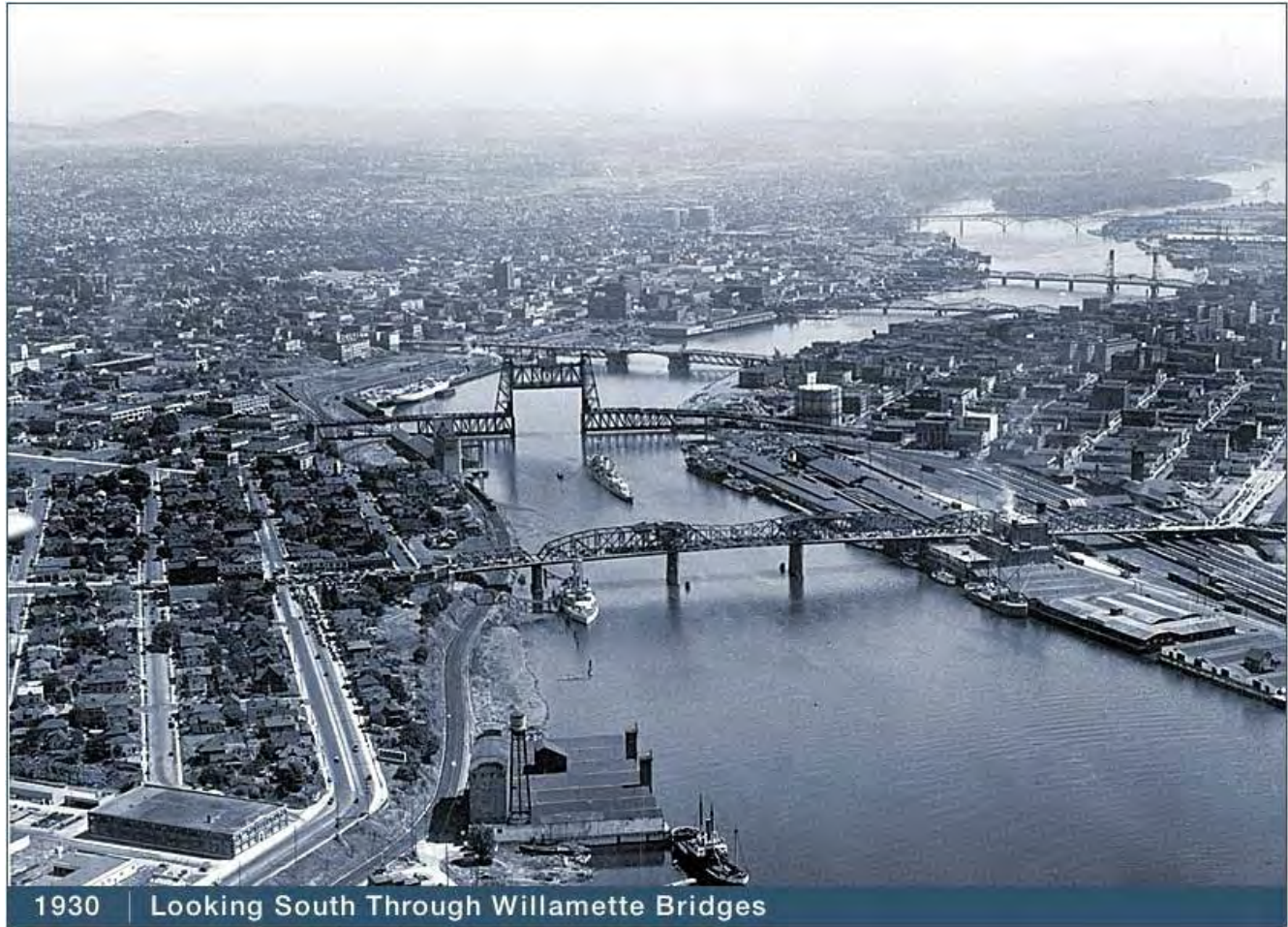


Downtown Portland – Willamette River Sediment Evaluation – Preliminary Screening



1930 | Looking South Through Willamette Bridges



Outline of Presentation

- Overview of evaluation
- Evaluation process
- Evaluation results
- Priority area discussion



