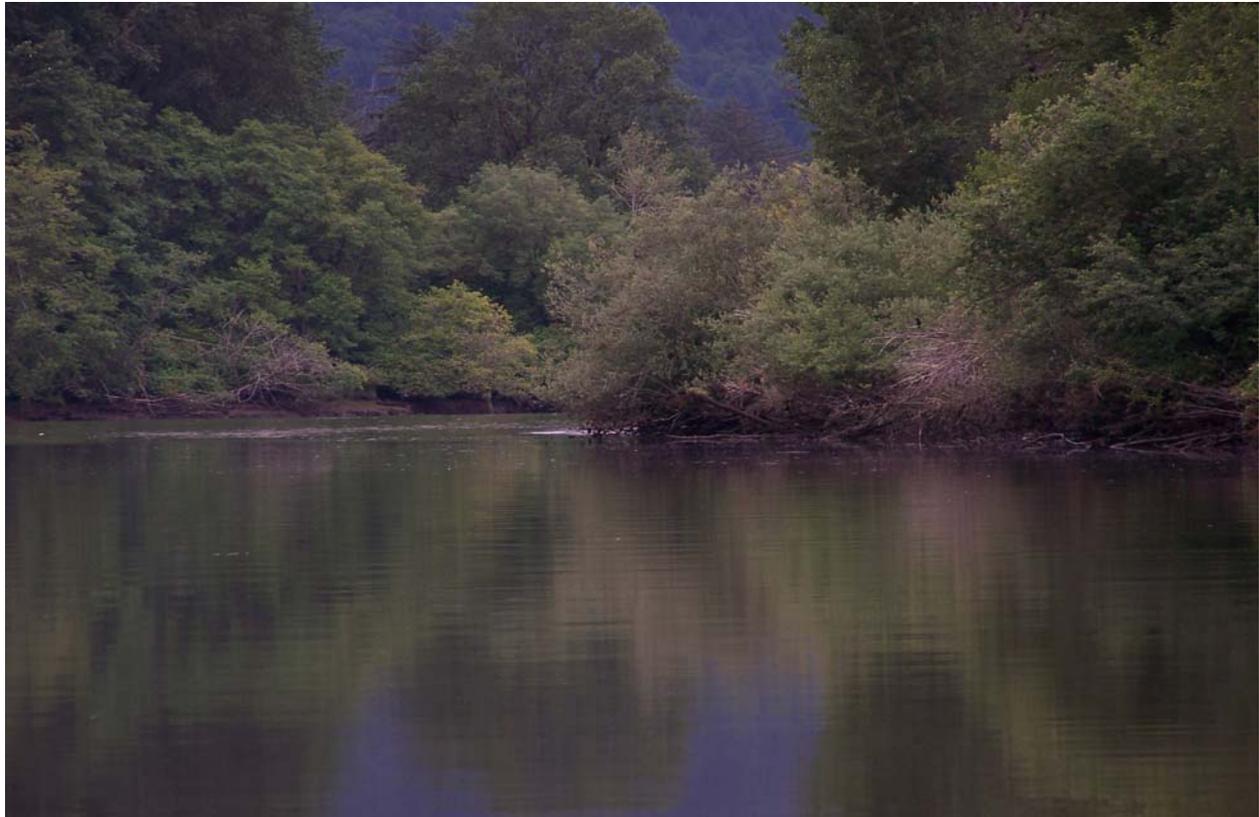




**US Army Corps  
of Engineers®**  
Portland District

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# **WESTPORT SLOUGH SEDIMENT QUALITY EVALUATION REPORT**



**Sampled July 19, 2006**

**Prepared by:  
Ruth Abney**

**Technical Review:  
Tim Sherman  
Mark Siipola**

**Portland District  
Corps of Engineers  
CENWP-EC-HR**

EPA	Environmental Protection Agency
USACE	U.S. Army Corps of Engineers
ODEQ	Oregon Department of Environmental Quality
WDNR	Washington Department of Natural Resources
WDOE	Washington Department of Ecology
DMEF	Dredge Material Evaluation Framework
NES	Newly Exposed Surface
QA/QC	Quality Assurance/Quality Control
TOC	Total Organic Carbon
PAH	Polynuclear Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
MRL	Method Reporting Limit
ND	non-detect
ppm	parts per million – mg/kg
ppb	parts per billion – ug/kg & ug/L
pptr	parts per trillion – ng/kg
RM	River mile
SL	Screening level
As	Arsenic
Cd	Cadmium
Ni	Nickel
Cu	Copper
Sb	Thallium
Cr	Chromium
Pb	Lead
Hg	Mercury
Ni	Nickel
Ag	Silver
Zn	Zinc
MLLW	Mean Lower Low Water
CRD	Columbia River Datum

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Note: This Westport Slough Sediment Quality Evaluation Report was reviewed by the Regional (sediment) Management Team (RMT) in accordance with the DMEF (1998). The RMT consists of Portland District Corps of Engineers, EPA Region 10, Oregon DEQ and Washington DOE personnel. All comments received have been incorporated into the report and the report was considered final at the end of the review period, November, 2006.



