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THIN INTERVAL CORE SAMPLING REPORT

Penobscot River Phase III Engineering Study □

Penobscot River Estuary, Maine □

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Prepared for:

**United States District Court
District of Maine**

Prepared by:

Amec Foster Wheeler Environment & Infrastructure, Inc.

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September 2018

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THIN INTERVAL CORE SAMPLING REPORT

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Client: [Redacted]

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Prepared for:

Project Name: [Redacted]

Client: [Redacted]

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EXECUTIVE SUMMARY

AMERICAN BRIDGE & INFRASTRUCTURE CONSTRUCTION GROUP (AMERICAN BRIDGE & INFRASTRUCTURE) IS A LEADING PROVIDER OF DESIGN-BUILD CONTRACTS FOR THE CONSTRUCTION OF BRIDGES AND INFRASTRUCTURE PROJECTS. AMERICAN BRIDGE & INFRASTRUCTURE HAS A PROVEN TRACK RECORD OF DELIVERING HIGH-QUALITY PROJECTS ON TIME AND WITHIN BUDGET. AMERICAN BRIDGE & INFRASTRUCTURE IS COMMITTED TO EXCELLENCE IN EVERYTHING WE DO, AND WE ARE PROUD TO BE A PART OF THE AMERICAN BRIDGE & INFRASTRUCTURE CONSTRUCTION GROUP.

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1.0 INTRODUCTION

Section 1.0 provides an overview of the Environmental Monitoring and Reporting (EMR) program for the Penobscot River. The program is designed to monitor and report on the quality of the river and its tributaries. The program includes the following components:

- Monitoring of water quality parameters including temperature, dissolved oxygen, pH, conductivity, and turbidity.
- Monitoring of sediment quality parameters including total suspended solids (TSS), total phosphorus (TP), and total nitrogen (TN).
- Monitoring of biological quality parameters including macroinvertebrates and fish.
- Reporting of monitoring results to the appropriate regulatory agencies.

More information is provided in **Figure 1-1**.

The EMR program is described in detail in the *Work Order 4A-080/080A – Thin Interval Core Sampling, Penobscot River Phase III - Engineering Study, Penobscot River, Maine*. The program is designed to monitor and report on the quality of the river and its tributaries. The program includes the following components:

- The program includes monitoring of water quality parameters including temperature, dissolved oxygen, pH, conductivity, and turbidity.
- The program includes monitoring of sediment quality parameters including total suspended solids (TSS), total phosphorus (TP), and total nitrogen (TN).
- The program includes monitoring of biological quality parameters including macroinvertebrates and fish.
- The program includes reporting of monitoring results to the appropriate regulatory agencies.

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- Monitoring of water quality parameters including temperature, dissolved oxygen, pH, conductivity, and turbidity.
- Monitoring of sediment quality parameters including total suspended solids (TSS), total phosphorus (TP), and total nitrogen (TN).
- Monitoring of biological quality parameters including macroinvertebrates and fish.
- Reporting of monitoring results to the appropriate regulatory agencies.

2.0 SEDIMENT COLLECTION AND PROCESSING ACTIVITIES

Appendix A
Appendix A-1
Appendix A-2

2.1 TERMINOLOGY AND DEFINITIONS USED IN REPORT

Appendix A
Appendix A-1
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2.4 PROCESSING SUMMARY

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2.4.1 Sediment Core Processing for Geochronology Cores

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Appendix A
 Appendix A-1; Appendix A-2

Table 2-1

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- M 13 31 M 3

3.0 DATA QUALITY

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3.1 DATA VALIDATION

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3.1.1 Room Blanks

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3.1.2 Inter-Laboratory Comparison Study

Inter-laboratory comparison studies are conducted to determine the ability of laboratories to produce consistent results using different methods or equipment. These studies are essential for ensuring the reliability of test results, especially when using non-standard methods or equipment. The results of these studies are used to establish the accuracy and precision of the test methods and to identify any systematic errors or biases that may be present. This information is used to improve the quality of the test results and to ensure that the test methods are being used correctly and consistently across all laboratories.

Inter-laboratory comparison studies are conducted using a variety of methods, including round-robin tests, proficiency testing, and inter-laboratory comparison studies. Round-robin tests involve a single test method being used by multiple laboratories to compare results. Proficiency testing involves a single laboratory performing a test on a sample that has been analyzed by multiple other laboratories. Inter-laboratory comparison studies involve multiple laboratories performing a test on a sample that has been analyzed by multiple other laboratories.

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4.0 FINDINGS

The findings of the monitoring and reporting activities are detailed in **Table 4-1** and **Appendix A** through **Appendix C**. The findings are summarized in **Figure 2-1**, **Figure 4-1**, **Figure 4-10**, **Figure 4-11**, **Figure 2-1**, and **Figure 4-1**.

The findings of the monitoring and reporting activities are detailed in **Table 4-1** and **Appendix A** through **Appendix C**. The findings are summarized in **Figure 2-1**, **Figure 4-1**, **Figure 4-10**, **Figure 4-11**, **Figure 2-1**, and **Figure 4-1**.

4.1 GEOCHRONOLOGY CORES – CONSOLIDATED SEDIMENT

The findings of the monitoring and reporting activities are detailed in **Table 4-1** and **Appendix A** through **Appendix C**. The findings are summarized in **Figure 2-1**, **Figure 4-1**, **Figure 4-10**, **Figure 4-11**, **Figure 2-1**, and **Figure 4-1**.

Table 4-2: Comparison of Model and Figure 2-1

Table 4-2: Comparison of Model and Figure 2-1

Table 4-2: Comparison of Model and Figure 2-1

- Table 4-2: Comparison of Model and Figure 2-1

5.0 ASSESSMENT OF OBJECTIVES

本集团已按照国际财务报告准则编制财务报表。

- 本集团财务报表的目的是提供关于本集团在报告期末的财务状况、经营成果和现金流量的信息。
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**TABLE 2-1
SEDIMENT CORE STATION SUMMARY**

**Penobscot River Phase III Engineering Study
Penobscot River Estuary, Maine**

River Reach	Zone	2017 Station ID	2009 Station ID	Unconsolidated Sediments ¹	Consolidated Sediments ²		Analyses Conducted ³
					Radiochemistry + Mercury	Mercury-Specific	
Bangor	Intertidal	PBR-04	PBR-04	a	x		Rad, Hg, POC, TS, GS, BD
	Subtidal	PBR-10	PBR-10	a	x		Rad, Hg, POC, GS, BD
Orrington	Marsh Platform	PBR-16	PBR-16	c	x		Rad, Hg, POC, GS, BD
	Intertidal	PBR-18	PBR-18	x	x		Rad, Hg, TOC, TS, GS, BD
	Intertidal	PBR-19	PBR-19	a	x		Rad, Hg, POC, GS, BD
	Subtidal	PBR-20	PBR-20	x	x		Rad, Hg, TOC, GS, BD
Frankfort Flats	Subtidal	FF-MU7-GC-1		b	x		Rad, Hg, TOC, TS, GS, BD
	Subtidal	PBR-26	PBR-26	a	x		Rad, Hg, TOC, TS, GS, BD
Mendall Marsh	Marsh Platform	MM-C1 ⁴	MM-02	c		x	Hg, TOC, TS, BD
	Marsh Platform	MM-C2	MM-04	c	x		Rad, Hg, POC, GS, BD
	Marsh Platform	MM-C3	MM-07	c	x		Rad, Hg, POC, GS, BD
	Intertidal	MM-T1-C1		x		x	Hg, TOC, TS, BD
	Intertidal	MM-T1-C2		x		x	Hg, TOC, TS, GS, BD
	Subtidal	MM-T1-C3		a		x	Hg, TOC, TS, GS, OC, BD
	Marsh Platform	MM-T1-C4		c		x	Hg, TOC, TS, BD
	Marsh Platform	MM-T1-C5		c		x	Hg, TOC, TS, GS, OC, BD
	Marsh Platform	MM-T1-C6		c		x	Hg, TOC, TS, BD
	Marsh Platform	MM-T2-C1		c	x		Rad, Hg, TOC, TS, GS, BD
	Marsh Platform	MM-T2-C2	MM-09	c	x		Rad, Hg, POC, GS, BD
	Marsh Platform	MM-T2-C3		c	x		Rad, Hg, POC, GS, BD
	Intertidal	MM-T2-C4		a		x	Hg, TOC, TS, BD
	Subtidal	MM-T2-C5		a		x	Hg, TOC, TS, BD
Intertidal	MM-T2-C6		a		x	Hg, TOC, TS, GS, OC, BD	
Marsh Platform	MM-T2-C7		c		x	Hg, TOC, TS, GS, OC	

**TABLE 2-1
SEDIMENT CORE STATION SUMMARY**

**Penobscot River Phase III Engineering Study
Penobscot River Estuary, Maine**

River Reach	Zone	2017 Station ID	2009 Station ID	Unconsolidated Sediments ¹	Consolidated Sediments ²		Analyses Conducted ³
					Radiochemistry + Mercury	Mercury-Specific	
Mendall Marsh	Marsh Platform	MM-T3-C1		c		x	Hg, TOC, TS, GS, OC, BD
	Intertidal	MM-T3-C2		x		x	Hg, TOC, TS, OC, BD
	Subtidal	MM-T3-C3		x		x	Hg, TOC, TS, GS, OC, BD
	Intertidal	MM-T3-C4		x		x	Hg, TOC, TS, OC, BD
	Marsh Platform	MM-T3-C5	MM-06	c	x		Rad, Hg, POC, GS, BD
	Marsh Platform	MM-T3-C6		c		x	Hg, TOC, TS, GS, OC, BD
	Marsh Platform	MM-T3-C7		c		x	Hg, TOC, TS, BD
	Marsh Platform	MM-T4-C1		c		x	Hg, TOC, TS, GS, OC, BD
	Intertidal	MM-T4-C2		x	x		Rad, Hg, TOC, TS, GS, OC, BD
	Marsh Platform	MM-T4-C3	MM-03	c	x		Rad, Hg, POC, GS, BD
	Marsh Platform	MM-T4-C4		c	x		Rad, Hg, POC, GS, BD
	Marsh Platform	MM-T4-C5		c		x	Hg, TOC, TS, GS, OC, BD
	Marsh Platform	MM-T4-C6		c		x	Hg, TOC, TS, GS, OC, BD
	Intertidal	MM-T4-C7		c		x	Hg, TOC, TS, BD
	Marsh Platform	MM-T5-C1		c		x	Hg, TOC, TS, BD
Intertidal	MM-T5-C2		c		x	Hg, TOC, TS, GS, OC, BD	
Marsh Platform	MM-T5-C3		c		x	Hg, TOC, TS, BD	
Verona Northeast	Intertidal	PBR-28	PBR-28	x	x		Rad, Hg, POC, GS, OC, BD
	Intertidal	VN-MU3-GC-1		x	x		Rad, Hg, TOC, TS, GS, OC, BD
Verona East	Intertidal	VE-MU4-GC-1		x	x		Rad, Hg, TOC, TS, GS, OC, BD

**TABLE 2-1
SEDIMENT CORE STATION SUMMARY**

**Penobscot River Phase III Engineering Study
Penobscot River Estuary, Maine**

River Reach	Zone	2017 Station ID	2009 Station ID	Unconsolidated Sediments ¹	Consolidated Sediments ²		Analyses Conducted ³
					Radiochemistry + Mercury	Mercury-Specific	
Orland River	Intertidal	OR-C1	OR-06	c	x		Rad, Hg, POC, GS, BD
	Intertidal	OR-T1-C1	OR-05	x	x		Rad, Hg, POC, GS, POC, TS, OC, BD
	Intertidal	OR-T1-C2		x		x	Hg, TOC, TS, GS, OC, BD
	Intertidal	OR-T1-C3		x		x	Hg, TOC, TS, OC, BD
	Subtidal	OR-T1-C4		a		x	Hg, TOC, TS, GS, OC, BD
	Intertidal	OR-T1-C5		x		x	Hg, TOC, TS, GS, OC, BD
	Intertidal	OR-T2-C1		x		x	Hg, TOC, TS, OC, BD
	Intertidal	OR-T2-C2	OR-03	x	x		Rad, Hg, POC, GS, POC, TS, BD
	Subtidal	OR-T2-C3		x		x	Hg, TOC, TS, BD
	Intertidal	OR-T2-C4		x		x	Hg, TOC, TS, OC, BD
	Intertidal	OR-T2-C5		x	x		Rad, Hg, TOC, TS, GS, OC, BD
	Marsh Platform	OR-T3-C1		x		x	Hg, TOC, TS, GS, OC, BD
	Intertidal	OR-T3-C2	OR-02	x	x		Rad, Hg, TOC, TS, GS, OC, BD
	Intertidal	OR-T3-C3		a		x	Hg, TOC, TS, GS, OC
	Intertidal	OR-T3-C4		x		x	Hg, TOC, TS, OC, BD
Intertidal	OR-T3-C5		x		x	Rad, Hg, TOC, TS, GS, OC, BD	

**TABLE 2-1
SEDIMENT CORE STATION SUMMARY**

**Penobscot River Phase III Engineering Study
Penobscot River Estuary, Maine**

River Reach	Zone	2017 Station ID	2009 Station ID	Unconsolidated Sediments ¹	Consolidated Sediments ²		Analyses Conducted ³
					Radiochemistry + Mercury	Mercury-Specific	
Upper Penobscot Bay	Subtidal	UPB-MU11-GC-1		x	x		Rad, Hg, TOC,TS, GS, OC, BD
	Subtidal	ES-18	ES-18	x	x		Rad, Hg, TOC,TS, GS, OC, BD
Fort Point Cove	Subtidal	ES-01	ES-01	x	x		Rad, Hg, TOC,TS, GS, OC, BD
	Subtidal	ES-17	ES-17	a	x		Rad, Hg, POC, GS, BD
	Subtidal	ES-20	ES-20	a	x		Rad, Hg, POC, GS, BD
TOTALS:		65	22	27	31	34	

Notes: Prepared by: BJW 08/09/2018
Checked by: CTP 08/09/2018

1. Collected using 1-foot push or box core
2. Collected using 90-cm vibracore, manual piston core, or slidehammer
3. Analyses conducted for the entire station, not by core type
4. Location was proposed for geochronology and mercury analyses. Only mercury analysis performed.
 - a. Station was cored before receipt of the work order amendment authorization to collect unconsolidated cores.
 - b. Station was cored using methods to recover unconsolidated material. No material was recovered.
 - c. Station surface was vegetated or root laden; unconsolidated material/core not pertinent.