Objectives

- Identify priority areas for further evaluation
- Ensure appropriate follow-up is initiated at sites that may reflect a significant risk
- Initiate coordination with on-going investigations
- Facilitate summarizing potential implications of data collected



Preliminary Evaluation Overview

- General assessment of data trends indicates lower concentrations of key contaminants in this segment of the Willamette River relative to Portland Harbor
- However, concentrations of many constituents exceed risk based screening levels, often by 1 – 3 orders of magnitude.
- Nine areas were identified that contained the greatest exceedances of risk-based screening levels for key contaminants of concern
- Additional work is warranted to confirm detections and provide preliminary information on scope and potential sources in the priority areas

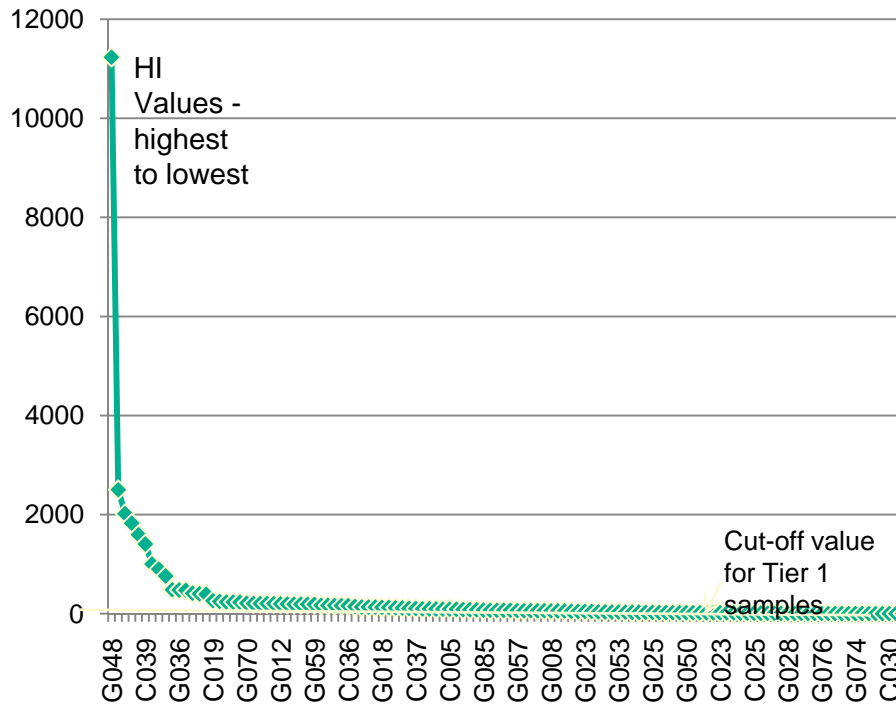


Evaluation Process

- Comparison to risk-based screening levels (SL)
- Calculate ratio of detected concentration over the SL for detected constituents in each sample
 - Sum the ratios for each sample
 - Use this value to rank samples – the highest values would reflect samples with the greatest cumulative exceedances of SLs
 - Consider dioxins and non-bioaccumulation driven threats in separate evaluations



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



Figure 4 - Downtown Willamette
Top 9 Priority Locations
Bioaccumulation and toxicity risk





