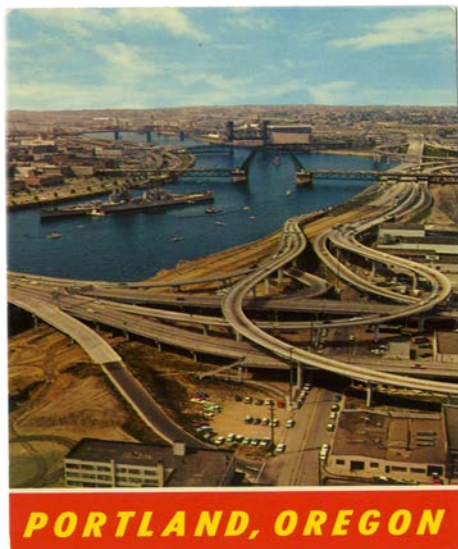


## Downtown Portland Sediment Study – 2011 Update

In 2008, the Oregon Department of Environmental Quality, City of Portland and other partners initiated a study of sediment quality in the downtown Willamette River reach. The study was conducted in two phases. Phase I included the collection and analysis of 117 sediment samples. Phase II included the collection and analysis of an additional 36 samples and the analysis of several samples archived during the Phase I study. These studies focused on polychlorinated biphenyls, also known as PCBs, dioxins/furans, pesticides (DDT, chlordane, dieldrin), polycyclic aromatic hydrocarbons, also called PAHs, metals (lead, mercury, arsenic), and tributyl tin.



1960s postcard of the Minnesota freeway (I-5)

### Background

The downtown reach of the Willamette River, extending from the Steel Bridge to slightly upriver of Ross Island, 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 also have played an important role in modifying this reach of the river. As a result of these activities, contaminants may have reached the river via riverbank erosion, direct surface runoff, stormwater discharges, wastewater discharges,

overwater activities (including spills), and groundwater.

Until recently, most sediment data collected in this reach were associated with sites under active or past remediation, including Portland General Electric (PGE) Station L, Zidell, Ross Island, and the Portland Harbor Superfund Site. In the summer of 2008, an initial phase of investigation of the downtown reach was conducted through a collaborative effort by DEQ, the City of Portland, ZRZ Realty Company (Zidell), PGE, PacifiCorp, and Tri-Met. The purposes of this effort were to identify any priority areas where DEQ follow-up may be necessary, to focus on likely source areas not already addressed by investigations or cleanup, and to assess the potential for contaminated sediments to migrate downriver.

The Phase I data report was issued in January 2009. DEQ evaluated these data and prioritized nine areas where the initial data suggested elevated contaminant concentrations in river sediment. DEQ identified these areas for additional investigation.

A Phase II sampling plan was developed with the objectives of confirming initial detections, focusing future source identification efforts, and getting a sense of the extent of sediment contamination. PGE led the investigation of two focus areas (River Miles 13.1E and 13.5E) because of their proximity to current or historical PGE facilities. Tri-Met participated in this study to evaluate potential environmental impacts of constructing the new light rail bridge. Phase II sampling was completed in March 2010.

### Phase II investigation details

The Phase II sampling event included the analysis of 7 archived surface and 15 subsurface sediment samples from the Phase I study, 27 new surface sediment samples, and 9 new sediment cores. In addition, bioassays were conducted on surface sediment samples from 5 locations to assess potential toxicity to benthic organisms that live in the sediment. At River Mile 13.1E and River Mile 13.5E, PGE sampled surface and subsurface sediment in a grid pattern as well as sampled beach sediment. Data reports for these investigations were prepared by PGE in June 2010 and April 2011.



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## Other cleanup work in the downtown reach

Significant sediment investigations and, in some cases, sediment cleanup actions have occurred or are taking place at the following locations within the downtown reach:

1. PGE Station L – cleanup is complete.
2. Ross Island – cleanup is complete.
3. Zidell facility – cleanup is complete.
4. Portland Gas Manufacturing (PGM) – remedial investigation is in progress.

In addition, several active cleanup projects are located in the upland drainage areas to this reach, including shoreline projects adjacent to the River Mile 13.3E and River Mile 14.1W focus areas.

## DEQ evaluation of Phase II data

DEQ completed the evaluation of seven focus areas in July 2011 and currently is working with PGE on the investigation at the remaining two focus areas.

Recommendations by focus area are summarized in the following table. RM refers to River Mile.

Focus Area	Recommended Actions
RM 12.1E	Evaluate potential sites in the drainage basin – focus on outfall WR-309
RM 12.4W	Reassess priority following completion of the PGM investigation
RM 12.5E	Evaluate potential sites in the drainage basin – focus on outfall WR-315
RM 12.9W	Evaluate potential sites in the drainage basin – focus on outfall OF 08A
RM 13.1E	Continue working with PGE on source control/sediment assessment
RM 13.3E	Assess possible dioxin/furan sources as part of PGE preliminary assessment review. Conduct necessary source control action as part of Crescent Site assessment.
RM 13.5E	Continue to work with PGE on source control/sediment assessment
RM 14.1W	Address need for controls as part of future shoreline redevelopment
RM 15.1E	Sample stormwater solids draining to outfall OF 28

## Reach-wide evaluation

Summary statistics, including surface weighted average concentrations, were compared to data from the Portland Harbor Superfund Site to assess the potential for the downtown reach to be a source of contamination to the Superfund Site. The small number of surface sediment samples collected relative to the area of the downtown reach makes this analysis challenging.