Abbreviations:
BD = bulk density
GS = grain size
Hg = total mercury
OC = organic content
POC = particulate organic carbon
Rad = radiochemistry
TOC = total organic carbon
TS = total solids

TABLE 4-1
SEDIMENT ANALYTICAL RESULTS¹
Penobscot River Phase III Engineering Study
Penobscot River Estuary, Maine

River Reach	Zone	Core Designation	Station ID	Sample ID	QC Code	Sample Date	Depth Unit	Top Depth	Bottom Depth	Mercury ²		Cesium-137		Lead-210		Polonium-210		TOC		POC		OC at 550°C		Total Solids		% Solids Residual		Sand		Silt		Clay		Lithology						
										EPA 1631		Gamma Spec		Alpha Spec		Alpha Spec		Lloyd Kahn		% OC		ASTM D2974-C		% Solids		ASTM 2540B		UKY SOP		UKY SOP		UKY SOP		Major	Minor					
										Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.
000000	M100000000000	M10000	0000100	0000001000000000001-M	00	1100001	00	0	1	100	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000

TABLE 4-1
SEDIMENT ANALYTICAL RESULTS¹
Penobscot River Phase III Engineering Study
Penobscot River Estuary, Maine

River Reach	Zone	Core Designation	Station ID	Sample ID	QC Code	Sample Date	Depth Unit	Top Depth	Bottom Depth	Mercury ²		Cesium-137		Lead-210		Polonium-210		TOC		POC		OC at 550°C		Total Solids		% Solids, Residual		Sand		Silt		Clay		Lithology									
										EPA 1631		Gamma Spec		Alpha Spec		Alpha Spec		Lloyd Kahn		% OC		ASTM D2974-C		% Solids		ASTM 2540B		UKY SOP		UKY SOP		UKY SOP		Major	Minor								
										Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu
0.11111111	0.00000000	0.00000000	0.00000000	0.00000000-1.00000000-1-M		1/1/2014	0	1	1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00						
				0.00000000-1.00000000-1-M		1/1/2014	0	1	0	0	0	0.00	1.00	0	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
				0.00000000-1.00000000-3-M		1/1/2014	0	3	0	3	0	3.00	1.00	0	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
				0.00000000-1.00000000-3-M		1/1/2014	0	3	0	3	0	3.00	1.00	0	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**TABLE 4-1
SEDIMENT ANALYTICAL RESULTS¹**
Penobscot River Phase III Engineering Study
Penobscot River Estuary, Maine

River Reach	Zone	Core Designation	Station ID	Sample ID	QC Code	Sample Date	Depth Unit	Top Depth	Bottom Depth	Mercury ²		Cesium-137		Lead-210		Polonium-210		TOC		POC		OC at 550°C		Total Solids		% Solids, Residual		Sand		Silt		Clay		Lithology	
										EPA 1631		Gamma Spec		Alpha Spec		Alpha Spec		Lloyd Kahn		% OC		ASTM D2974-C		% Solids		ASTM 2540B		UKY SOP		UKY SOP		UKY SOP		Major	Minor
										Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.
Middle	M10000000000	M10000000	MM0100	MM0101000000001-M	00	1/1/2014	00	1	0	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 4-1
SEDIMENT ANALYTICAL RESULTS¹
Penobscot River Phase III Engineering Study
Penobscot River Estuary, Maine

River Reach	Zone	Core Designation	Station ID	Sample ID	QC Code	Sample Date	Depth Unit	Top Depth	Bottom Depth	Mercury ² EPA 1631		Cesium-137 Gamma Spec		Lead-210 Alpha Spec		Polonium-210 Alpha Spec		TOC Lloyd Kahn		POC % OC		OC at 550°C ASTM D2974-C		Total Solids % Solids		% Solids Residual ASTM 2540B		Sand UKY SOP		Silt UKY SOP		Clay UKY SOP		Lithology											
										Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Major	Minor				
Middle	Mud	Mud	MM03	MM03-1100000001-M		11/1/11	0	1	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01						
				MM03-1100000003-M		11/1/11	0	3	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01			
				MM03-1100000003-M		11/1/11	0	3	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
				MM03-1100000003-M		11/1/11	0	3	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

TABLE 4-1
SEDIMENT ANALYTICAL RESULTS¹
Penobscot River Phase III Engineering Study
Penobscot River Estuary, Maine

River Reach	Zone	Core Designation	Station ID	Sample ID	QC Code	Sample Date	Depth Unit	Top Depth	Bottom Depth	Mercury ²		Cesium-137		Lead-210		Polonium-210		TOC		POC		OC at 550°C		Total Solids		% Solids Residual		Sand		Silt		Clay		Lithology					
										EPA 1631		Gamma Spec		Alpha Spec		Alpha Spec		Lloyd Kahn		% OC		ASTM D2974-C		% Solids		ASTM 2540B		UKY SOP		UKY SOP		UKY SOP		Major	Minor				
										Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.
Middle	M1	M1	M1	MM10011001100110011001M	00	1000-01	00	00	1	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

TABLE 4-1
SEDIMENT ANALYTICAL RESULTS¹
Penobscot River Phase III Engineering Study
Penobscot River Estuary, Maine

River Reach	Zone	Core Designation	Station ID	Sample ID	QC Code	Sample Date	Depth Unit	Top Depth	Bottom Depth	Mercury ²		Cesium-137		Lead-210		Polonium-210		TOC		POC		OC at 550°C		Total Solids		% Solids Residual		Sand		Silt		Clay		Lithology				
										EPA 1631		Gamma Spec		Alpha Spec		Alpha Spec		Lloyd Kahn		% OC		ASTM D2974-C		% Solids		ASTM 2540B		UKY SOP		UKY SOP		UKY SOP		Major	Minor			
										Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.
Middle	d	d	MM	MM-11-1-M		01-11-11	0	1	1							13								3.1														
				MM-11-3-M		01-11-11	0	3	3									33								3.1												
				MM-11-3-M		01-11-11	0	3	3									33								3.1												
				MM-11-3-M		01-11-11	0	3	3									3.1								3.1												

TABLE 4-1
SEDIMENT ANALYTICAL RESULTS¹
Penobscot River Phase III Engineering Study
Penobscot River Estuary, Maine

River Reach	Zone	Core Designation	Station ID	Sample ID	QC Code	Sample Date	Depth Unit	Top Depth	Bottom Depth	Mercury ²		Cesium-137		Lead-210		Polonium-210		TOC		POC		OC at 550°C		Total Solids		% Solids		Sand		Silt		Clay		Lithology							
										Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.
Middle	d	d	MM:3	MM:3:1:1		11-11-11			1	0	0.1	0	0	0	0	0	0	3.3	0	0	0	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	d					
				MM:3:1:3		11-11-11			0	3	0	0	0	0	0	0	0	0	0	3.1	0	0	0	0	1.3	0	0	0	0	0	0	0	0	0	0	0	0	d			
				MM:3:1:3:1		11-11-11			3	0	0	0	0	0	0	0	0	0	0	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	d		
				MM:3:1:3:2		11-11-11			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:3:3		11-11-11			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.3	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:3:4		11-11-11			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.3	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:11		11-11-11			11	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.3	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:13		13-13-13			13	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:1:1		13-13-13			1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.3	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:1:2		13-13-13			1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.1	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:1:3		13-13-13			1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:1:4		13-13-13			1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.1	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:1:5		13-13-13			1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.1	0	0	0	0	0	0	0	0	0	0	0	0	d
				MM:3:1:1:6		13-13-13			1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:1:7		13-13-13			1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	d		
				MM:3:1:1:8		13-13-13			1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:1:9		13-13-13			1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:1:10		13-13-13			1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:1:11		13-13-13			1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:1:12		13-13-13			1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:1:13		13-13-13			1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:1:14		13-13-13			1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:1:15		13-13-13			1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:1:16		13-13-13			1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:1:17		13-13-13			1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:1:18		13-13-13			1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:1:19		13-13-13			1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:1:20		13-13-13			1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:3:1		11-11-11			3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:3:2		11-11-11			3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:3:3		11-11-11			1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	d	
				MM:3:1:3:4		11-11-11			3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	d	

TABLE 4-1
SEDIMENT ANALYTICAL RESULTS¹
Penobscot River Phase III Engineering Study
Penobscot River Estuary, Maine

River Reach	Zone	Core Designation	Station ID	Sample ID	QC Code	Sample Date	Depth Unit	Top Depth	Bottom Depth	Mercury ²		Cesium-137		Lead-210		Polonium-210		TOC		POC		OC at 550°C		Total Solids		% Solids, Residual		Sand		Silt		Clay		Lithology							
										EPA 1631		Gamma Spec		Alpha Spec		Alpha Spec		Lloyd Kahn		% OC		ASTM D2974-C		% Solids		ASTM 2540B		UKY SOP		UKY SOP		UKY SOP		Major	Minor						
										Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.
Middle	d	d	MM3	MM30001000010001M		1/1/2011	0	0	1																																
				MM30001000010002M		1/1/2011	0	0	1																																
				MM30001000010003M		1/1/2011	0	0	1																																
				MM30001000010003M		1/1/2011	0	0	3																																

TABLE 4-1
SEDIMENT ANALYTICAL RESULTS¹
Penobscot River Phase III Engineering Study
Penobscot River Estuary, Maine

River Reach	Zone	Core Designation	Station ID	Sample ID	QC Code	Sample Date	Depth Unit	Top Depth	Bottom Depth	Mercury ² EPA 1631 (ng/g)		Cesium-137 Gamma Spec (Bq/kg)		Lead-210 Alpha Spec (Bq/kg)		Polonium-210 Alpha Spec (Bq/kg)		TOC Lloyd Kahn (%)		POC % OC		OC at 550°C ASTM D2974-C (%)		Total Solids Residual % Solids ASTM 2540B		% Solids Residual % Solids ASTM 2540B		Sand UKY SOP		Silt UKY SOP		Clay UKY SOP		Lithology						
										Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Major
Middle	M1	M1	MM3	MM300110000000011-M	00	1/3/11	00	1	0	0.1	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 4-1
SEDIMENT ANALYTICAL RESULTS¹
Penobscot River Phase III Engineering Study
Penobscot River Estuary, Maine

River Reach	Zone	Core Designation	Station ID	Sample ID	QC Code	Sample Date	Depth Unit	Top Depth	Bottom Depth	Mercury ²		Cesium-137		Lead-210		Polonium-210		TOC		POC		OC at 550°C		Total Solids		% Solids Residual		Sand		Silt		Clay		Lithology											
										EPA 1631		Gamma Spec		Alpha Spec		Alpha Spec		Lloyd Kahn		% OC		ASTM D2974-C		% Solids		ASTM 2540B		UKY SOP		UKY SOP		UKY SOP		Major	Minor										
										Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu
Middle	Mud	Mud	MM300	MM3001100000000001-M	00	1/1/2011	00	1	0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0							
				MM3001100000000003-M	00	1/1/2011	00	0	3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
				MM3001100000000003-M	00	1/1/2011	00	0	3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 4-1
SEDIMENT ANALYTICAL RESULTS¹
Penobscot River Phase III Engineering Study
Penobscot River Estuary, Maine

River Reach	Zone	Core Designation	Station ID	Sample ID	QC Code	Sample Date	Depth Unit	Top Depth	Bottom Depth	Mercury ²		Cesium-137		Lead-210		Polonium-210		TOC		POC		OC at 550°C		Total Solids		% Solids, Residual		Sand		Silt		Clay		Lithology							
										Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Major	Minor
Middle	Mud	Mud	MM	MM-1-1-M		1-1-11		1	1	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13				
				MM-1-1-3-M		1-1-11		3	3	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13		
				MM-1-1-3-11-M		1-1-11		3	3	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13

TABLE 4-1
SEDIMENT ANALYTICAL RESULTS¹
Penobscot River Phase III Engineering Study
Penobscot River Estuary, Maine

River Reach	Zone	Core Designation	Station ID	Sample ID	QC Code	Sample Date	Depth Unit	Top Depth	Bottom Depth	Mercury ² EPA 1631 (ng/g)		Cesium-137 Gamma Spec (Bq/kg)		Lead-210 Alpha Spec (Bq/kg)		Polonium-210 Alpha Spec (Bq/kg)		TOC Lloyd Kahn (%)		POC % OC		OC at 550°C ASTM D2974-C (%)		Total Solids % Solids (% by Wt.)		% Solids, Residual ASTM 2540B		Sand UKY SOP		Silt UKY SOP		Clay UKY SOP		Lithology					
										Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Major	Minor
										Middle River				MM00031000000000001M	00	1:13:00	00	1	0	0.01	0.00	0.00	0.00	0.00	0.00	13.00	0.00	0.00	0.00	31.1	0.00	33.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MM00031000000000003M	00	1:13:00	00	3	0	0.1	0.00	0.00	0.00					0.00	0.00	11.00	0.00	0.00	0.00	0.00	31.1	0.00	33.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
MM00031000000000000M	00	1:13:00	00	0	0	0.01	0.00	0.00	0.00					0.00	0.00	0.00	13.00	0.00	0.00	0.00	0.00	31.1	0.00	33.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
MM00031000000000000M	00	1:13:00	00	0	0	0.01	0.00	0.00	0.00					0.00	0.00	0.00	13.00	0.00	0.00	0.00	0.00	31.1	0.00	33.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

TABLE 4-1
SEDIMENT ANALYTICAL RESULTS¹
Penobscot River Phase III Engineering Study
Penobscot River Estuary, Maine

River Reach	Zone	Core Designation	Station ID	Sample ID	QC Code	Sample Date	Depth Unit	Top Depth	Bottom Depth	Mercury ² EPA 1631		Cesium-137 Gamma Spec		Lead-210 Alpha Spec		Polonium-210 Alpha Spec		TOC Lloyd Kahn		POC % OC		OC at 550°C ASTM D2974-C		Total Solids % Solids		% Solids Residual ASTM 2540B		Sand UKY SOP		Silt UKY SOP		Clay UKY SOP		Lithology							
										Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Res.	Qu	Major	Minor
										(ng/g)		(Bq/kg)		(Bq/kg)		(Bq/kg)		(%)		(%)		(% by Wt.)		(%)		(%)		(%)		(%)		(%)		(%)		(%)		(%)			
Penobscot River	Silt	S-1	3-1	3-1-1	QC	1/3/10	0	0																																	
				3-1-2																																					
				3-1-3																																					
				3-1-3-M																																					
		Silt	S-2	3-2	3-2-1																																				
					3-2-2																																				
					3-2-3																																				
					3-2-4																																				
					3-2-5																																				
					3-2-6																																				
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					3-2-8																																				
	3-2-9																																								
	3-2-10																																								
	3-2-11																																								
	3-2-12																																								
	Silt	S-3	3-3	3-3-1																																					
				3-3-2																																					
				3-3-3																																					
				3-3-4																																					
				3-3-5																																					
				3-3-6																																					
				3-3-7																																					
				3-3-8																																					
				3-3-9																																					
	Silt	S-4	3-4	3-4-1																																					
				3-4-2																																					
				3-4-3																																					

TABLE 4-1
SEDIMENT ANALYTICAL RESULTS¹
Penobscot River Phase III Engineering Study
Penobscot River Estuary, Maine

River Reach	Zone	Core Designation	Station ID	Sample ID	QC Code	Sample Date	Depth Unit	Top Depth	Bottom Depth	Mercury ²		Cesium-137		Lead-210		Polonium-210		TOC		POC		OC at 550°C		Total Solids		% Solids		Sand		Silt		Clay		Lithology										
										EPA 1631		Gamma Spec		Alpha Spec		Alpha Spec		Lloyd Kahn		% OC		ASTM D2974-C		% Solids		ASTM 2540B		UKY SOP		UKY SOP		UKY SOP		Major	Minor									
										Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.			
0000000	0000000	0000000	0000000	0000001-0000001-M	00	1-31-14	00	0	1	0	0.1	0.0	1.1	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
				0000001-0000003-M	00	1-31-14	00	0	3	0.0	0.0	1.3	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
				0000001-0000003-M	00	1-31-14	00	0	3	0.0	0.0	1.3	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