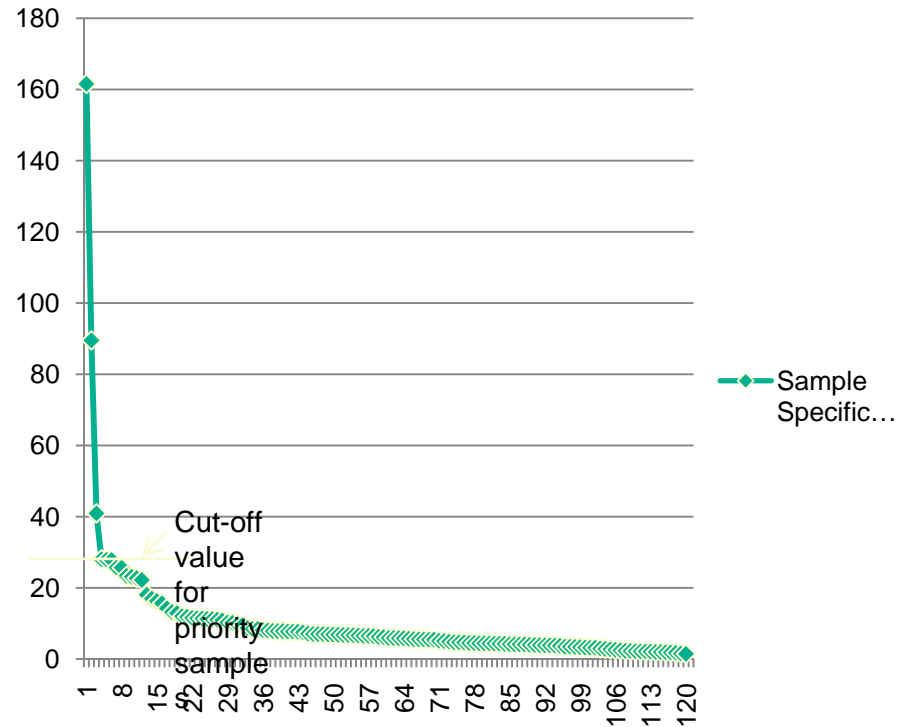
Figure 5 Downtown Willamette
Tier 2 Locations
Bioaccumulation and toxicity risk





Screening Results Toxicity only

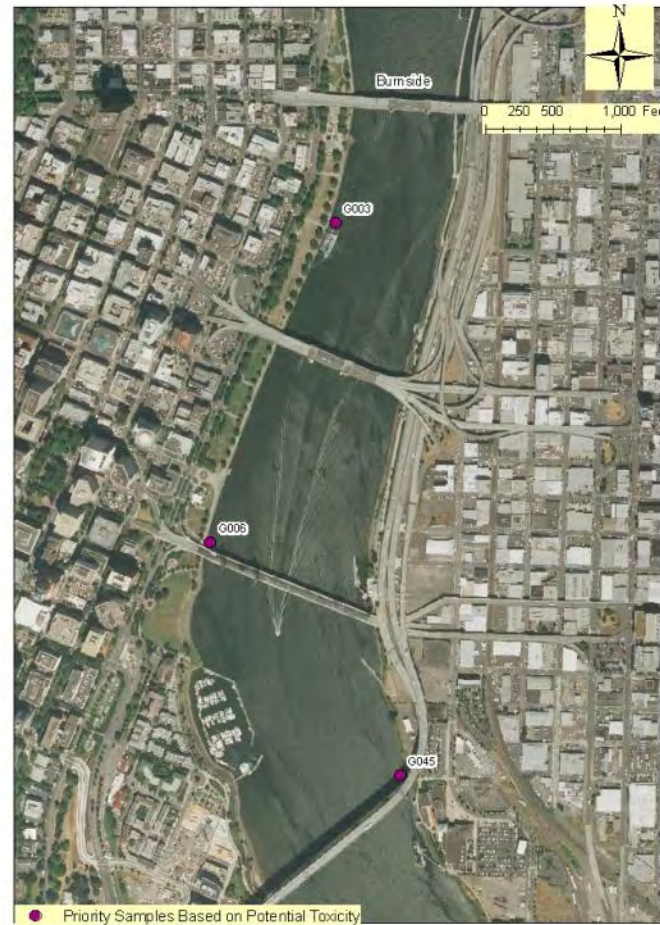
Sample Location	Ratio Sum
G003	161.57
G006	89.54
G045	40.95
C020	28.06
G048	27.92
C035	27.84
G054	25.75
G007	25.70
C031	23.41
G030	23.15
C029	22.78
C001	22.25
G049	18.08
C019	17.00
C028	16.32
C032	15.69
C002	14.29