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### ABSTRACT

The Westport Slough is located on the Oregon side of the Columbia River at approximately river mile (RM) 43.5. The River and Harbor Act of August 26, 1937 authorized a 28-ft. deep by 200-ft wide, 3500-ft. long channel. The present dredging plan provides for a channel 9 feet deep, 200 feet wide and 1900 feet long. The Wahkiakum Ferry proceeds down the slough channel then across the Columbia River to connect Westport to the south side of Puget Island on the Washington side of the Columbia River. Shoaling across the mouth of Westport Slough and on the Puget Island end of the channel requires periodic maintenance dredging for navigational purposes; these areas were last characterized in 2005.

The current sampling event was conducted to characterize sediment for potential dredging to 22-feet (-22 ft MLLW CRD) within the Westport Slough Channel to accommodate ocean-going barges. Sediment becomes increasingly finer-grained as you proceed into the Westport Slough Channel from the Columbia River Ferry Crossing Channel.

There are no known sources of contamination in the area upstream. Georgia Pacific (formerly James River paper mill) is located at Wauna 2.0 miles downstream; 1998 sediment was tested for Dioxin/Furans, with none detected in any samples at low laboratory detection levels.

On July 13, 2006 the sampling team attempted to sample the study area. Due to equipment malfunction samples were not collected that day. On July 19, 2006, a total of four (4) vibra-core samples and one (1) surface grab sediment sample were submitted for physical and chemical analyses. The combined averages for the core samples indicate the material is 66.4% sand, 33.8% silt and clay, with 2.55% volatile solids.

The chemical analyses indicated very low levels of PCB, DDT, phthalates, phenol and hexachlorobutadiene detected at levels estimated below the laboratory reporting limit but above the laboratory method detection limit. Samples contained various "low molecular weight" or "high molecular weight" PAHs, 4,4'-DDD and 4,4'-DDE at and above the laboratory reporting limit. All concentrations measured were substantially below the DMEF screening levels. All detected analytes or sum of analyte classes were well below DMEF screening levels. All laboratory detection levels are well below those listed in Table 8-2 of the DMEF.

All material is determined to be suitable for unconfined in-water placement without further characterization.



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### INTRODUCTION

This sampling event characterized the sediment of shoaling within the Westport Slough and on the Columbia River at RM 43.5. Shoaling typically forms nearshore on the Oregon side of the Columbia River. In 2005 physical analysis of the samples revealed that the sediment samples collected at the shoaling near the Westport end of the of the ferry crossing channel contained 72.8 % sand and 24.8 % fines, with 1.1% volatile solids, with no known source of contamination or history of contaminated sediment shoaling. .

### Sampling and Analysis Objectives

- To characterize sediments in accordance with the regional dredge material testing manual protocols, the Dredge Material Evaluation Framework for the Lower Columbia River Management Area (DMEF), as well as, the Evaluation of Dredged Material Proposed for Disposal at Island, Nearshore, or upland Confined Disposal Facilities – Testing manual (Upland Testing Manual).
- Collect, handle and analyze representative sediment from Westport Slough in accordance with protocols and Quality Assurance/Quality Control (QA/QC) requirements of the DMEF.
- Analyze for full suite of physical and chemical parameters as outlined in the DMEF (1998) Tier II a & b. DMEF – Table 8.1 contains the list of analytes and methods of analysis.

### PREVIOUS STUDIES

There are no known sources of contamination within Westport Slough or in the Columbia River upstream of the Westport Slough confluence. Georgia Pacific (formerly James River paper mill) is located on the Columbia River, at Wauna, 2.0 miles downstream of the Westport Slough confluence.

In 1990, 1994, 1996, 1998 and 2005 samples were taken from shoals in the Westport/Wahkiakum Ferry Crossing, at both the Westport and Puget Island shoals. All material was determined to be suitable for unconfined in-water placement without further characterization.

In the 1998 sampling event 4 samples were collected by gravity core. Two (2) attempts recovered no sediment, with subsequent recovery ranges of 5", 14", 21" & 44"; these samples were all collected on the Oregon side of the crossing channel, as no shoaling was present on the Washington side. In 1998 select samples were analyzed for Dioxin/Furans testing, with no detections present. The physical averages for 1998 indicate the material was 75.0% sand, 25% silt and clay, with 2.7% volatile solids.

