overseeing cleanup of contaminated sediment in these reaches in the mid-1980's. Primary contaminants of concern include PCBs, PAHs, dioxins/furans, organochlorine pesticides, metals, and tributyltin.

Six sediment cleanup actions have been completed as of March 2019, with a seventh cleanup planned for summer 2020. DEQ is overseeing investigations at five additional areas that may require cleanup actions.



View of the Willamette River in Downtown Portland

Physical setting

The Downtown Reach has been heavily developed and modified during the past 150 years. Various industrial activities have occurred on the banks of the river, including ship building and breaking, heavy manufacturing, pesticide formulating, manufactured gas production, power generation and distribution, and lumber processing. Major transportation corridors have also modified this reach of the river. This reach is a relatively high-energy segment of the Willamette River, where the main channel is narrow with steep channel

margins that are largely constrained by upland bulkheads along both riverbanks. Localized areas of exposed bedrock occur, particularly near bridges where scouring appears related to footing structures. Fine-grained deposits are observed in some nearshore areas sheltered from the main flow of the river.

The Upriver Reach, in contrast, flows through suburban areas under largely natural conditions. Several municipal wastewater treatment plants are present in this reach, and two former paper mills operated since the late 1800's in Oregon City. Several tributaries enter this reach including the Clackamas River. Much of the river bottom consists of exposed basalt bedrock. Sustained current speeds in this reach appear to prevent all but the coarsest material from settling in the main stem of the river. Some low to moderate shear stresses occur in the smaller side channels, embayments, and sheltered nearshore areas.

As a result of these land use activities and river dynamics, sediment in the Downtown Reach has been contaminated in localized, near shore areas. In contrast, sediment contamination has not been discovered at significant concentrations in the Upriver Reach.

Sediment investigations

Multiple investigations have been conducted under DEQ oversight in the Downtown and Upriver Reaches to discover and delineate areas of sediment contamination. Surface and subsurface samples have been collected from over 500 locations and analyzed for PCBs and other contaminants of concern. These investigations targeted discrete areas where potential sources of contamination may have contaminated river sediment. Samples were also collected broadly throughout these reaches to discover potentially contaminated river sediment impacted from unknown sources.

DEQ is overseeing five targeted sediment investigations between RM 12.1 and RM 16.7. Two are being performed by the City of Portland and the Oregon Department of Transportation along the east bank of the lower



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Downtown Reach at RM 12.1 and RM 12.7. An investigation is being performed by Union Pacific Railroad along the west bank of the middle Downtown Reach at RM 14. An area is being investigated by DEQ using orphan funds along the east bank of the upper Downtown Reach at RM 16.5. DEQ is conducting a search for potential responsible parties to perform an investigation at the remaining area along the east bank of the lower Upriver Reach at RM 16.7. The primary contaminant of concern in all five areas is PCBs.

Cleanup work

Sediment cleanup actions have been completed at six sites within the Downtown Reach, and a seventh is planned for 2020.

1. PGE Station L (RM 13.3E) – Completed in 1991. Cleanup action consisted of removing PCB-contaminated sediment and installing a sand and gravel isolation cap. ([ECSI #151](#))
2. Ross Island (RM 15) – Completed in 2010. Cleanup action consisted of installing a sand isolation cap to address PCBs and PAHs in sediment, capping shallow surface soil contaminated with metals, and capping settling ponds contaminated with tributyltin. ([ECSI #2409](#))
3. Zidell (RM 13.5W to 14.2W) – Completed in 2012. Cleanup action consisted of installing a sand and gravel isolation cap to address PCBs in sediment. ([ECSI #689](#))
4. CD Greenway Beach (RM 14W) – Completed in 2013. Cleanup action consisted of removing PCB and PAH contaminated beach sediment and installing a sand and gravel isolation cap. ([ECSI #5277](#))
5. PGE (RM 13.5E) – Completed in 2015. Cleanup action consisted of installing a sand and gravel isolation cap to address PCBs, dioxin/furans, and pesticides in sediment. ([ECSI #5249](#))
6. PGE (RM 13.1E) – Completed in 2017. Cleanup action consisted of installing a sand and gravel isolation cap with activated carbon to address PCBs, pesticides, PAHs, and metals in sediment. ([ECSI #5249](#))
7. Portland Gas Manufacturing (RM 12.1W to RM 12.3W) – Construction planned for summer 2020. Cleanup action consisting of removing PAH-contaminated sediment and installing a sand and gravel isolation cap with activated carbon. ([ECSI #1138](#))

These cleanup actions require long-term monitoring and maintenance.

Cleanup action objectives

Cleanup actions performed in the Downtown and Upriver Reaches are intended to protect human health and the environment pursuant to Oregon Revised Statute (ORS) 465.200 et seq. and Oregon Administrative Rules (OAR) Chapter 340, Division 122. The cleanup actions also reduce the potential for recontamination of the Portland Harbor Superfund Site from resuspension of contaminated sediment within these reaches. DEQ is coordinating with the U.S. Environmental Protection Agency to ensure that all necessary cleanup work is completed in these reaches prior to the initiation of remedial actions in the Portland Harbor Superfund Site.

Additional information

Additional information on the Downtown and Upriver Reaches and the specific cleanup sites within these reaches is available on DEQ's [ECSI database](#) or can be obtained through a [Public Records Request](#).

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Alternative formats

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