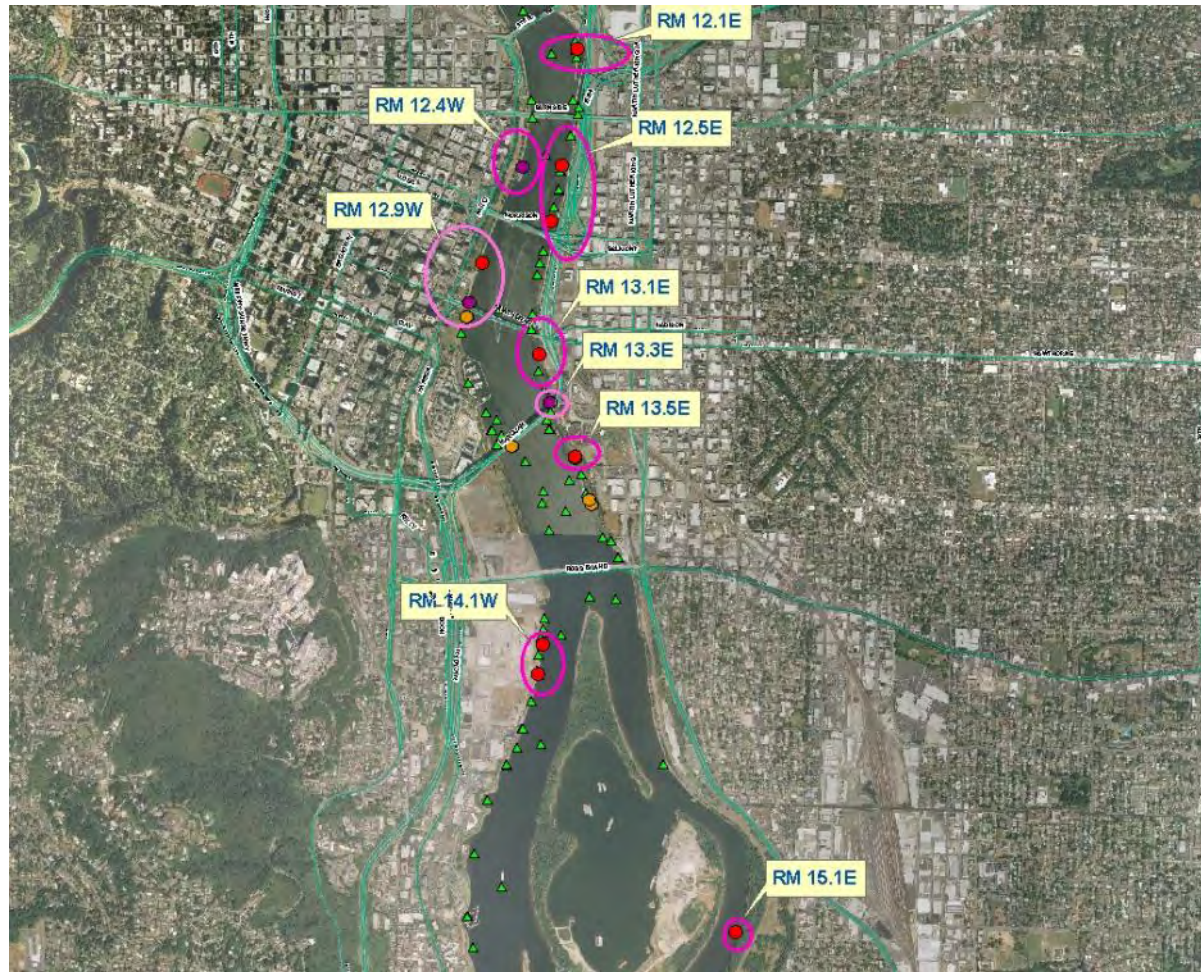
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Figure 7 Downtown Willamette Toxicity Screen Priority Locations



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Focus Area 1

River Mile 12.1E



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Figure 8 Downtown Willamette River Mile 12.1E - Sample C031 Area

Sample/Contaminant	Total DDTs (ppb)	Total PCBs (ppb)	Dieldren (ppb)	Lead (ppm)	Chlordanes(ppb)	TCDD (pg/g) TEQ
SLV	0.33	0.39	0.0081	17	0.37	0.0091
C031 (129 – 199 cm)	300.5	239	7.45	371	8.1	5.04
G063	1.1	6.9	ND (0.1)	21	0.24	NA
G064	2.92	5.7	0.28	23.4	1.24	3.01
G065	5.25	28	ND (0.2)	40.35	ND (0.36)	NA