**TABLE 4-2
 SUMMARY OF RECOVERY AND SEDIMENTATION RATES**

**Penobscot River Phase III Engineering Study
 Penobscot River Estuary, Maine**

Station	Core type	Hg ₍₀₎ (ng/g)	Hg _(max) (ng/g)	Recovery Rate		Sedimentation Rate			Inventory
				T _{1/2} (years)	T _{1/2} [*] (years)	Hg (cm/y)	¹³⁷ Cs (cm/y)	²¹⁰ Pbxs (cm/y)	Hg (ng/cm ²)
00M30010	0000000000	011	1010	00	000	0000	000	030	30100
00M000010		03	003	00	00	00	00	00	0011
000M110010		000	3100	00	00	130	110	000	00
000M11001000		000	10000	00	00	1000	00	00	300000
00000000		013	001	00	00	00	00	00	00001
00000000		01	030	00	00	00	00	00	00000
00000000		10000	10000	00	00	00	00	00	00000
00001000		1100	00000	00	10	030	001	030	000000
00001000		000	00000	103	103	000	000	0000	300000
00001000		10000	1000000	0	0	013	010	0000	1000000
00001000		03	30000	00	01	000	0000	0000	0000000
00000000		0	0	00	00	00	00	00	300
00030000		000	10000	00	01	0000	0001	0003	000300
00030000		10000	10000	00	00	00	00	00	1000000
0000000000		010	00000	00	03	0000	0000	0000	000101
0000000000		000	30010	00	00	0000	0000	0001	000001
0000100100		001	0300	00	00	0000	0000	0000	0000000
00001000		03	00000	00	00	0000	0000	0003	010000
MM0000001		000	00300	10	00	0003	0003	0000	0000003
MM0000300		000	10000	00	00	00	00	00	010000
MM0000001		310	10010	00	00	00	00	00	3000000
MM00003000		000	00000	03	10	0000	0000	0001	3000000
MM0000300		000	00000	10	10	0033	0030	0003	0000003
MM00000000		000	00000	03	10	0030	0030	0003	10000030
00001003		000	10030	00	00	0000	00	00	110001
00010000		03	10000	30	10	0000	0000	0000	1000000
00010000		000	0000	0	0	00	00	00	000001
00000000		000	10000	103	03	0003	0030	0031	1000000
000M000001001		300	300	0	0	00	00	00	000000
MM000000		000	00310	00	11	0000	0000	0000	0000000
MM0000300		000	00000	031	00	0033	0031	0000	3001000
MM00001001		103	10000	00	00	00	00	00	100033

**TABLE 4-2
SUMMARY OF RECOVERY AND SEDIMENTATION RATES**

**Penobscot River Phase III Engineering Study
Penobscot River Estuary, Maine**

Station	Core type	Hg ₍₀₎ (ng/g)	Hg _(max) (ng/g)	Recovery Rate		Sedimentation Rate			Inventory Hg (ng/cm ²)
				T _{1/2} (years)	T _{1/2} [*] (years)	Hg (cm/y)	¹³⁷ Cs (cm/y)	²¹⁰ Pbxs (cm/y)	
MM01		0	0	0	0	0	0	0	33.1
MM0101		0	3	0	0	0	0	0	11.0
MM0100		0	1	0	0	0	0	0	3.0
MM0103		0	0	0	0	0	0	0	0.0
MM0100		0	1	0	0	3	0	0	1.0
MM0100		0	3	0	0	3	0	0	0.1
MM0101		13	0	0	0	11	0	0	0.0
MM00001		11	11	0	0	0	0	0	1.1
MM00000		0	0	0	0	0	0	0	0.0
MM00000		0	3	0	0	1	0	0	0.3
MM00001		33	3	0	0	1	0	0	0
MM0301		3	3	0	0	0	0	0	1.1
MM0300		0	0	0	0	0	0	0	0.0
MM0303		0	1	1	0	0	0	0	0.1
MM0300		0	1	0	0	0	0	0	0.0
MM0301		3	1	0	0	1	0	0	0.0
MM0301	M	1	0	0	0	11	0	0	1.0
MM00001		0	0	0	1	3	0	0	1.0
MM00001		0	0	0	0	1	0	0	0.1
MM00000		0	0	0	0	3	0	0	3.0
MM00000		0.1	0	0	0	0	0	0	0.0
MM00001		0	1	3	0	1	0	0	0.1
MM00001		0.3	0.3	0	0	0	0	0	1.0
MM00003		0	3	3	1	3	0	0	13.0
000100		0.3	3	0	0	0	0	0	0.3
000103		0	3	3	3	0	0	0	0.0
000101		0	0	0	0	0	0	0	1.3
000100		0.3	0	11	0	0	0	0	0.3
000001		0.1	0.3	13	0	0	0	0	1.0
000003		1	1	0	0	0	0	0	0.0
000000		0.1	3	0	1	0	0	0	0.1
000301		0.1	1	11	0.3	1	0	0	1.0
000303		1.1	0.3	0	0	0	0	0	0.0
000300		0	0.3	0	0	1	0	0	0.0

Notes:

1. All data are based on the following assumptions:
 a. All data are based on the following assumptions:
 b. All data are based on the following assumptions:
 c. All data are based on the following assumptions:
 d. All data are based on the following assumptions:

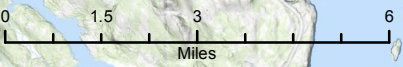
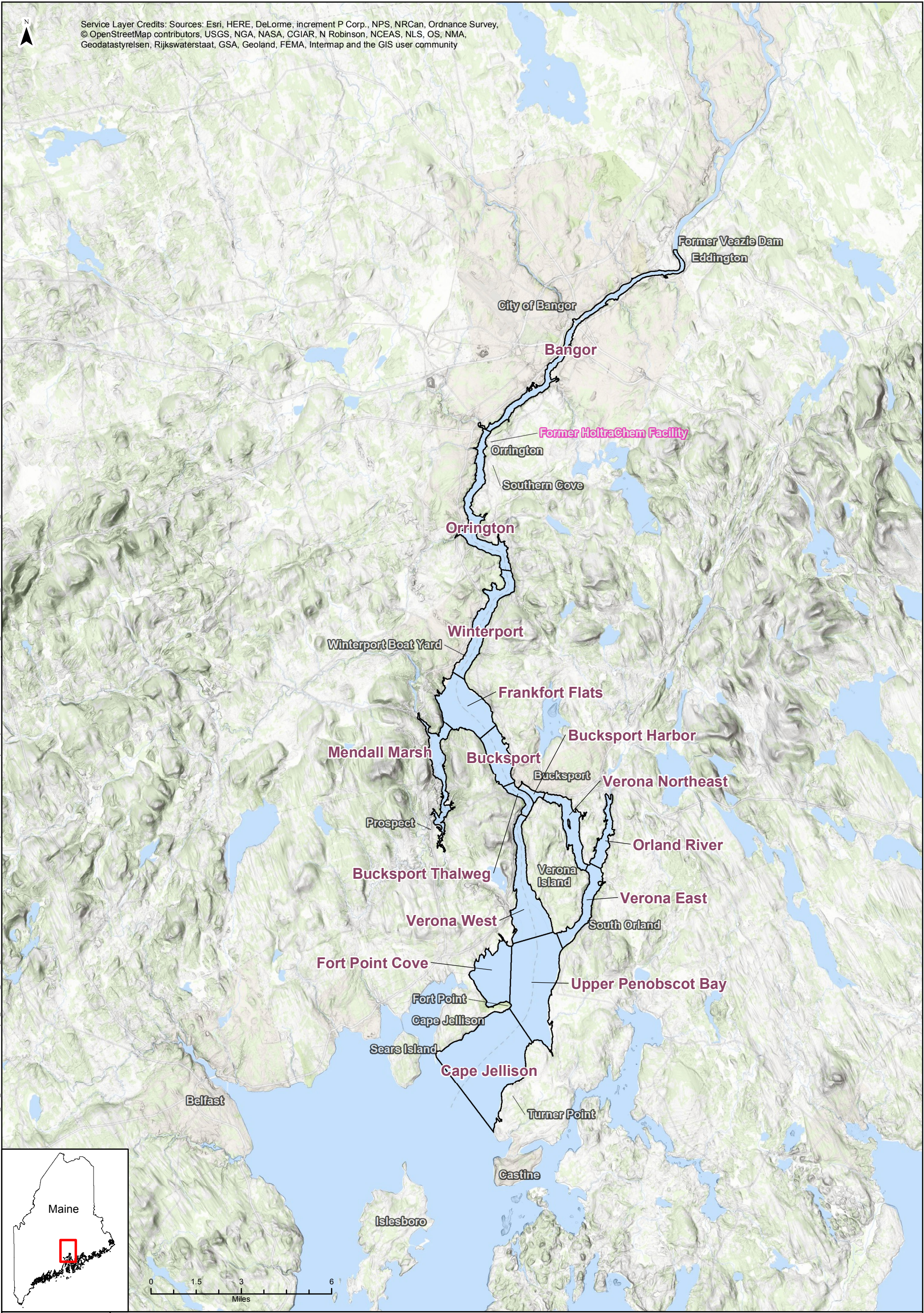
Abbreviations:

0.0 = 0.0
 13 = 13
 0.1 = 0.1
 cm/y = centimeters per year
 M = Maximum
 0.1 = 0.1
 0.1* = exponential fit to an equilibrium target concentration (Hg[∞]) of 400 ng/g

FIGURES



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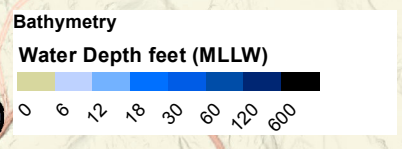
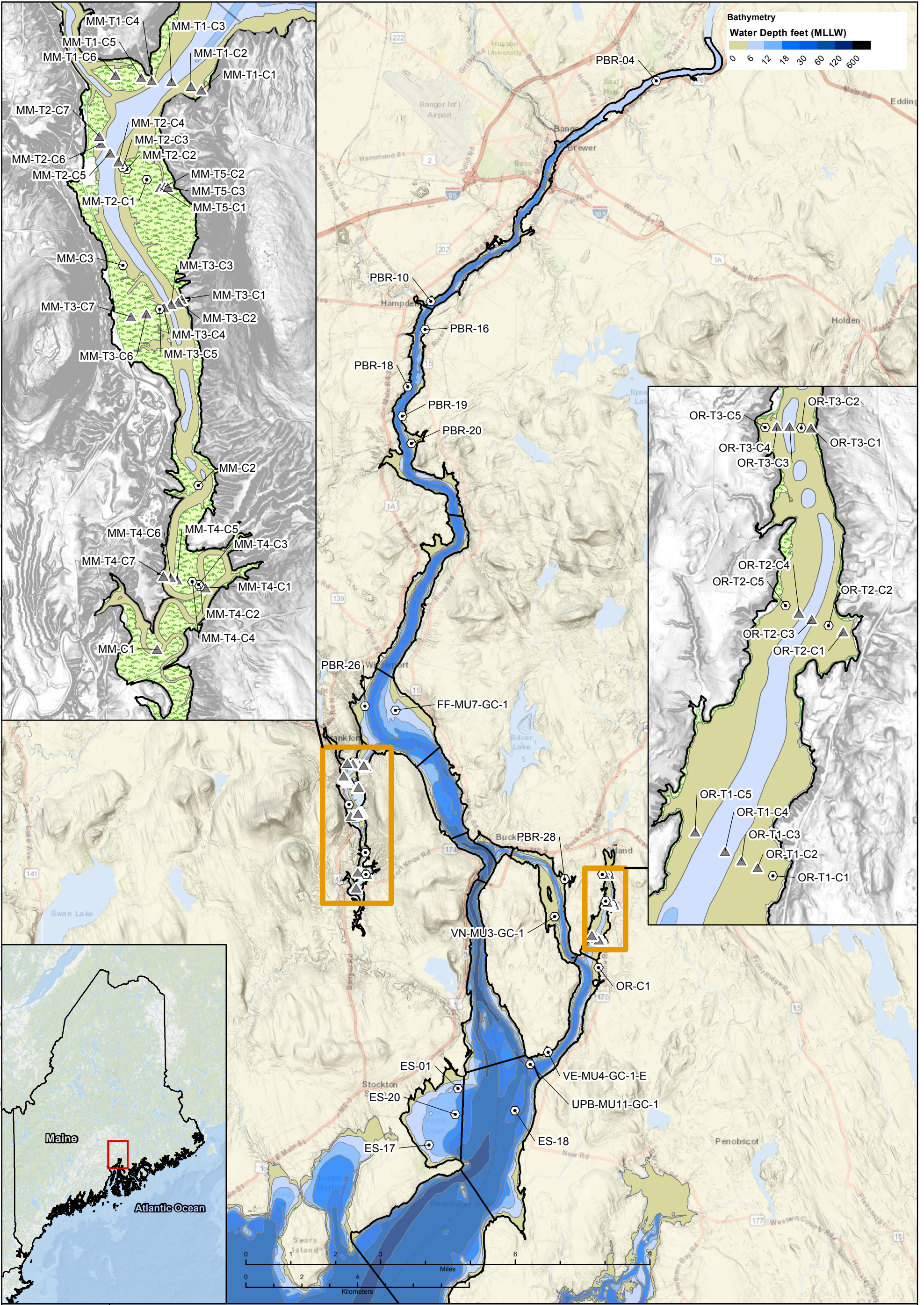
Symbol Key
 □ Official Study Reach

Figure 1-1
 Site Location and Reaches

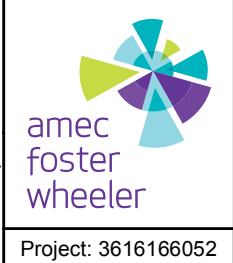


Thin Interval Core Sampling Report
 Penobscot River Phase III Engineering Study

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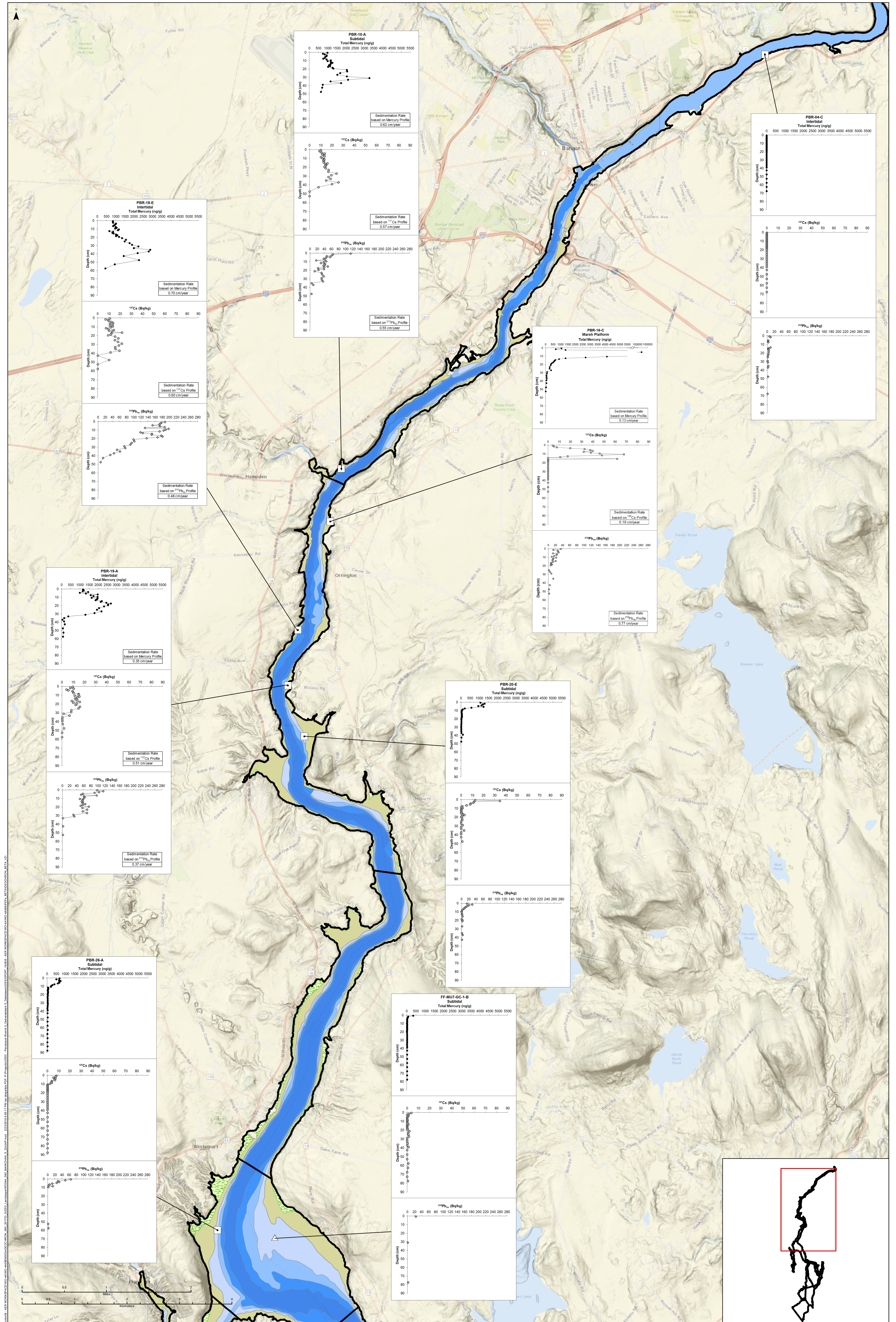