In 1999 one (1) sediment core sample and 2 water samples were collected inside Westport Slough. The sediment sample was collected at the east end of the slough. The material was 37%



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sand and 63% fines, with 6.8% volatile solids. Sediment was analyzed for all DMEF standard method analytes (except dioxin and tributyltin), with no detected contaminants of concern approaching their respective screening levels.

In 2005 a total of five (5) surface grab sediment samples, using a modified Gray O'Hara boxcore sampler, were submitted for physical analyses including total volatile solids and were, also, analyzed for metals (9 inorganic), total organic carbon, pesticides and polychlorinated biphenyls (PCBs), phenols, phthalates, miscellaneous extractables and polynuclear aromatic hydrocarbon (PAHs). Physical analysis of the samples revealed that the sediment samples collected at the shoaling near the Westport end of the of the ferry crossing channel contained 72.8 % sand and 24.8 % fines, with 1.1% volatile solids.

Historically, all material has met Clean Water Act (CWA) regional guidelines and has been determined to be suitable for unconfined in-water placement.

### **CURRENT SAMPLING EVENT/DISCUSSION**

Information from a hydrographic survey conducted in 2006 was used to determine the depth of the potential dredging prism and sample target stations within the Westport/Wahkiakum Ferry Channel crossing (see Figures 2 and 3). Core samples were planned for this event.

On July 19, 2006 a total of four (4) vibra-core samples and one (1) surface grab sediment sample were submitted for physical analyses including total volatile solids and were, also, analyzed for metals (9 inorganic), total organic carbon, pesticides and polychlorinated biphenyls (PCBs), phenols, phthalates, miscellaneous extractables and polynuclear aromatic hydrocarbon (PAHs).

Penetration depths of vibra-core samples 071906WPSC-VC-01 to 04 were -10.5 feet, -10.2 feet, -15.9 feet and -20.2 feet Columbia River Datum (CRD) measure at Cathlamet Washington, with core recoveries of 33", 59", 68" and 88" respectively. All cores were taken to refusal. Refusal in all cores was due to the consolidated nature of the material, preventing further penetration. Although cores did not penetrate the full dredging prism depth (-22ft MLLW CRD), it is determined that the sample recovery is adequate to characterize the dredging prism due to the homogeneous nature, high sand content, lack of a contamination source and low level of contamination in both historical and current data.

Physical analysis of the samples revealed that the sediment samples collected at the shoaling near the Westport end of the of the ferry crossing channel contained 66.4 % sand and 33.8 % fines, with 2.55 % volatile solids.

The chemical analyses indicated PCB, phthalates, phenol and hexachlorobutadiene were detected at levels estimated below the laboratory reporting limit but above the laboratory method detection limit. Samples contained various "low molecular weight" or "high molecular weight" PAHs and 4,4'-DDD and 4,4'-DDE at and above the laboratory reporting limit. All concentrations measured were substantially below the DMEF screening limits. All detected analytes or sum of analyte classes were well below DMEF screening levels. All laboratory detection levels are well below DMEF SL values.



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All material is determined to be suitable for unconfined in-water placement without further characterization.

Table 1, documents the sampling station location coordinates, recorded using a hand held Lowrance GlobalMap 100 GPS unit. Table 2, identifies the sampling team and their areas of responsibility in this project.

**Table 1: Westport Slough Sampling Station Coordinates**

(NAD 83, Oregon State Plane North)

<b>Sample ID</b>	<b>Latitude</b>	<b>Longitude</b>
071906WPSC-VC-01	46°08'51.7"	123°23'15.3"
071906WPSC-VC-02	46°08'50.3"	123°23'12.8"
071906WPSC-VC-03	46°08'48.1"	123°23'08.1"
071906WPSC-VC-04	46°08'45.4"	123°23'05.1"
071906WPSC-G-05	46°08'32.7"	123°22'59.3"

**Table 2, Planning & Sampling Team with Responsibilities**

<b>Task/Responsibility</b>	<b>CENWP Tim Sherman</b>	<b>CENWP Ruth Abney</b>	<b>CENWP CENWP Staff</b>	<b>A/E Boat Operator</b>
Overall Project Management	X			
Sampling Plan Development	X			
Agency Coordination	X			
Positioning/Log Record	X	X		X
Sediment Sampling	X	X	X	
Physical Analysis	X			
Chemical Analysis	X			
Final Report	X	X		
Technical Review	X			
Boat & Operator				X



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### RESULTS

A total of four (4) vibra-core samples and one (1) surface grab sediment sample were collected. Data is presented in tables 3 through 6. Physical testing was performed on all samples collected. Chemical analyses were performed on the core samples collected. A summary of results follows:

#### **Physical and Volatile Solids (ASTM methods)**

Physical and volatile solids determinations are presented in Table 3. Physical analysis of the samples revealed that the sediment material from the core samples is 66.4% sand, 33.8% silt and clay, with 2.55% volatile solids while the grab sample was 9.2% gravel, 89.9% sand and 0.95% silt and clay.