Focus Area 2 River Mile 12.4W



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Figure 9 Downtown Willamette River Mile 12.4W - Sample G003 Area



Sample/Contaminant	Mercury (ppm)	Indeno(1,2,3-cd)Pyrene (ppb)	Naphthalene (ppb)	Acenaphthene (ppb)
SLV	0.07	100	561	200
G003	4.06	1400	5300	1900



Focus Area 3 River Mile 12.5E



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Figure 10 Downtown Willamette River Mile 12.5E - Samples G058/G054 Area

Sample/ Contaminant	Dieldren (ppb)	PCBs (ppb)	DDTs (ppb)	TCDD TEQ(pg/g)	Lead (ppm)	Mercury (ppm)	PCP (ppb)	Chlordane (ppb)
SLV	0.0081	0.39	0.33	0.0091	17	0.07	250	0.37
G058	6.7	49.8	10.5	NA	41.5	0.063	35	1.9
C030 (30 – 99 cm)	ND (0.036)	ND (1.0)	ND (0.13)	0.052	3.31	0.012	4.4	ND (0.52)
G057	ND (0.36)	35.13	2.3	9.95	63.6	0.154	890	3.38
G054	ND (0.18)	260	19.2	3.96	103	0.071	33	6
C028 (30 – 58 cm)	ND (0.036)	47	12.73	3.85	174	0.993	ND (5.2)	1.2
G055	ND (0.26)	63	13.3	NA	306	0.045	ND (4.8)	1.8
G056	0.45	13.2	7.78	5.42	122	0.097	ND (4.0)	1.32
C029 (53 – 157 cm)	ND (0.036)	7.1	2.39	4.13	90.3	1.32	ND (5)	ND (0.2)





Focus Area 4 River Mile 12.9W

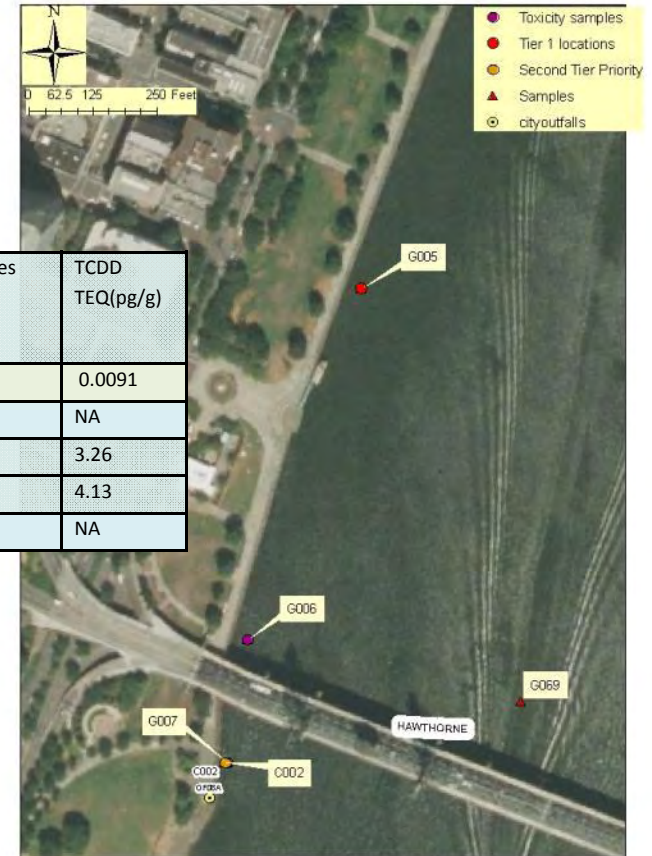


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Figure 11 Downtown Willamette River Mile 12.9W - Samples G005/G006 Area