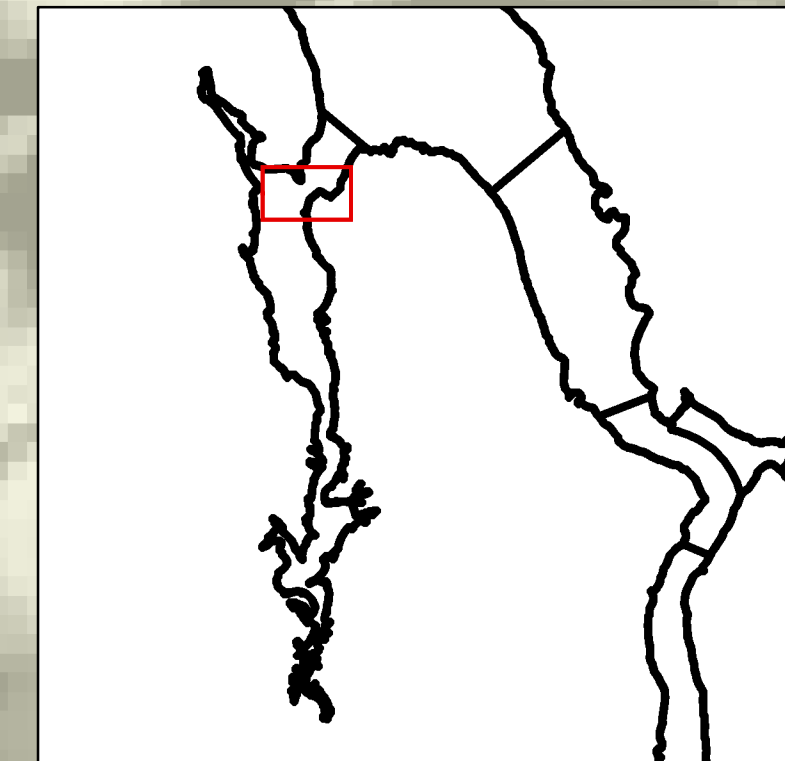
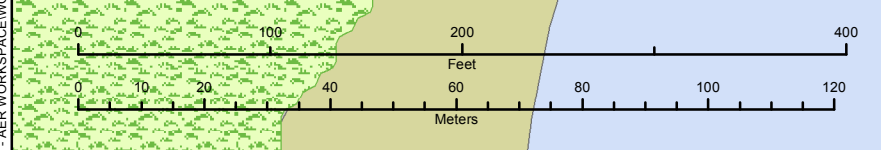
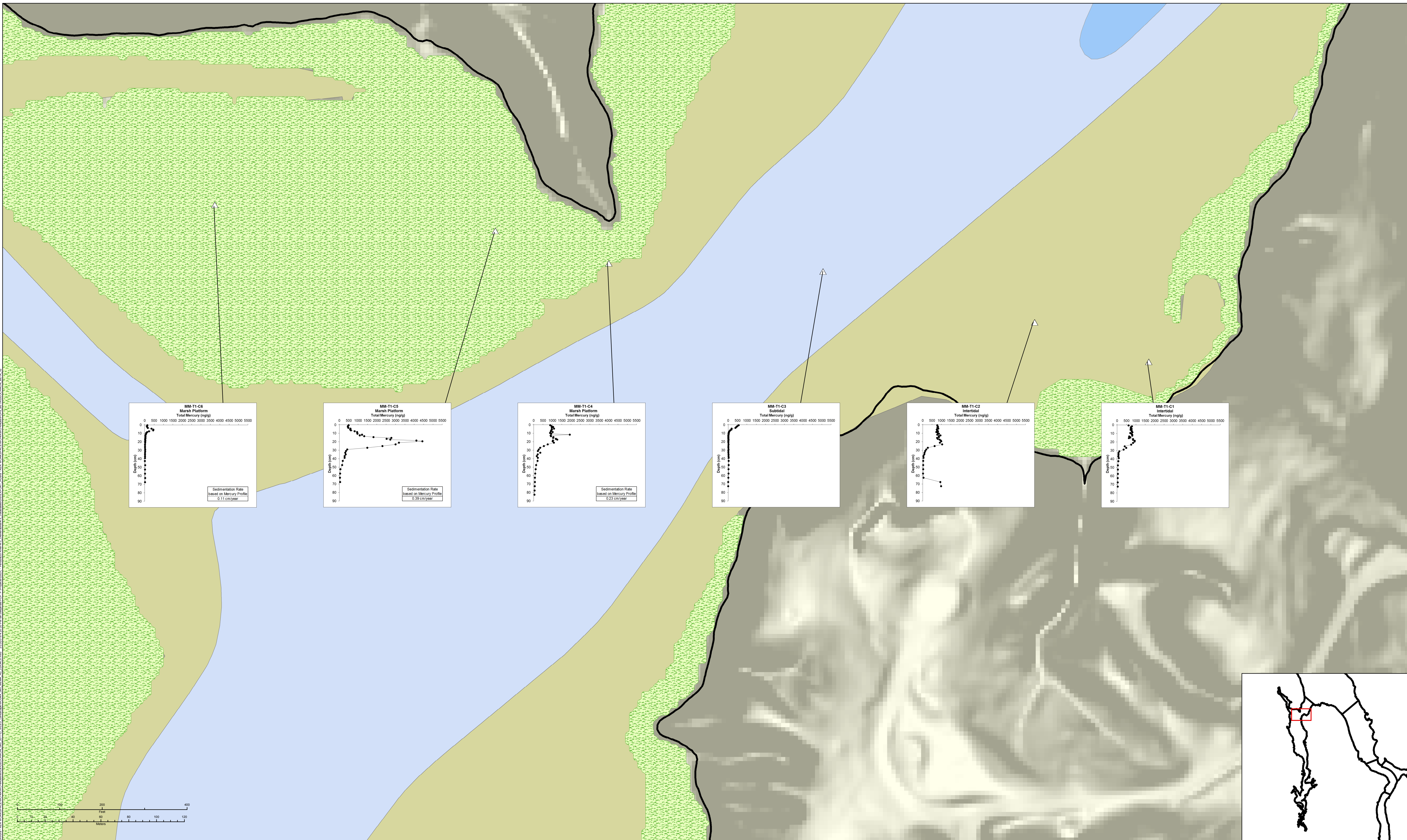
Symbol Key

- Radiochemistry and Mercury
- Mercury
- Marsh Platform
- Intertidal Zone
- Official Study Reach

Cores were obtained at proposed location MM-T2-C8. Care and preservation of these cores did not allow for analyses to be performed for use in this data set and is excluded. Results are comparable to those from work orders 30/40/50.