#### **Metals (EPA method 6010/7471), Total Organic Carbon (EPA method 9060)**

Metals and TOC data are presented in Table 4. The TOC ranged from 0.20 to 0.72 % in the core samples and was 0.07% in the grab sample.

Low levels of Sb, As, Cd, Cr, Cu, Pb, Ni, Ag, Zn and Hg were detected in all core samples, but no levels approached their respective DMEF SL. All laboratory MDLs are well below DMEF SL values. Metals analysis was not performed on the grab sample.

#### **Pesticides/PCBs (EPA method 8080), Chlorinated Hydrocarbons, Miscellaneous Extractables, Phthalates, and Phenols (EPA method 8270)**

Data for these analyses are presented in Table 5. Aroclor 1254 was detected at low levels in two samples. 4,4'-DDD, 4'4'-DDE and 4,4'-DDT were detected at estimated levels or higher in all samples. All sums of DDT compounds detected were less than the DMEF screening level. No chlorinated hydrocarbons, miscellaneous extractables, phthalates or phenols were detected in any samples with the following exceptions:

- Hexachlorobutadiene was detected in one sample at 10 ppb, below the DMEF screening level of 29 ppb
- Di-n-butyl phthalate and Bis(2-ethylhexyl) phthalate were detected at estimated levels in all samples at well below the DMEF screening levels
- Phenol was detected at estimated levels in all samples at well below the DMEF screening levels.

All laboratory detection levels are well below DMEF SL values.

#### **Polynuclear Aromatic Hydrocarbons (EPA method 8270C)**

Low and high molecular weight PAH data is presented in Table 6. Samples contained various "low molecular weight" or "high molecular weight" PAHs at and above the laboratory reporting limit. All concentrations measured were substantially below the DMEF screening limits. All laboratory detection levels are well below DMEF SL values.



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### CONCLUSION

This sampling event characterized the sediment within the federally authorized Westport Slough channel out to the Columbia River to determine contamination levels (if any) and physical characteristics that exist within the sediment to be dredged and determine its suitability for in-water placement.

The Westport Slough is located on the Oregon side of the Columbia River at approximately river mile 43.5. The River and Harbor Act of August 26, 1937 authorized a 28-ft. deep by 200-ft wide, 3500-ft. long channel. The present dredging plan provides for a channel 9 feet deep, 200 feet wide and 1900 feet long. Shoaling across the mouth of Westport slough will require maintenance dredging for navigational purposes. There are no known sources of contamination in the areas upstream. Historical data collected in 1990, 1994, 1996, 1998 and 2005 have shown all material to be suitable for unconfined in-water placement.

The current sampling event was conducted to characterize sediment for potential dredging to 20-feet within the Westport Slough Channel to accommodate ocean-going barges. Sediment becomes increasingly finer-grained as you proceed into the Westport Slough Channel from the Columbia River Ferry Crossing Channel.

This evaluation was conducted following procedures set forth in the Upland Testing Manual and Inland Testing Manual, developed jointly by the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency to assess dredged material. Guidelines used are those developed to implement the Clean Water Act. These national guidelines and associated local screening levels are those adopted for use in the regional Dredge Material Evaluation Framework (DMEF), November 1998.

On July 19, 2006 there were 5 stations sampled within the shoal areas of the Westport Slough. Samples consisted of one (1) grab sample and four (4) vibra-core samples. All samples were submitted for physical analyses. Only the core samples were submitted for chemical analyses. All stations were located in the shoaling area at the mouth of the slough. Physical analysis of the core samples revealed that the sediment collected contained 33.8 % fine-grained material, with 66.4 % sand. The grab sample contained 9.2% gravel, 89.9% sand and 0.95% silt and clay.

The chemical analyses indicated only low levels of some metals, phthalates, phenols, PCBs, pesticides, LPAHs and HPAHs in any of the samples. All chemicals or sums of chemicals detected were well below their respective DMEF screening levels and the detection limits for all non-detected analytes were substantially below DMEF screening levels.

All material is determined to be suitable for unconfined in-water placement without further characterization.



