

Portland Harbor CAG January 2010

Downtown Portland Sediment and Source Control Investigation Update

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http://www.deq.state.or.us/lq/cu/nwr/willametteriver.htm

Portland Waterfront, West Side, (1922). This photograph of Portland's west side waterfront was taken from one of the towers of the Hawthorne Bridge in about 1922.



DPSC Sample Locations:

- 81 surface sediment grab samples36 subsurface sediment core samples
- Typically required three attempts at each location

OF40

WR-310

OF34

OF08

OF31



OF01A OF01B

OF26A

OF01C

OF₂

OF28

OF03

OF05

OF04A

OF04



Project Description

-River Mile 12-16

-Downtown reach had been heavily industrialized for over 100 years

-Limited existing sediment-quality data

-Specific sites: PGE, NWN, Zidell, Ross Island



Phase 1- Downtown Portland Sediment Characterization

-Scope of Work

- -81 surface, 36 subsurface core samples
- -Portland Harbor analytes
- -Benthic macro invertebrate community survey
- -Funded thru informal partnership between DEQ, the City, Zidell, PGE, PP&L, and TriMet

-Sampling Strategy

- -Outfalls
- -Riverfront Industries
- -Ambient Stations



Project Description

- Determine an ambient concentration of contaminants in sediment.
- In consideration of ambient concentrations, identify areas of sediment deposition in excess of acceptable screening levels, and related hotspot concentrations. Evaluate whether sediment in the reach poses a recontamination threat to the PH Study Area (consistent with our role in the MOU as lead agency for SC).
- Develop and implement a state-led strategy to treat or remove hot spots, and control sources to levels protective of HH and the environment.



Phase 1- Downtown Portland Sediment Characterization

-Preliminary Screening Evaluation

-<u>Purpose</u>- Identify areas with the highest exceedances of conservative risk-based screening levels (toxicity and bioaccumulation)

-Methods-

1) Use JSCS SLVs & developed Hazard

Quotients to create screening ratio for samples

- 2) 2nd screen using toxicity SLVs only
- 3) Delineate Priority Areas by rank order/ pick a break in the curve



Phase 1- Downtown Portland Sediment Characterization

-Conclusions- published in DEQ's 10/13/09 "Downtown Portland- Willamette River Sediment Evaluation- Preliminary Screening"

http://www.deq.state.or.us/lq/cu/nwr/willametteriver.htm

1) Contaminant concentrations in the Downtown Reach are generally lower than Portland Harbor, but higher than upriver.







Phase 1- Downtown Portland Sediment Characterization

-Conclusions (continued)

2) Using the "break-in-the-curve" method..., 9 samples were identified as Priority Areas

The report includes a discussion of each of the 9 Priority Areas including:

-potential source(s)

-contaminant contribution to HI

-recommended next steps

Screening Results

Sample Location	Ratio Sum	
G048		11231.80
C031		2500.63
G030		2017.99
C022		1825.03
G017		1592.85
C039		1404.31
G058		1000.12
G005		897.68
G054		760.72
G007		482.12
G036		476.29
C002		472.53
C021		411.80
G041		399.73
G015		391.48
C019		260.65
G062		245.06
C037		233.37
G055		232.58
C004		231.00
G070		210.80
G047		203.60
G045		202.60
G037		202.60
G011		201.03
G012		197.79
C008		193.66
G016		189.14
G014		188.76
G006		188.19
G059		186.96





Phase 1- High Priority Areas

<u>Red Dots</u>- High Priority Areas (combined tox/bioaccum) (9)

<u>Purple Dots</u>-High Priority Areas (toxicity only) (3)

<u>Orange Dots</u>-Tier 2 High Priority Areas (3)



Phase 1- Downtown Portland Sediment Characterization

-Conclusions (continued)

3) Initial evaluation of potential risk is driven by bioaccumulative contaminants & associated risk up the food chain.

Potential toxicity impacts also exist.



Phase 1- Downtown Portland Sediment Characterization

-Next Steps-

- Confirm initial data & better characterize
 9 High Priority Areas.
- 2) Review entire dataset, background, produce final report.
- 3) Begin source discovery/source evaluation
- 4) Begin source control &/or in-river cleanup as appropriate



Phase 2- Follow-up Characterization- Objectives

- 1) Confirm detections of important contaminants found in Phase 1 work.
- Develop a contaminant release model of the 9 Priority Areas & identify key sources of contamination.
- 3) Characterize the magnitude & extent of sediment contamination in key Priority Areas.
- 4) Assess priority for further follow-up actions.
- 5) Coordinate with TriMet.



Phase 2- Follow-up Characterization- Scope of Work

- 1) Analyze approximately 22 archived samples from Phase 1.
- 2) Collect approximately 42 additional samples at 7 of the 9 Priority Areas.
- 3) Coordinate with PGE sample collection effort in the RM 13.1E & 13.5E areas.
- 4) Analyze samples for PCBs, metals, pesticides & possibly TPH & PAHs. Select samples will be run for dioxins & TBT.
- 5) Select 5 samples for sediment bioassays.



Phase 1- Downtown Portland Sediment Characterization





- Other actions:
 - -Zidell cleanup
 - -PGE Order for Remedial Investigation
 - -City work at former Albina Machine Works area (RM 11.3E)
 - -NWN former Portland MGP (RM 12.2W)
 - -Ross Island