Figure 2-1
Sediment Coring Locations



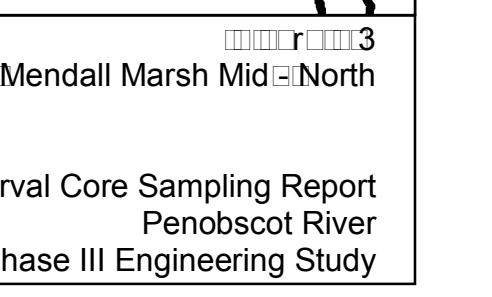
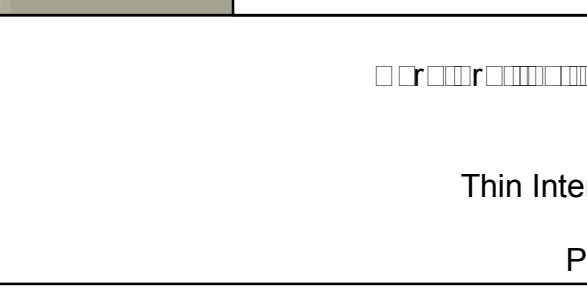
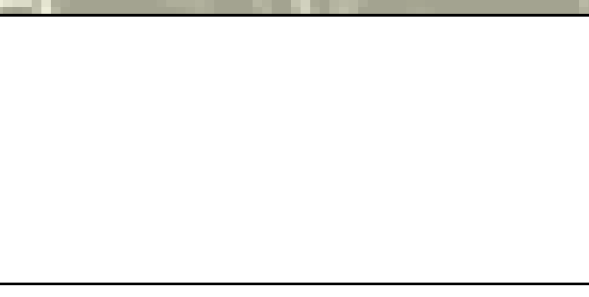
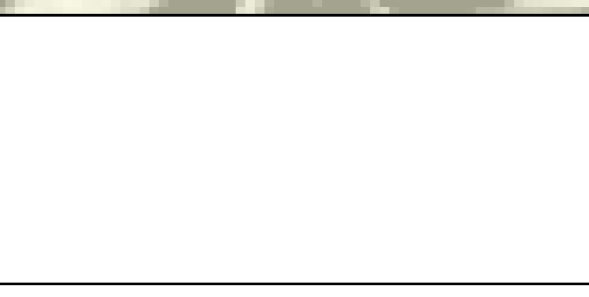
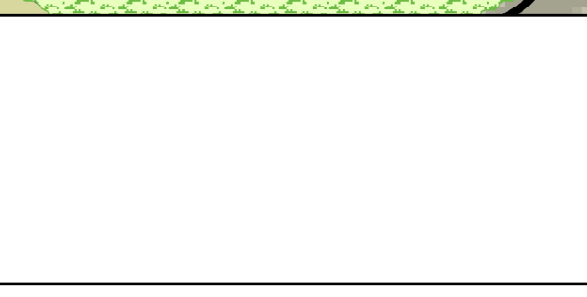
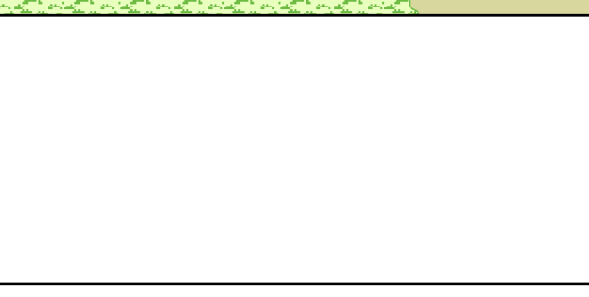
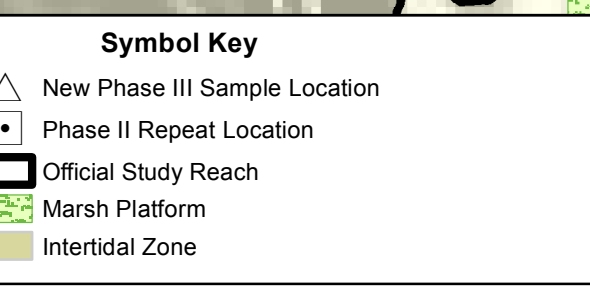
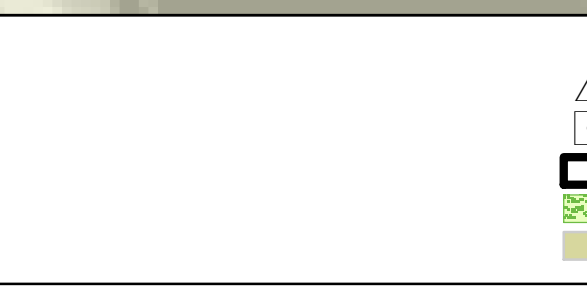
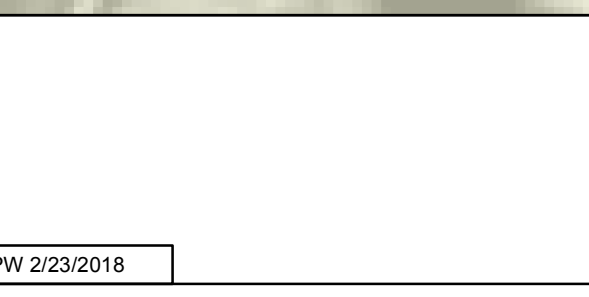
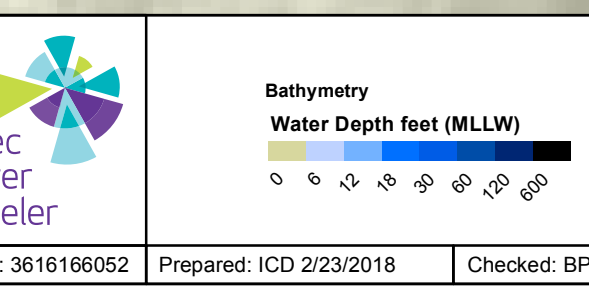
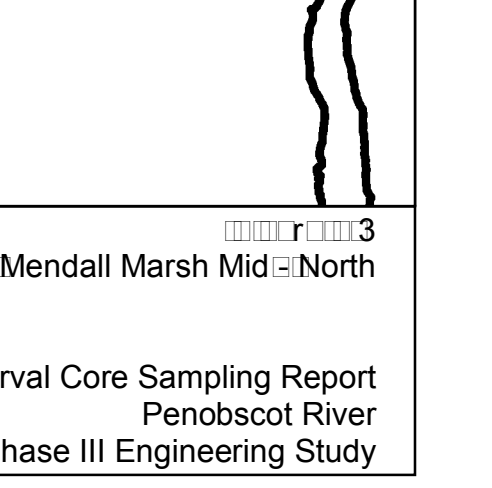
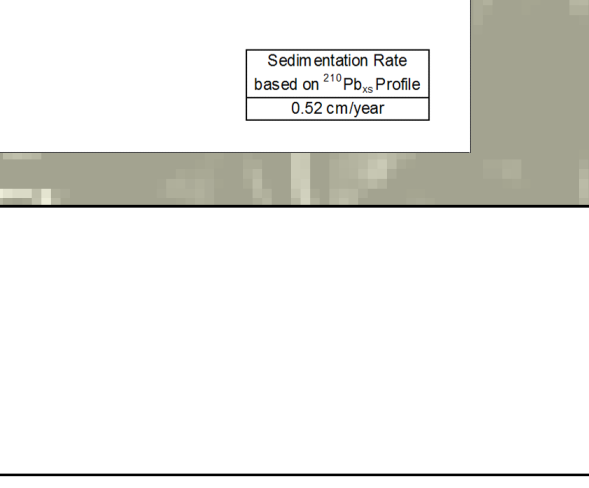
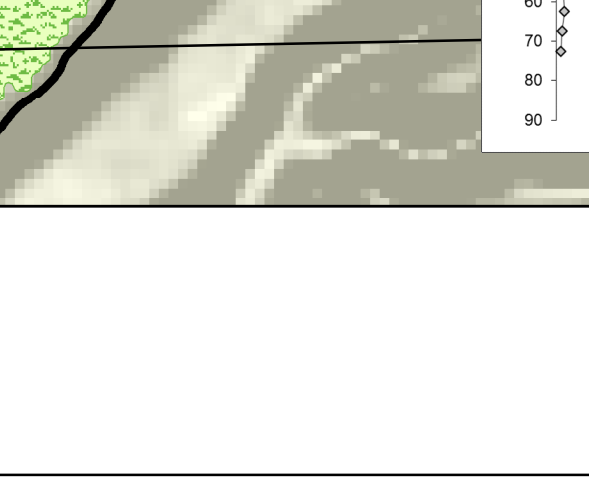
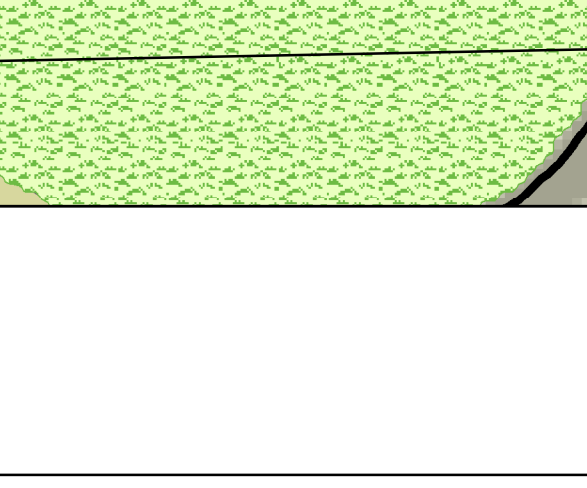
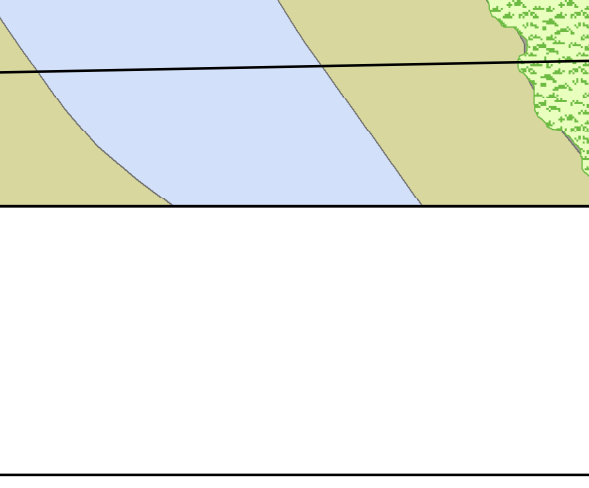
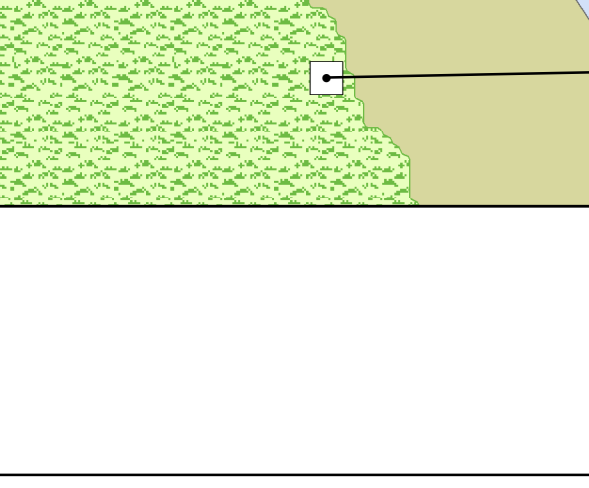
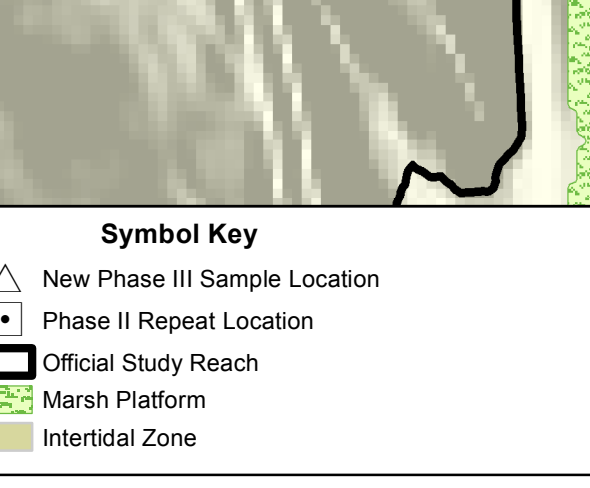
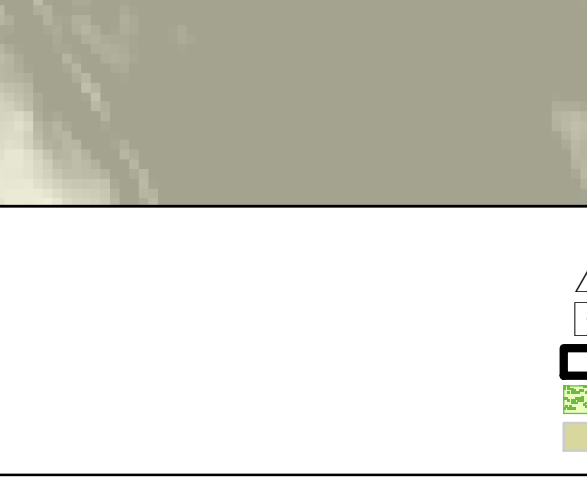
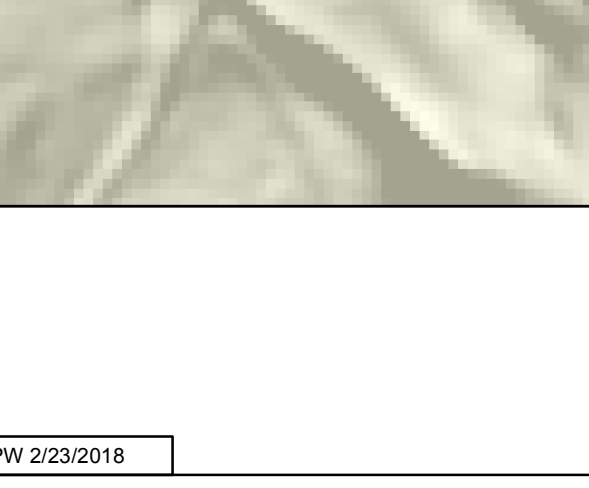
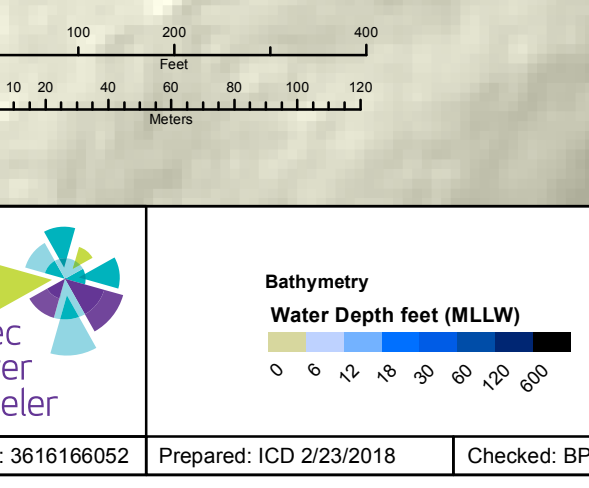
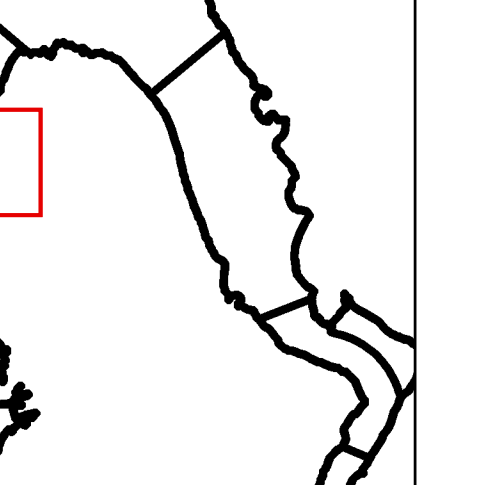
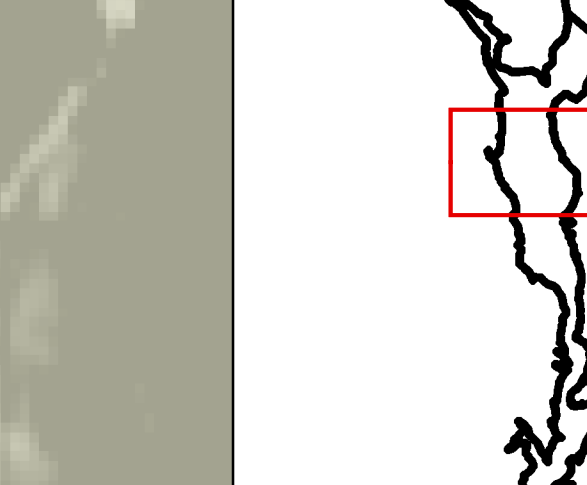