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### REFERENCES

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2. U.S. Environmental Protection Agency and U.S. Army Corps of Engineers. February 1998. Evaluation of Dredged Material Proposed for Discharge in Inland and Near Coastal Waters - Testing Manual (referred to as the "Inland Testing Manual").
3. U.S. Army Corps of Engineers, U.S. Environmental Protection Agency. February 1991. Evaluation of Dredged Material Proposed for Ocean Disposal - Testing Manual (referred to as the OTM or the "Green Book").
4. U.S. Army Corps of Engineers. January 2003. Evaluation of Dredged Material Proposed for Disposal at Island, Nearshore, or Upland Confined Disposal Facilities - Testing Manual (referred to as the "Upland Testing Manual").
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**Table 3: Physical Analysis and Volatile Solids**

Sample I.D.	Grain Size (mm)	Percent (%)			
	Mean	Gravel	Sand	Silt/Clay	Volatile Solids
071906WPSC-VC-01A		0	63.7	37.3	2.65
071906WPSC-VC-02A		0	69.7	30.3	2.47
071906WPSC-VC-03A		0	70.4	29.6	1.49
071906WPSC-VC-04A		0	68.6	31.4	3.10
071906WPSC-VC-04B		0	59.5	40.5	3.02
Average		0	66.4	33.8	2.55
071906WPSC-G-05		9.2	89.9	0.95	



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**Table 4: Inorganic Metals and TOC (mg/kg)**

Sample I.D.	Sb	As	Cd	Cr	Cu	Pb	Ni	Ag	Zn	Hg	Sulfide	TOC (%)
071906WPSC-VC-01A	0.16	2.44	0.318	9.83	17.3	7.53	10.5	0.096	59.9	0.020	6.9	0.45
071906WPSC-VC-02A	0.07	2.04	0.242	9.01	14.5	5.75	10.2	0.064	54.5	<0.004	<0.3	0.42
071906WPSC-VC-03A	0.07	1.65	0.198	6.31	15.6	4.24	7.37	0.073	43.4	0.020	<0.3	0.54
071906WPSC-VC-04A	0.10	2.14	0.325	8.94	15.6	6.28	9.80	0.081	59.0	0.036	<0.3	0.20
071906WPSC-VC-04B	0.07	2.14	0.275	6.95	20.2	4.76	8.26	0.74	43.9	0.024	<0.3	0.72
071906WPSC-G-05												0.07
DMEF 1998 Screening level	150	57	5.1		390	450	140	6.1	410	0.41		NA

Symbol (<) = Non-detect (ND) at the value listed (Method Detection Limit).



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**Table 5: PCBs (ug/kg)**

Sample I.D.	PCBs Aroclors							
	1016	1221	1232	1242	1248	1254	1260	Sum
071906WPSC-VC-01A	<2.3	<2.3	<2.3	<2.3	<2.3	5.5 J	<2.3	5.5
071906WPSC-VC-02A	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3
071906WPSC-VC-03A	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
071906WPSC-VC-04A	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3
071906WPSC-VC-04B	<2.3	<2.3	<2.3	<2.3	<2.3	4.0 J	<2.3	4.0
DMEF 1998 Screening levels	Total							130
Symbol (<) = Non-detect (ND) at the value listed (Method Detection Limit).								



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Table 5 (con't): Pesticides (ug/kg)

Sample I.D.	Pesticides								
	Aldrin	Alpha-Chlordane	Dieldrin	Heptachlor	Gamma-BHC (Lindane)	4,4'-DDD	4,4'-DDE	4,4'-DDT	Sum DDTs
071906WPSC-VC-01A	<0.21	<0.32	<0.40	<0.23 i	<0.21	0.48 JP	0.74 J	<1.0 i	1.22
071906WPSC-VC-02A	<0.21	<0.32	<0.41	<0.15	<0.21	0.43 J	0.69 J	<1.0 i	1.12
071906WPSC-VC-03A	<0.20	<0.31	<0.39	<0.12 i	<0.20	<0.16	0.43 J	<1.0 i	0.43
071906WPSC-VC-04A	<0.21	<0.32	<0.41	<0.13 i	<0.21	0.53 J	0.68 J	<0.69 i	1.21
071906WPSC-VC-04B	<0.22	<0.33	<0.48 i	<0.71 i	<1.0 i	1.0	1.1	<0.8 i	2.1
DMEF 1998 Screening levels	10	10	10	10	10	Total			6.9
Symbol (<) = Non-detect (ND) at the value listed (Method Detection Limit). i = The MRL/MDL has been elevated due to matrix interference.									