However, the comparison of the downtown reach to the Portland Harbor Superfund Site indicates that concentrations of contaminants of interest are generally significantly lower in the downtown reach than in the Portland Harbor Superfund Site. As a result, DEQ concluded that the downtown reach is unlikely to be a significant, ongoing source of contamination to the Portland Harbor Superfund Site.

DEQ expects that concentrations of contaminants in surface sediments in this portion of the Willamette River will decline over time as source areas are addressed, upland sources are controlled, and natural recovery mechanisms take effect.

## Next steps

DEQ does not plan to conduct further area-wide evaluations of the downtown reach sediments. Future work will focus on active cleanup projects. Site discovery work, discussed above, will occur as DEQ resources are available.

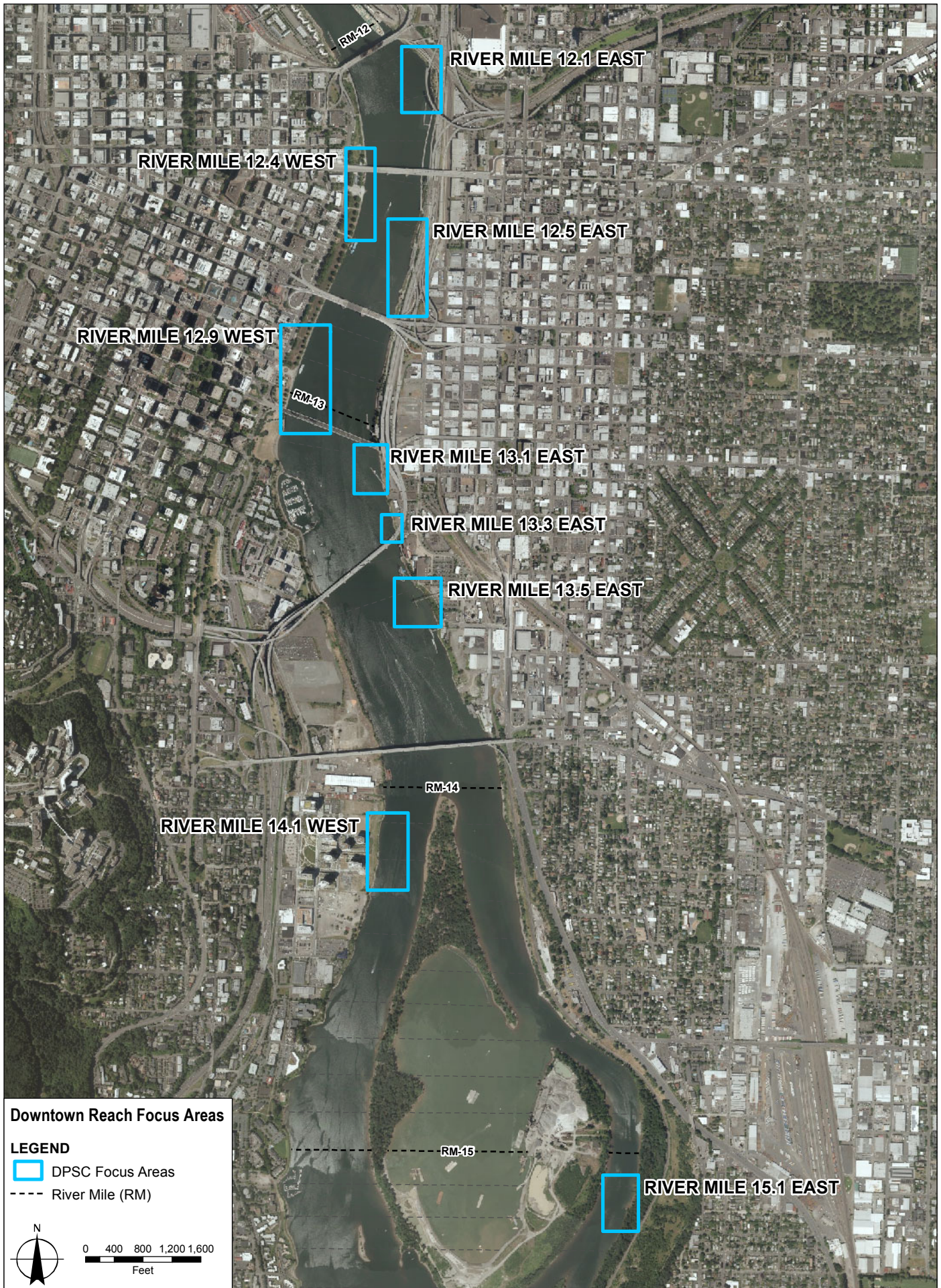
Key documents of the downtown Portland sediment characterization are available at <http://www.deq.state.or.us/lq/cu/nwr/willametteriver.htm>

## For more information please contact:

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## Alternative formats

*Alternative formats (Braille, large type) of this document can be made available. Contact DEQ's Office of Communications & Outreach, Portland, at (503) 229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 569.*



**Downtown Reach Focus Areas**

**LEGEND**

- DPSC Focus Areas
- River Mile (RM)