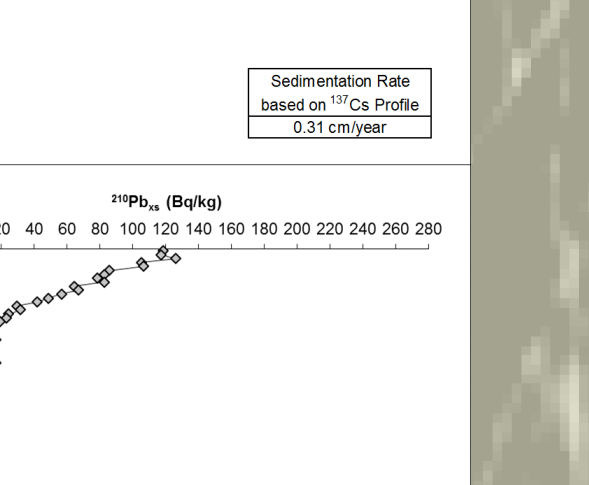
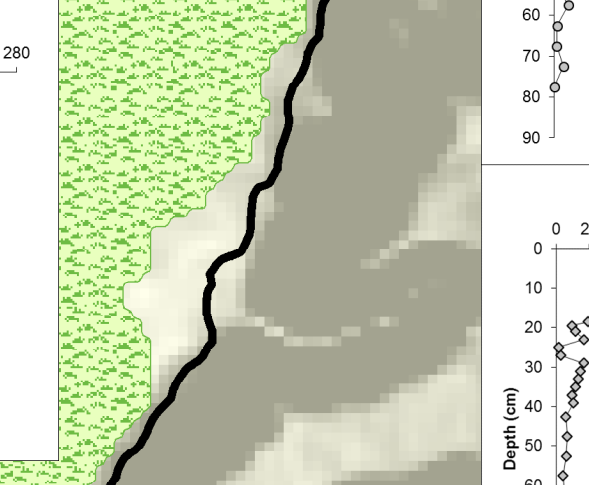
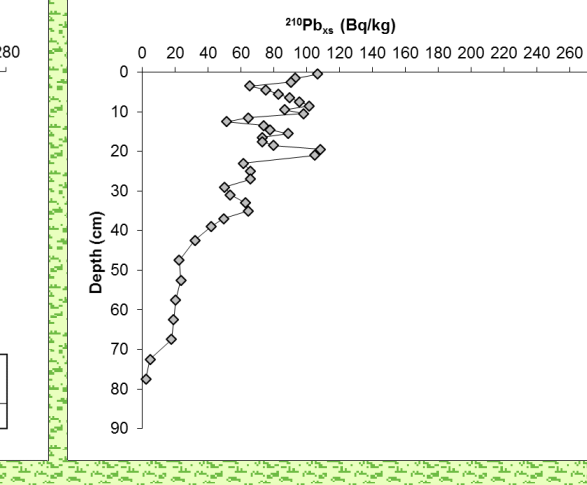
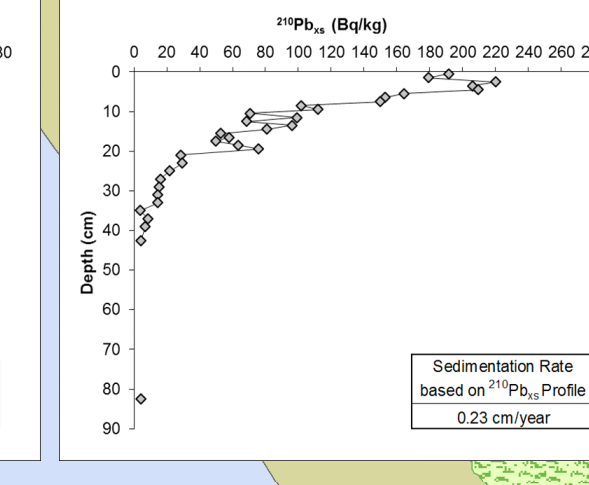
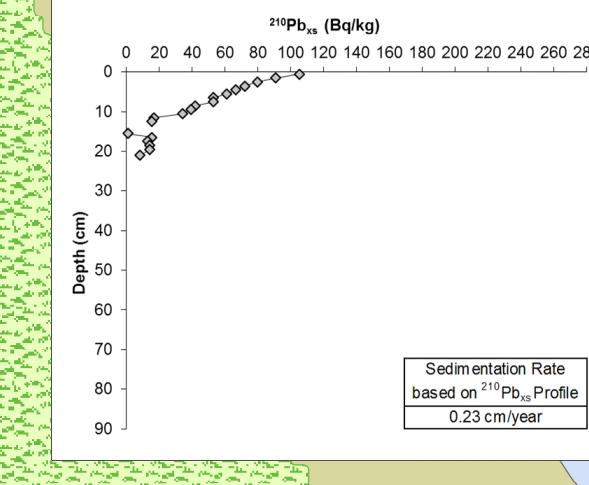
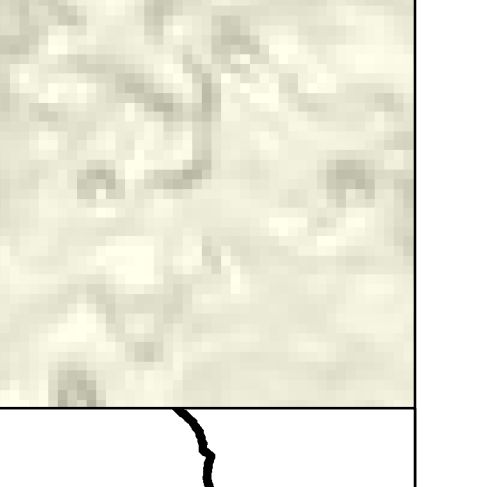
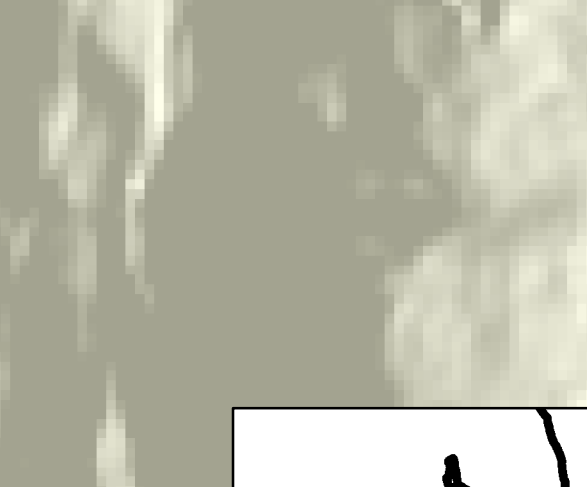
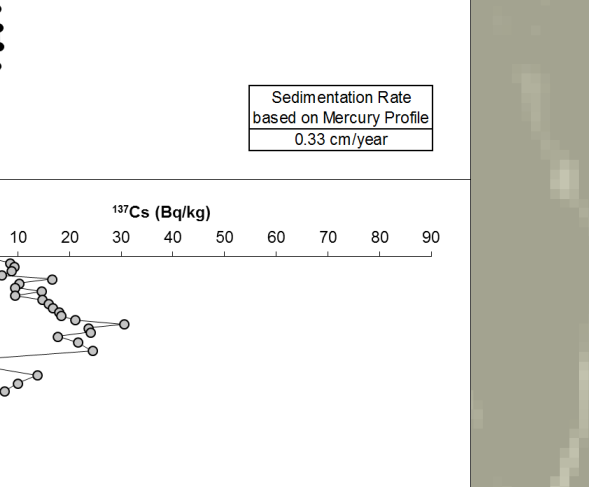
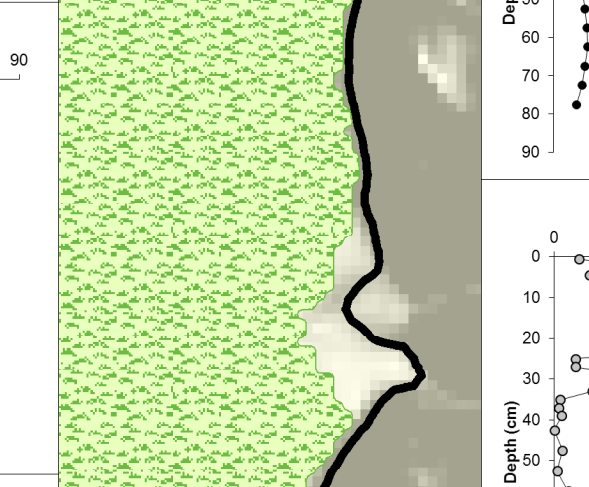
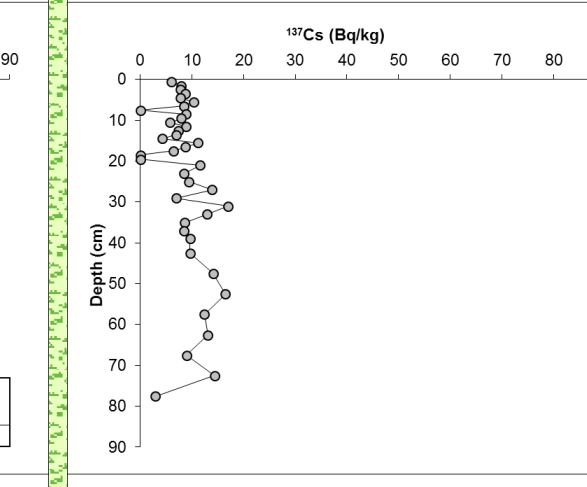
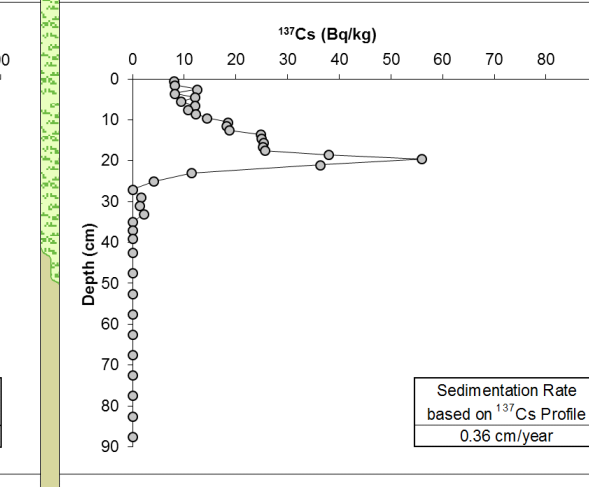
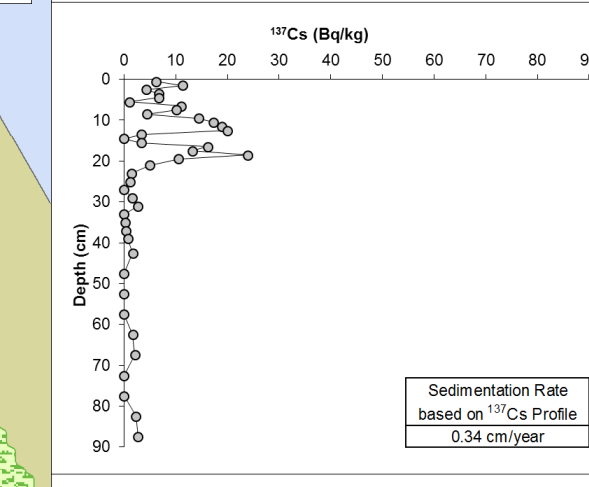
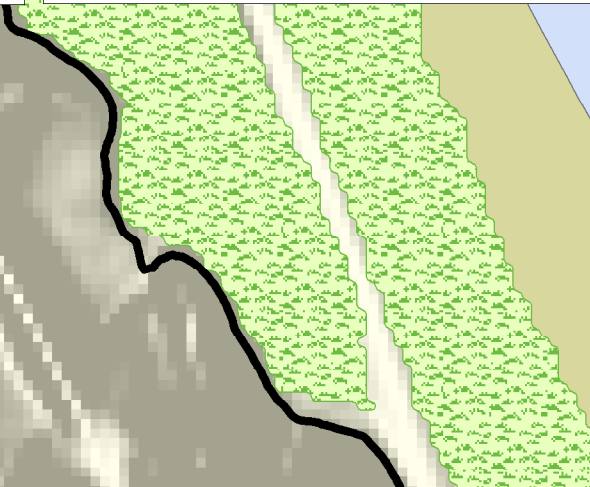
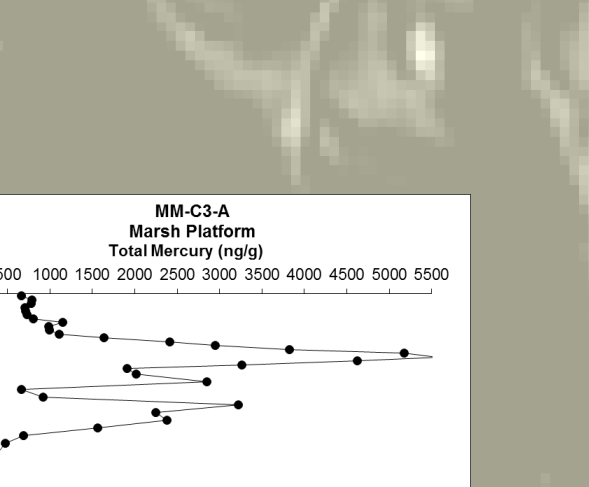
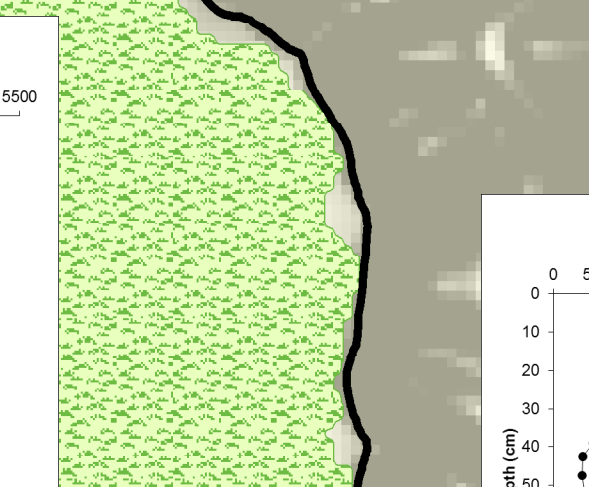
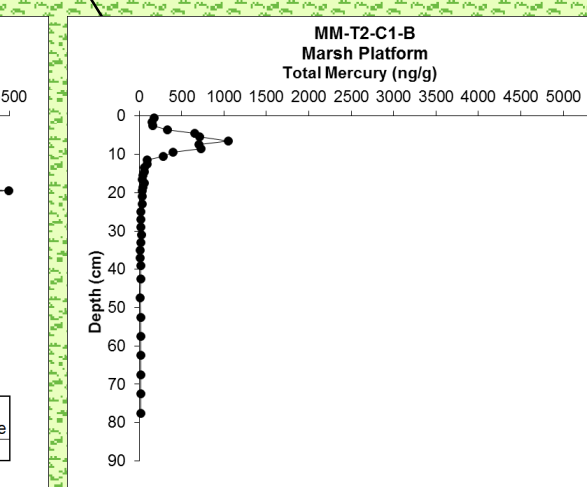
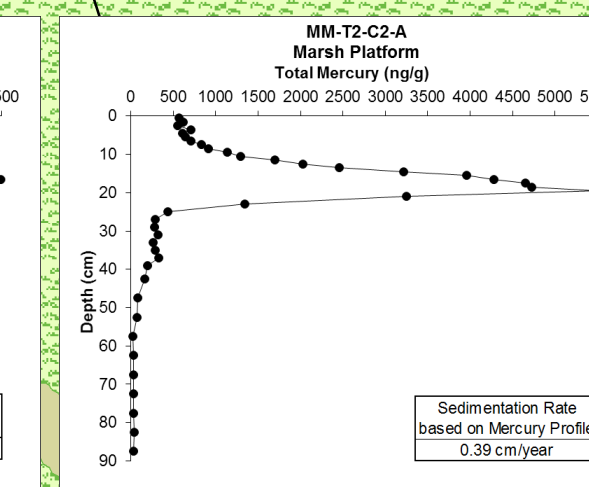
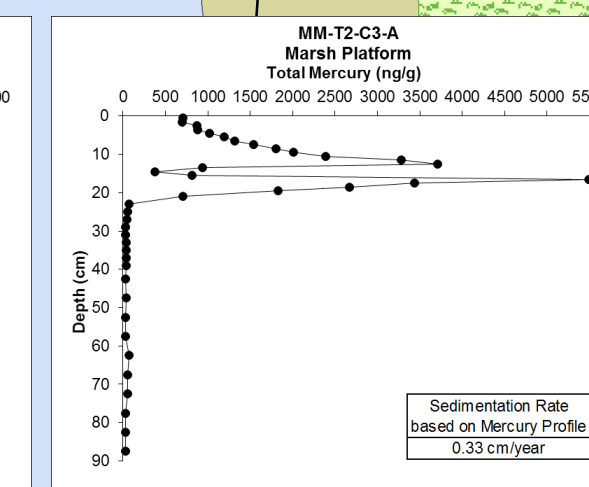
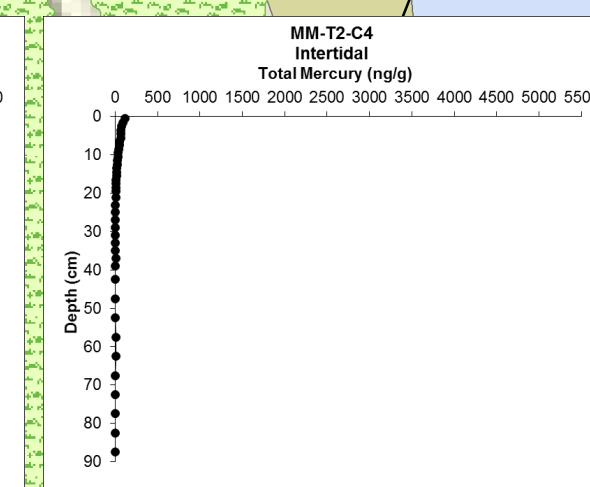
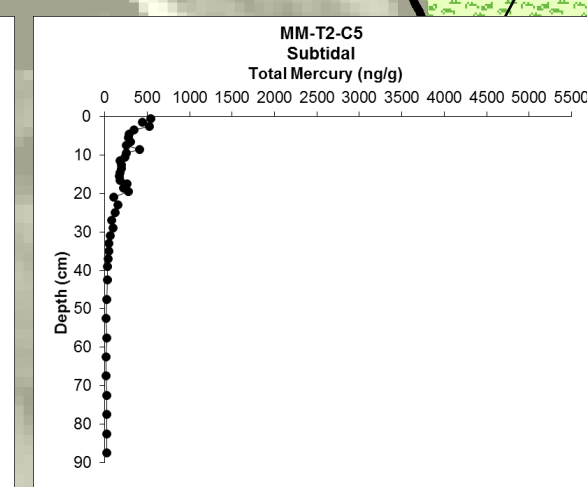
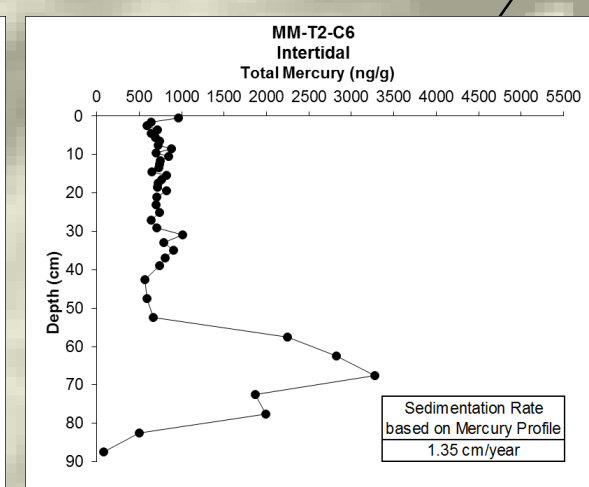
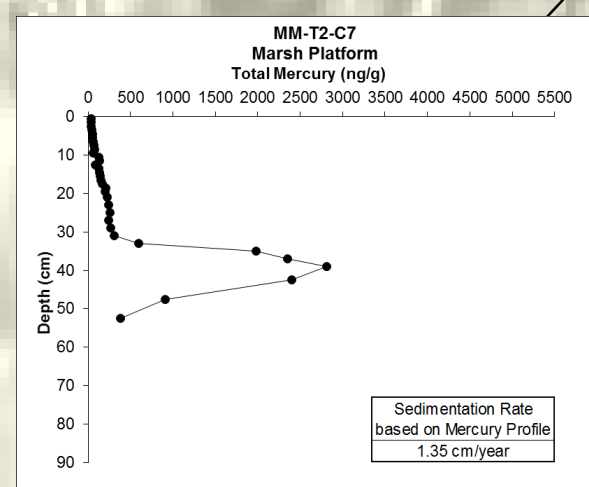
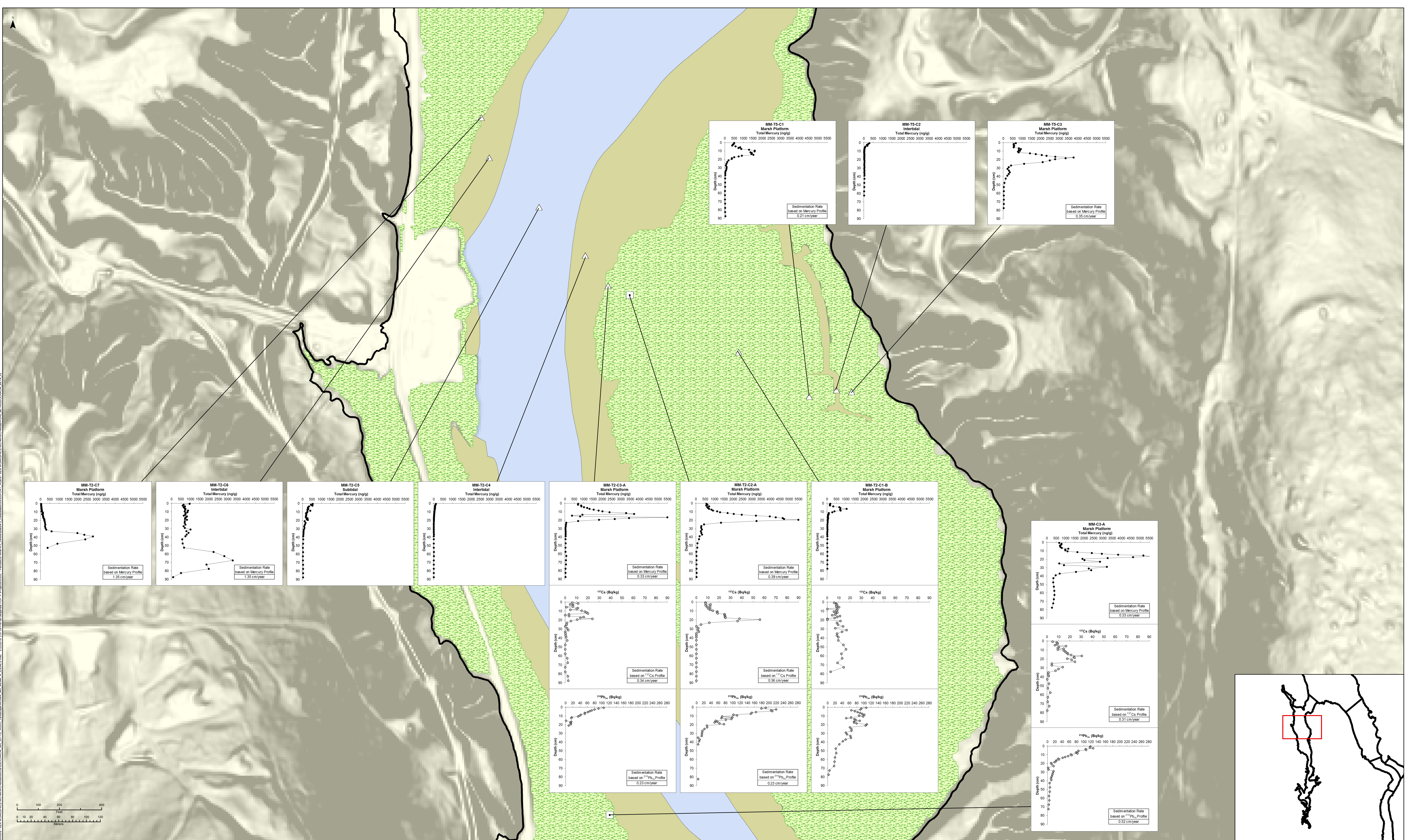