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**Table 5 (con't): Chlorinated Hydrocarbons (ug/kg)**

Sample I.D.	1,3- Dichlorobenzene	1,4- Dichlorobenzene	1,2- Dichlorobenzene	1,2,4- Trichlorobenzene	Hexachlorobenzene
071906WPSC-VC-01A	<2.3	<2.7	<1.8	<2.1	<2.9
071906WPSC-VC-02A	<2.3	<2.7	<1.8	<2.1	<3.0
071906WPSC-VC-03A	<2.2	<2.6	<1.8	<2.0	<2.8
071906WPSC-VC-04A	<2.3	<2.7	<1.8	<2.1	<3.0
071906WPSC-VC-04B	<2.3	<2.7	<1.9	<2.2	<3.0
DMEF 1998 Screening levels	170	110	35	31	22
Symbol (<) = Non-detect (ND) at the value listed (Method Detection Limit).					



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**Table 5 (con't): Miscellaneous Extractables (ug/kg)**

<b>Sample I.D.</b>	<b>Benzyl alcohol</b>	<b>Benzoic Acid</b>	<b>Dibenzofuran</b>	<b>Hexachloroethane</b>	<b>Hexachloro-butadiene</b>	<b>N-Nitroso diphenylamine</b>
071906WPSC-VC-01A	<5.1	<140	<1.8	<3.1	<2.0	<3.1
071906WPSC-VC-02A	<5.2	<140	<1.8	<3.1	<2.0	<3.1
071906WPSC-VC-03A	<5.0	<130	<1.8	<3.0	<1.9	<3.0
071906WPSC-VC-04A	<5.2	<140	<1.8	<3.1	<2.0	<3.1
071906WPSC-VC-04B	<5.3	<140	<1.9	<3.2	10	<3.2
DMEF 1998 Screening levels	57	650	540	1400	29	28

Symbol (<) = Non-detect (ND) at the value listed (Method Detection Limit).



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**Table 5 (con't): Phthalates (ug/kg)**

Sample I.D.	Phthalates					
	Dimethyl Phthalate	Diethyl Phthalate	Di-n-butyl phthalate	Butyl benzyl phthalate	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate
071906WPSC-VC-01A	<2.5	<4.9	5.3 J	<2.1	6.4 J	<1.7
071906WPSC-VC-02A	<2.5	<4.9	5.3 J	<2.1	4.9 J	<1.7
071906WPSC-VC-03A	<2.4	<4.7	5.0 J	<2.0	20 J	<1.6
071906WPSC-VC-04A	<2.5	<4.9	6.5 J	<2.1	6.4 J	<1.7
071906WPSC-VC-04B	<2.6	<5.0	7.3 J	<2.2	10 J	<1.8
DMEF 1998 Screening levels	1400	1200	5100	970	8300	6200

Symbol (<) = Non-detect (ND) at the value listed (Method Detection Limit).



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**Table 5 (con't): Phenols (ug/kg)**

Sample I.D.	Phenols				
	Phenol	2-Methylphenol	4-Methylphenol	2,4-Dimethylphenol	Pentachlorophenol
071906WPSC-VC-01A	5.8 J	<4.7	<4.0	<7.6	<12
071906WPSC-VC-02A	7.3 J	<4.8	<4.1	<7.7	<12
071906WPSC-VC-03A	6.5 J	<4.6	<3.9	<7.4	<12
071906WPSC-VC-04A	<2.7	<4.8	<4.1	<7.7	<12
071906WPSC-VC-04B	5.9 J	<4.9	<4.2	<7.9	<13
DMEF 1998 Screening levels	420	63	670	29	400

Symbol (<) = Non-detect (ND) at the value listed (Method Detection Limit).



**WESTPORT SLOUGH SEDIMENT QUALITY EVALUATION**  
 Sampled July 19, 2006

**Table 6: PAHs - Low Molecular Weight (ug/kg)**

Sample I.D.	Acenaphthene	Ace naphthylene	Anthra cene	Fluorene	2-Methyl naphthalene	Naphtha lene	Phen- anthrene	Total Low PAHs
071906WPSC-VC-01A	<1.4	<2.0	2.3 J	<2.4	<1.7	2.0 J	6.7 J	11.0
071906WPSC-VC-02A	<1.4	2.0 J	2.5 J	<2.4	<1.7	2.3 J	6.4 J	13.2
071906WPSC-VC-03A	<1.4	<1.9	<1.9	<2.3	<1.6	<1.8	3.8 J	3.8
071906WPSC-VC-04A	1.7 J	<2.0	3.5 J	<2.4	<1.7	3.3 J	18	26.5
071906WPSC-VC-04B	2.3 J	3.4 J	4.8 J	3.1 J	4.4 J	8.4 J	19	45.4
DMEF 1998 Screening levels	500	560	960	540	670	2100	1500	5200
Symbol (<) = Non-detect (ND) at the value listed (Method Detection Limit).								