Sample/Contaminant	TBT (ppb)	Arsenic (ppm)	Lead (ppm)	PCBs (ppb)	Indeno(1,2,3-cd)Pyrene (ppb)	DDTs (ppb)	Chlordanes	TCDD TEQ(pg/g)
SLV	2	7	17	0.39	100	0.33	0.37	0.0091
G006	1.7	126	428	38	1100	4.15	0.94	NA
G007	40	12.7	60.1	150	220	15.55	3.6	3.26
C002 (30 – 85 cm)	7.3	6.02	123	141	66	26.2	4.3	4.13
G005	1700	5.4	197	9.5	64	2.12	0.25	NA





Focus Area 5 River Mile 13.1E

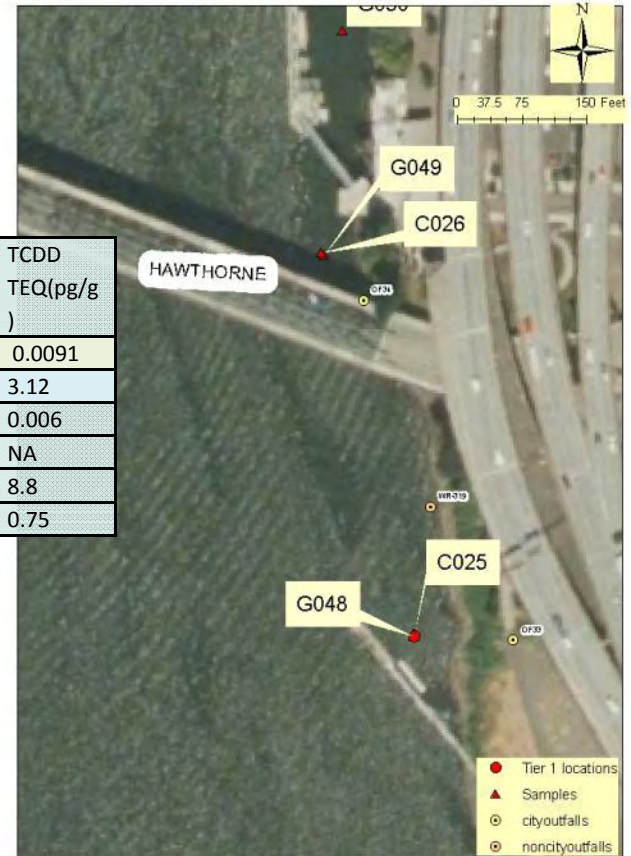


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Figure 12 Downtown Willamette River Mile 13.1E - Sample G048 Area

Sample/Contaminant	Total PCBs(ppb)	Total DDTs(ppb)	Chlordanes (ppb)	TCDD TEQ(pg/g)
SLV	0.39	0.33	0.37	0.0091
G048	4200	144	4.3	3.12
C025 (247 – 330 cm)	ND (1.0)	ND (0.13)	ND (0.054)	0.006
G047	68	7.14	0.88	NA
G049	43	12.4	1.03	8.8
C026 (30 – 147 cm)	6.5	3.85	0.42	0.75





Focus Area 6 River Mile 13.3E



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Figure 13 Downtown Willamette River Mile 13.3E - Sample G045 Area

Sample/Contaminant	PCBs (ppb)	DDTs (ppb)	Naphthalene (ppb)	TCDD TEQ (pg/g)
SLV	0.39	0.33	561	0.0091
G045	62	7.48	3400	15.02
C024 (99 – 142 cm)	ND (1.0)	ND (0.2)	290	0.011
G044	17	1.056	140	8.12
C023 (31 – 80 cm)	ND (1.0)	ND (0.13)	740	0.05