Bathymetry
Water Depth feet (MLLW)

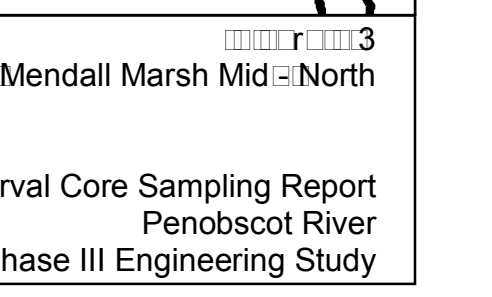
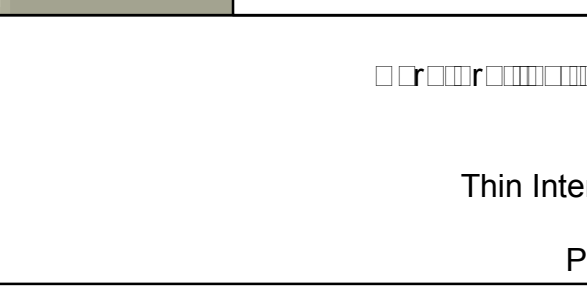
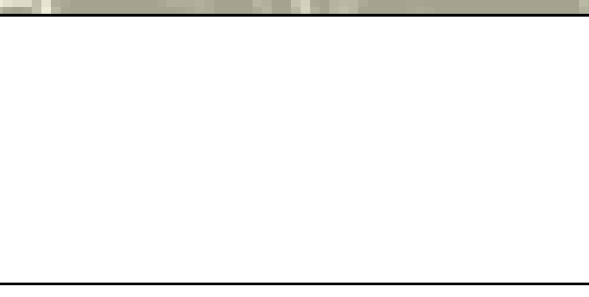
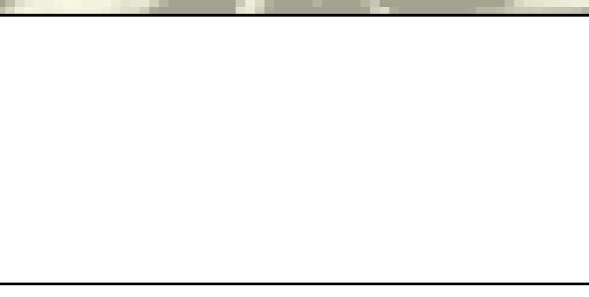
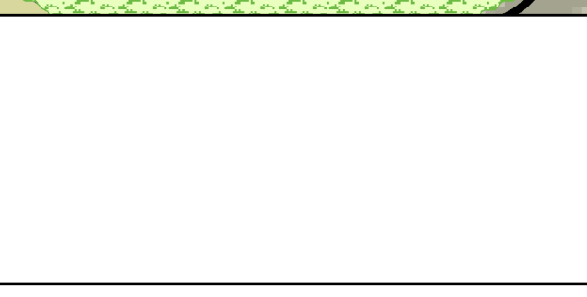
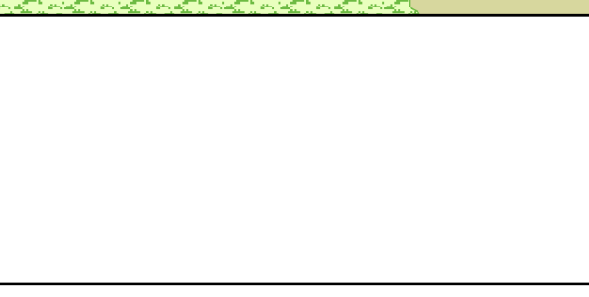
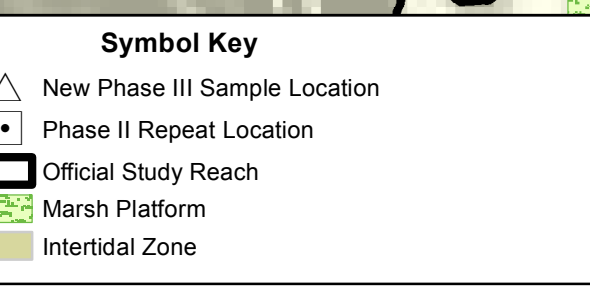
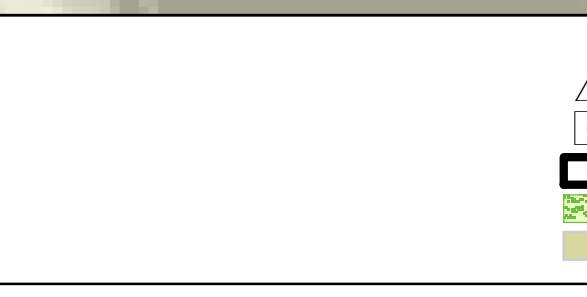
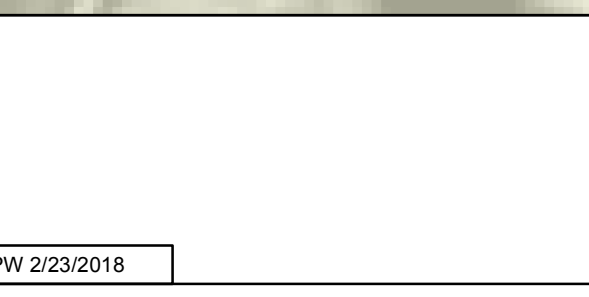
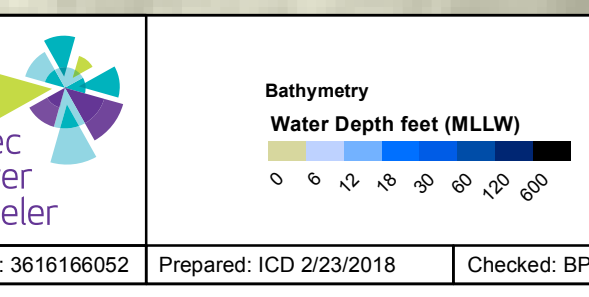
Symbol Key
 ▲ New Phase III Sample Location
 ■ Official Study Reach
 ■ Marsh Platform
 ■ Intertidal Zone

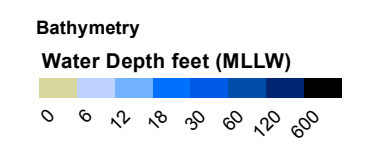
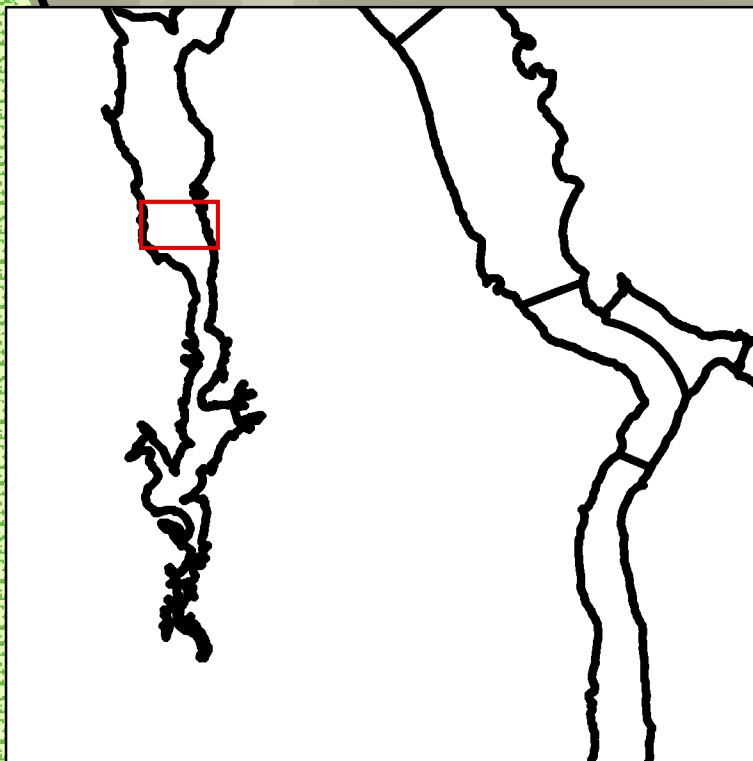
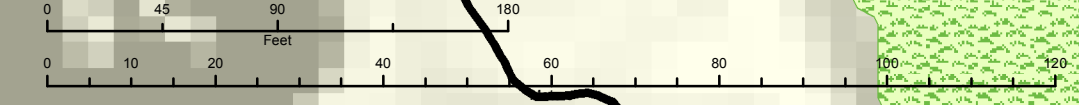
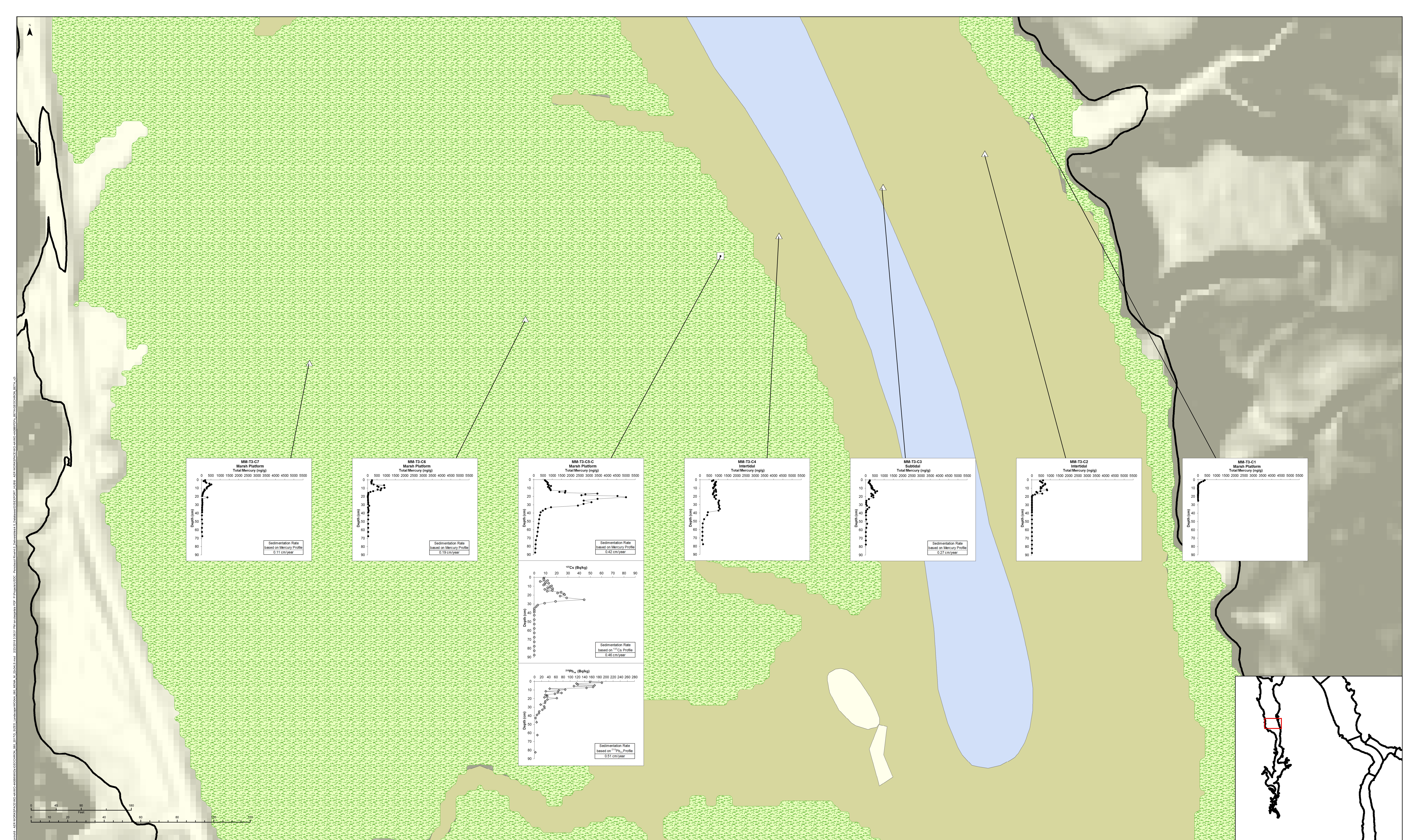
□□□□□□□□ Mendall Marsh North