**WESTPORT SLOUGH SEDIMENT QUALITY EVALUATION**  
 Sampled July 19, 2006

**Table 6 (cont'd): PAHs - High Molecular Weight (ug/kg)**

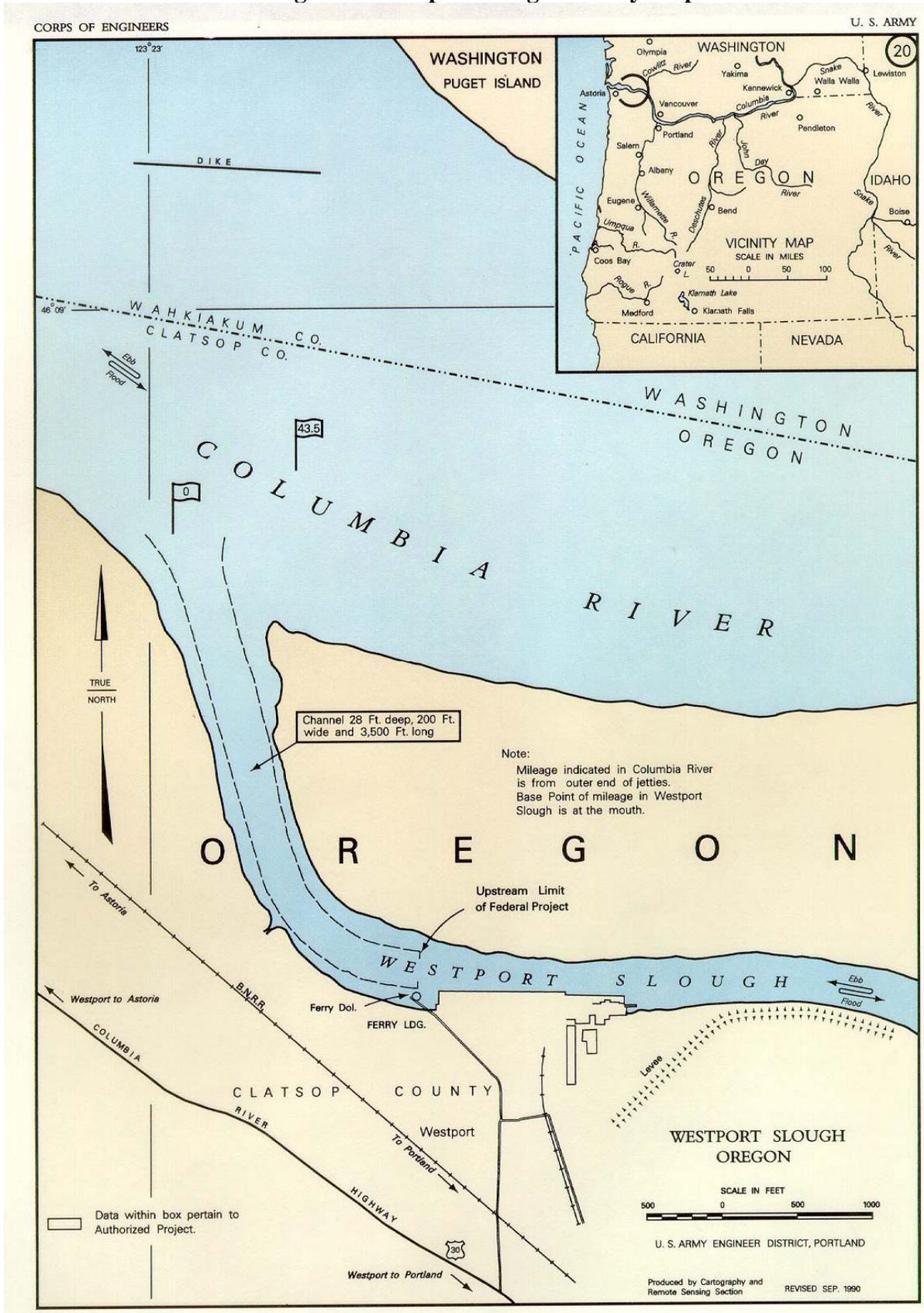
Sample I.D.	Benzo(a)-anthracene	Benzo-fluoranthenes	Benzo-(g,h,i)-perylene	Chrysene	Pyrene	Benzo(a)-pyrene	Indeno-(1,2,3-cd)-pyrene	Dibenzo (a,h)anthracene	Fluoranthene	Total High PAHs
071906WPSC-VC-01A	7.2 J	14.5	9.1 J	9.9 J	19	9.8 J	7.8 J	<3.1	17	94.3
071906WPSC-VC-02A	14	25	14	16	28	16	13	<3.1	24	150
071906WPSC-VC-03A	<3.0	6.5 J	5.1 J	9.5 J	8.4 J	6.1 J	4.4 J	<3.0	6.1 J	46.1
071906WPSC-VC-04A	7.9 J	15.9	10	13	22	11	8.9 J	<3.1	22	111
071906WPSC-VC-04B	19	38	19	26	35	22	15	<3.2	33	207
DMEF 1998 Screening levels	1300	3200	670	1400	2600	1600	600	230	1700	12000

Symbol (<) = Non-detect (ND) at the value listed (Method Detection Limit).