Focus Area 7 River Mile 13.5E

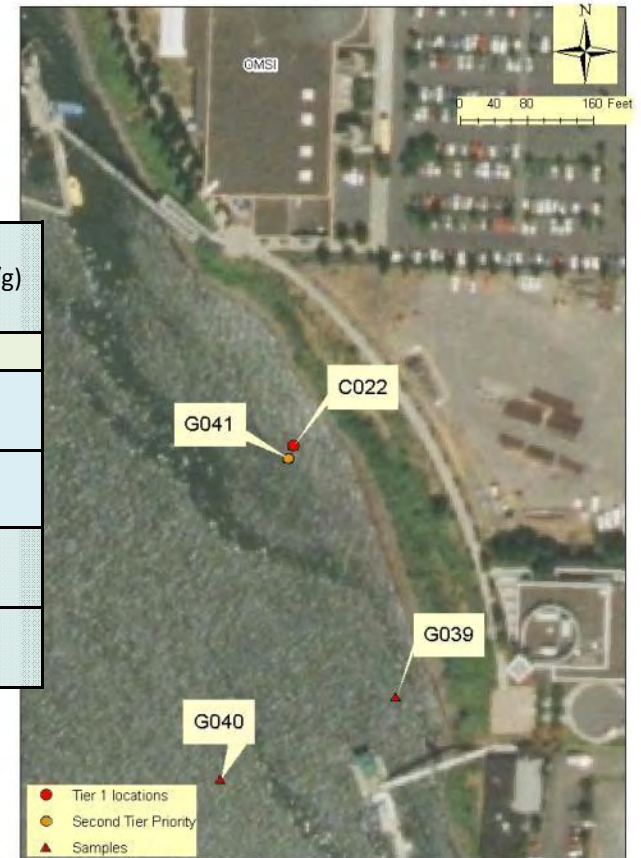


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Figure 14 Downtown Willamette River Mile 13.5E - Samples C022/G041 Area

Sample/Contaminant	Total PCBs (ppb)	Total DDTs (ppb)	Mercury (ppm)	Total chlordanes (ppb)	TCDD TEQ(pg/g)
SLV	0.39	0.33	0.07	0.37	0.0091
C022 (96 – 156 cm)	610	70.6	0.231	14	8.81
G041	133.5	10.89	0.7125	2.9	6.39
G039	10.1	1.28	0.05	0.46	NA
G040	ND (1.0)	ND (0.13)	0.015	ND (0.054)	NA





Focus Area 8 River Mile 14.1W



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Sample/Contaminant	Total PCBs (ppb)	Total DDTs (ppb)	Lead (ppm)	Total chlordanes (ppb)	TCDD TEQ (pg/g)
SLV	0.39	0.33	17	0.37	0.0091
G017	520	70.3	57.5	15	0.95
C008 (30 – 130 cm)	62	8.24	23.5	1.62	3.69
C036 (0 – 60 cm)	51	6.81	83	ND (1.5)	NA
C036 (60 – 68 cm)	24	3.8	49	ND (0.23)	NA
C037 (0 – 60 cm)	75	10.35	33	1.9	NA
C037 (60 – 68 cm)	26	3.29	14.9	1.3	NA
C007 (88 – 210 cm)	21	8.8	17.8	0.57	12.75
G016	60	8.2	40.5	2.2	1.58
C035 (0 – 61 cm)	41	11.4	51.4	1.6	NA
C039 (60 – 120 cm)	538	7.17	11.52	ND (0.98)	NA
C039 (0 – 60 cm)	46	1.05	16.1	ND (0.9)	NA
C038 (0 – 60 cm)	ND (1.0)	ND (0.13)	30.15	ND (0.22)	NA
C038 (60 – 120 cm)	ND (1.0)	0.13	14.4	ND (0.22)	NA
C009 (30 – 182 cm)	19.6	4.09	9.62	0.47	1.17
G018	39	4.58	102	1.49	2.28

Figure 16 Downtown Willamette River Mile 14.1W - Samples G017/C039 Area





Focus Area 9 River Mile 15.1E



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Figure 17 Downtown Willamette River Mile 15.1E - Sample G030 Area



Sample/Contaminant	Total PCBs (ppb)	Total DDTs (ppb)	Chlordane (ppb)	Lead (ppm)	TCDD TEQ (pg/g)
SLV	0.39	0.33	0.37	17	0.0091
G030	710	40.7	15.9	389	19.22
C018 (30 – 122 cm)	ND (7.4)	0.89	0.12	13.3	0.47



Next Steps

- Complete Phase 2 Sampling – Nov 2009
- Evaluate data – Spring 2010
- Initiate source investigations/cleanup evaluations as appropriate – Summer 2010