# WESTPORT SLOUGH SEDIMENT QUALITY EVALUATION

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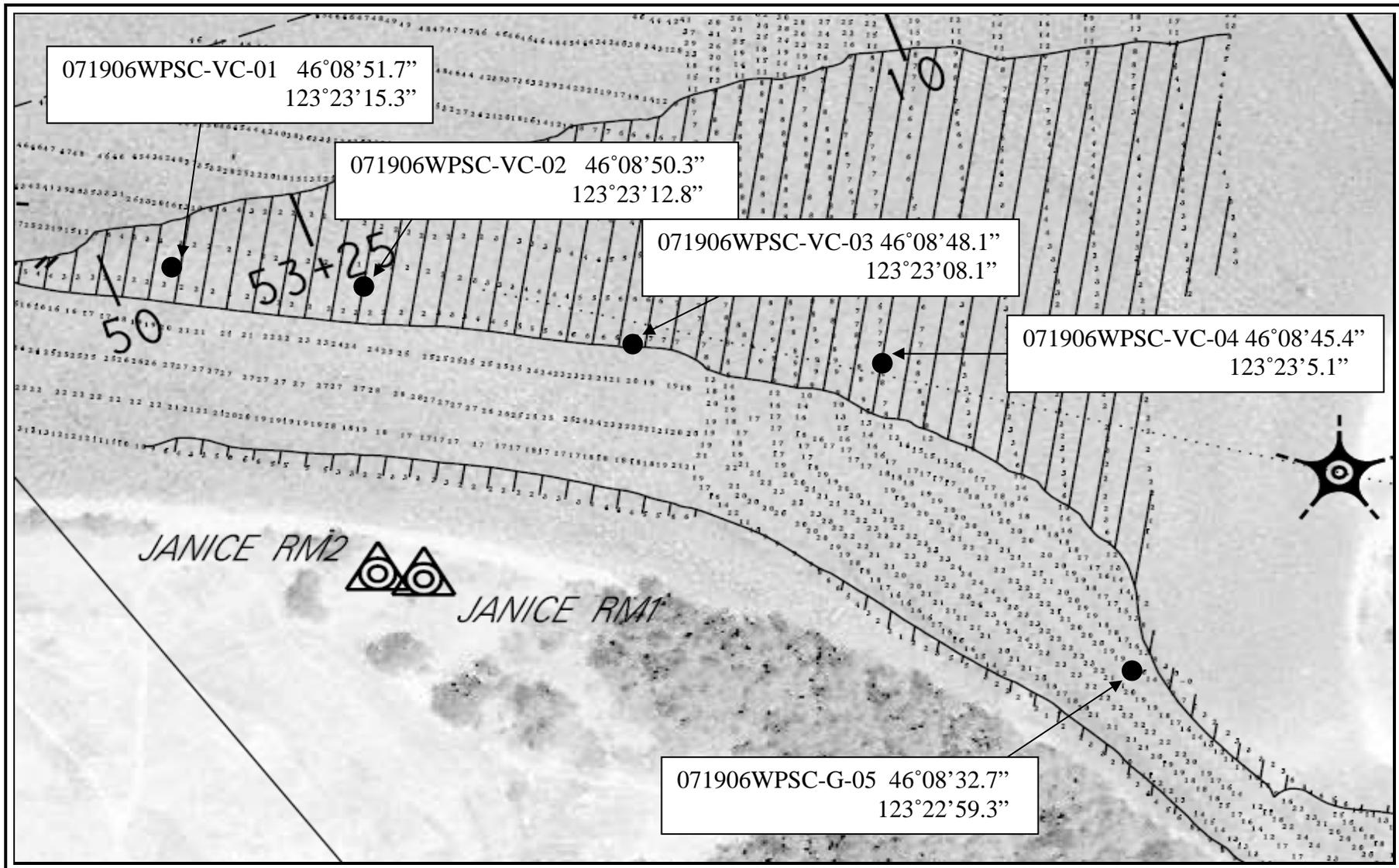
**Figure 1: Westport Slough Vicinity Map**





WESTPORT SLOUGH SEDIMENT QUALITY EVALUATION  
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Figure 3: Westport Slough Sampling Station Map



**Figure 4: Sediment Sample 071906WPSC-VC-04B and -04Z**



**Figure 5: Sampling Team**



Figure 6: Sampling Equipment