Thin Interval Core Sampling Report
 Penobscot River
 Phase III Engineering Study



Project: 3616166052 Prepared: ICD 2/23/2018 Checked: BPW 2/23/2018

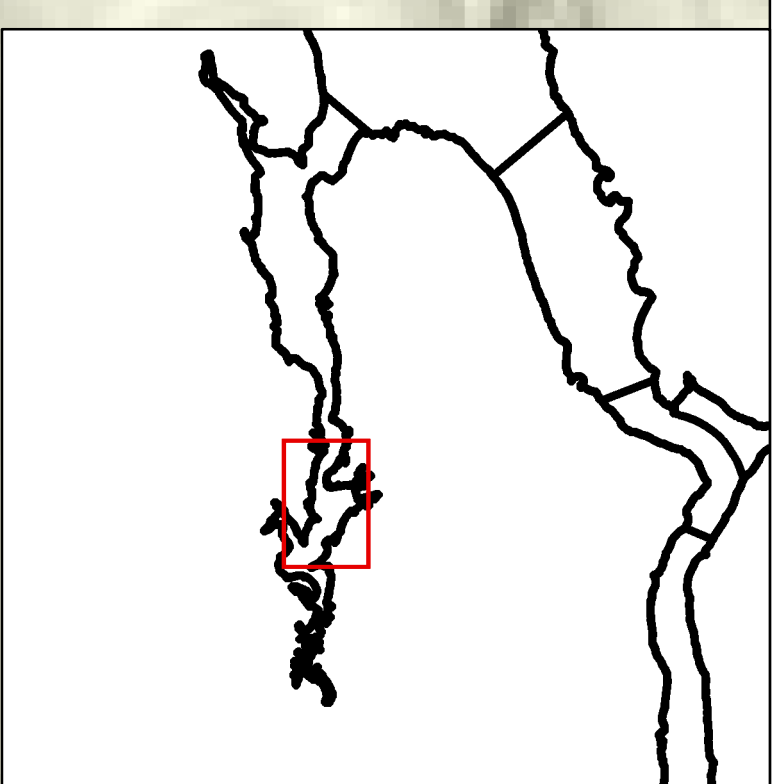
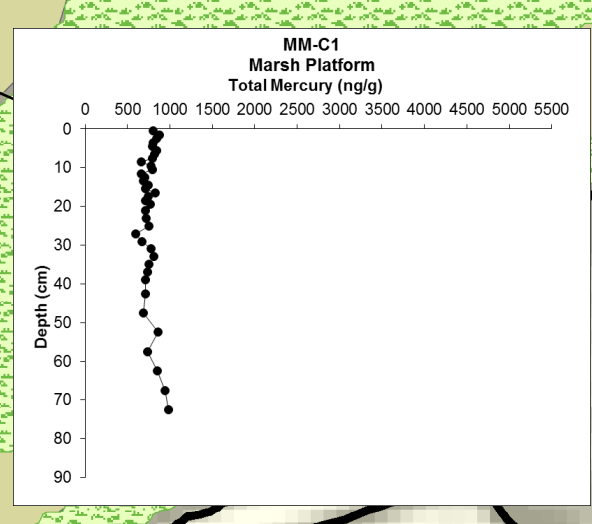
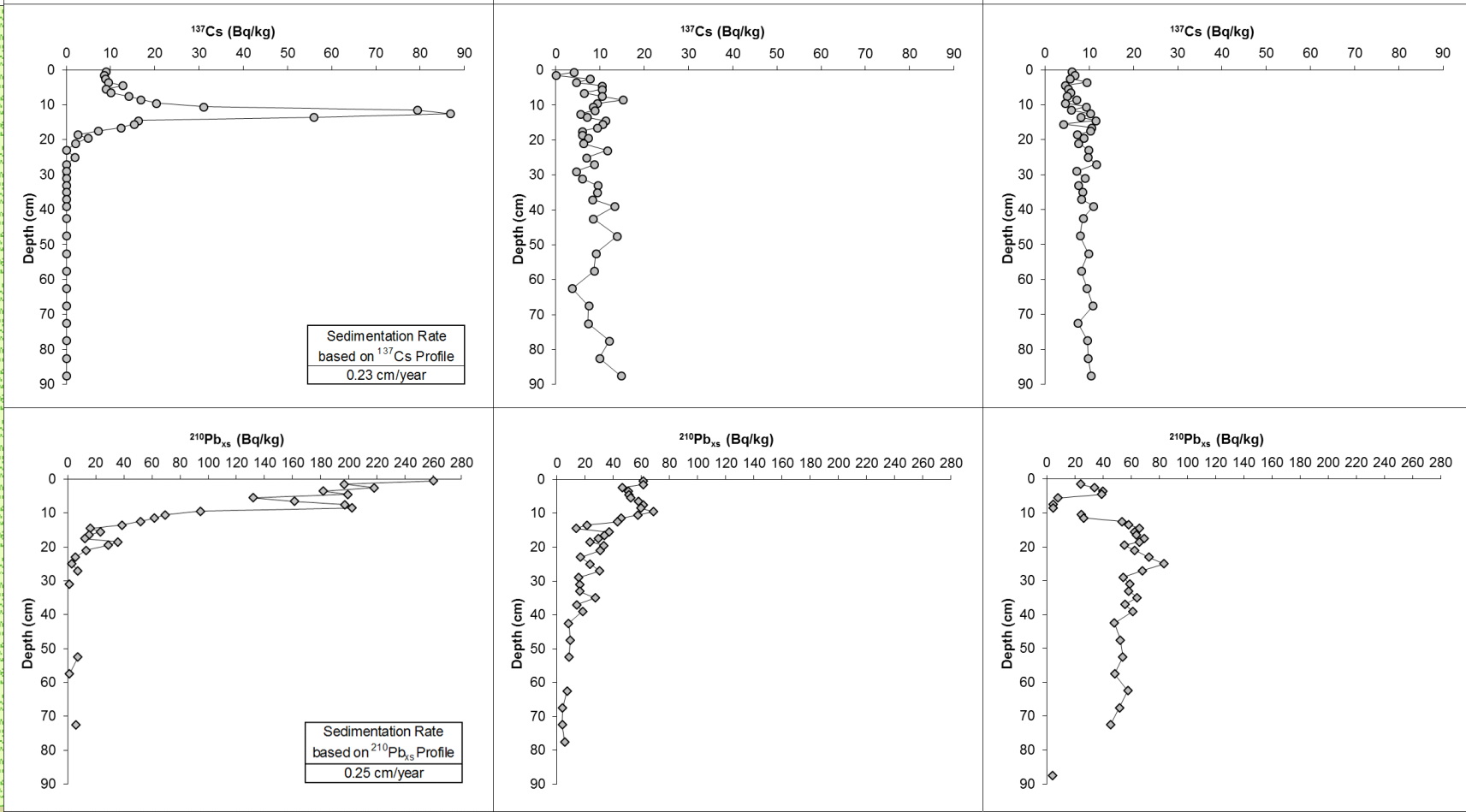
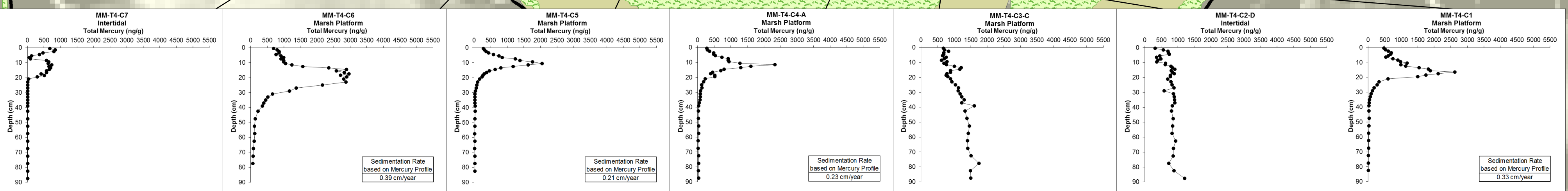
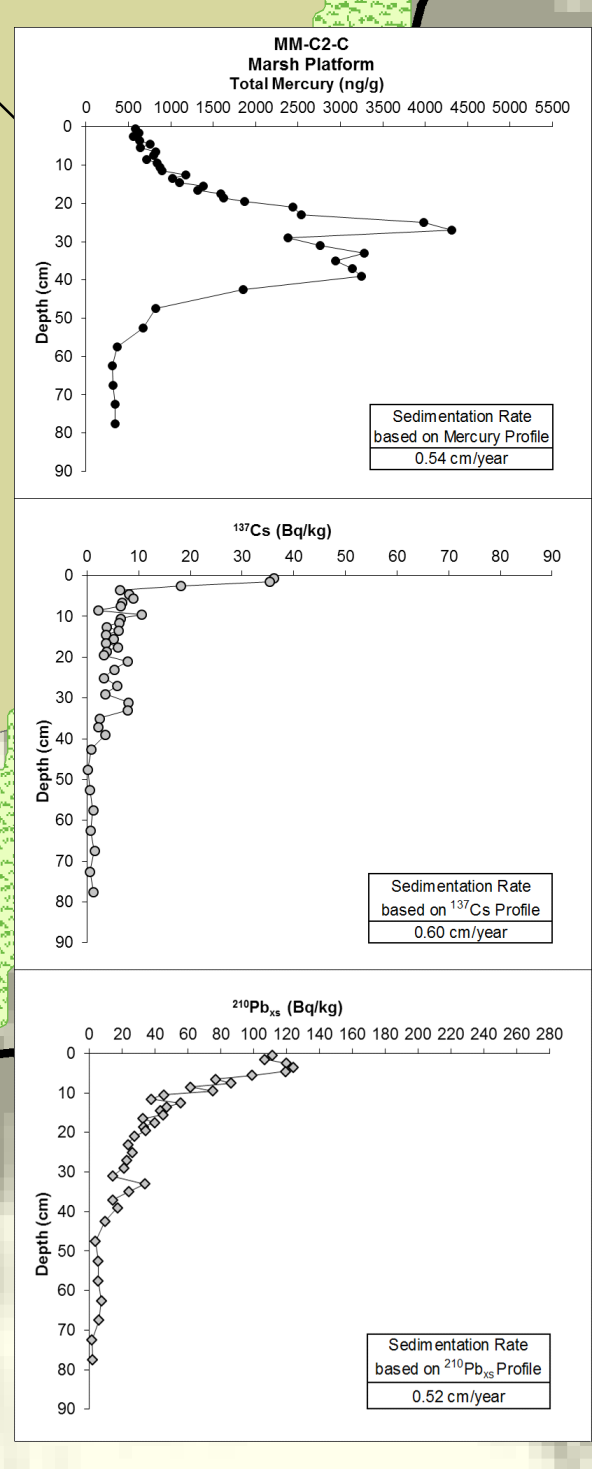
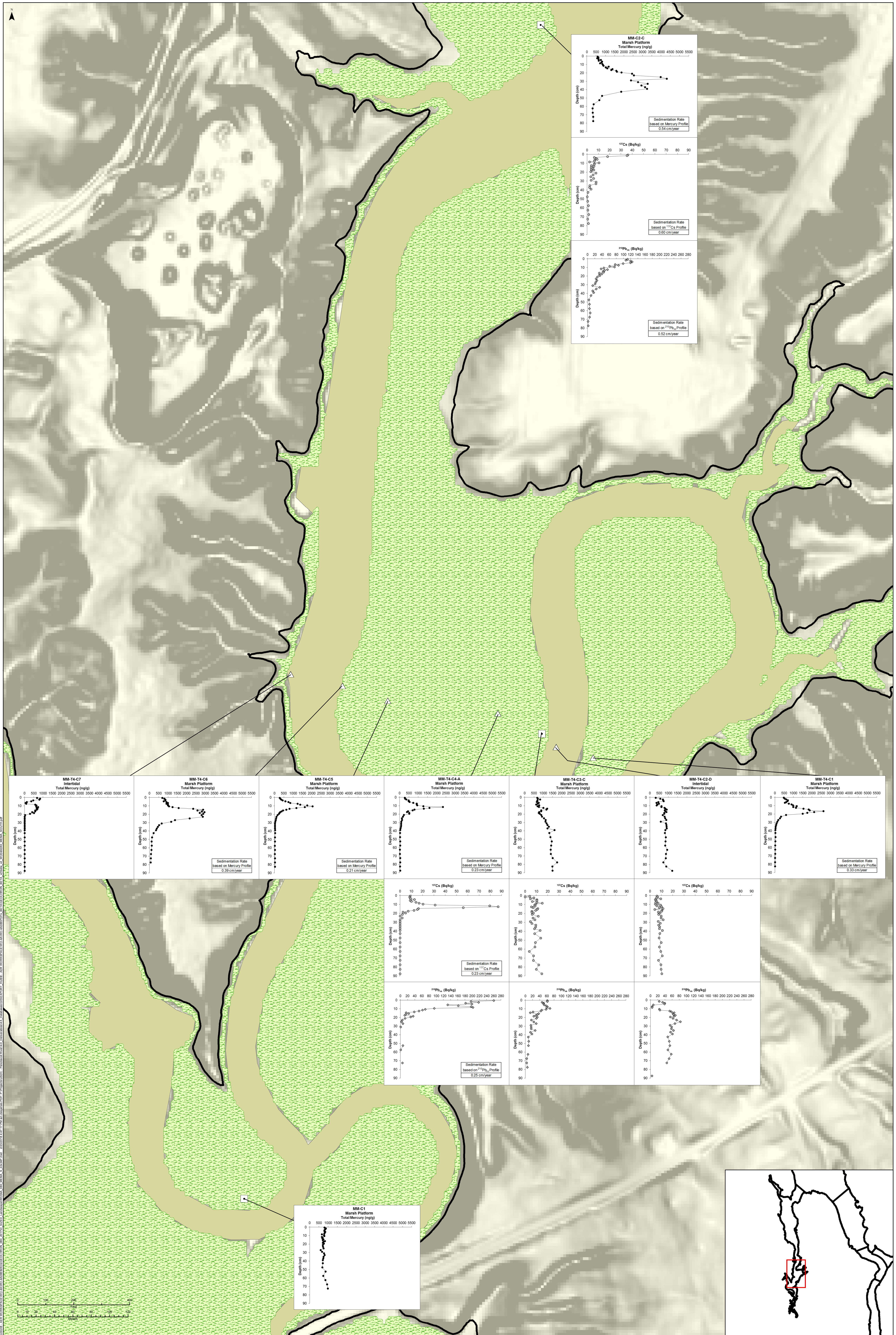


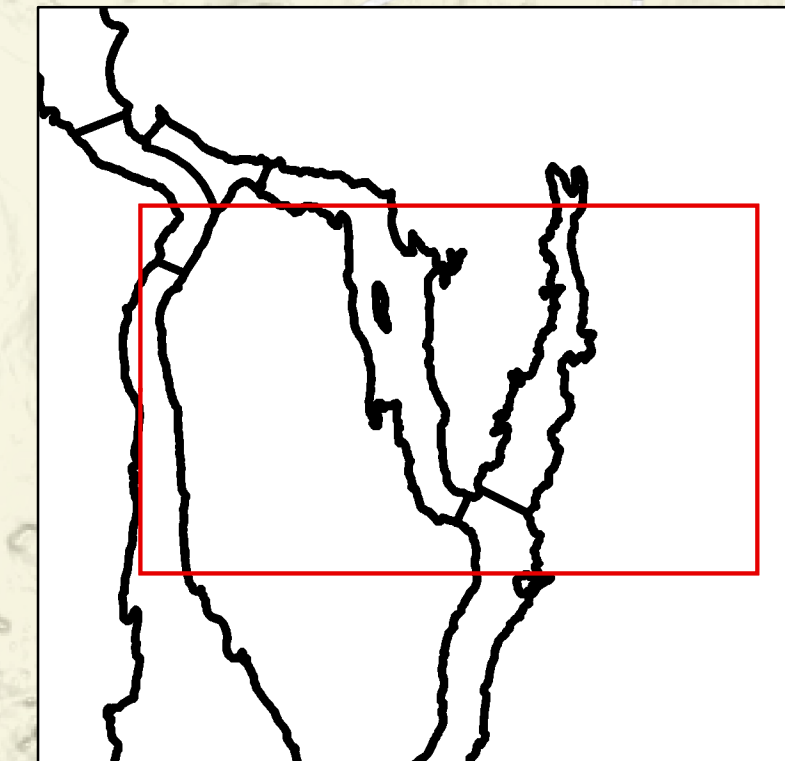
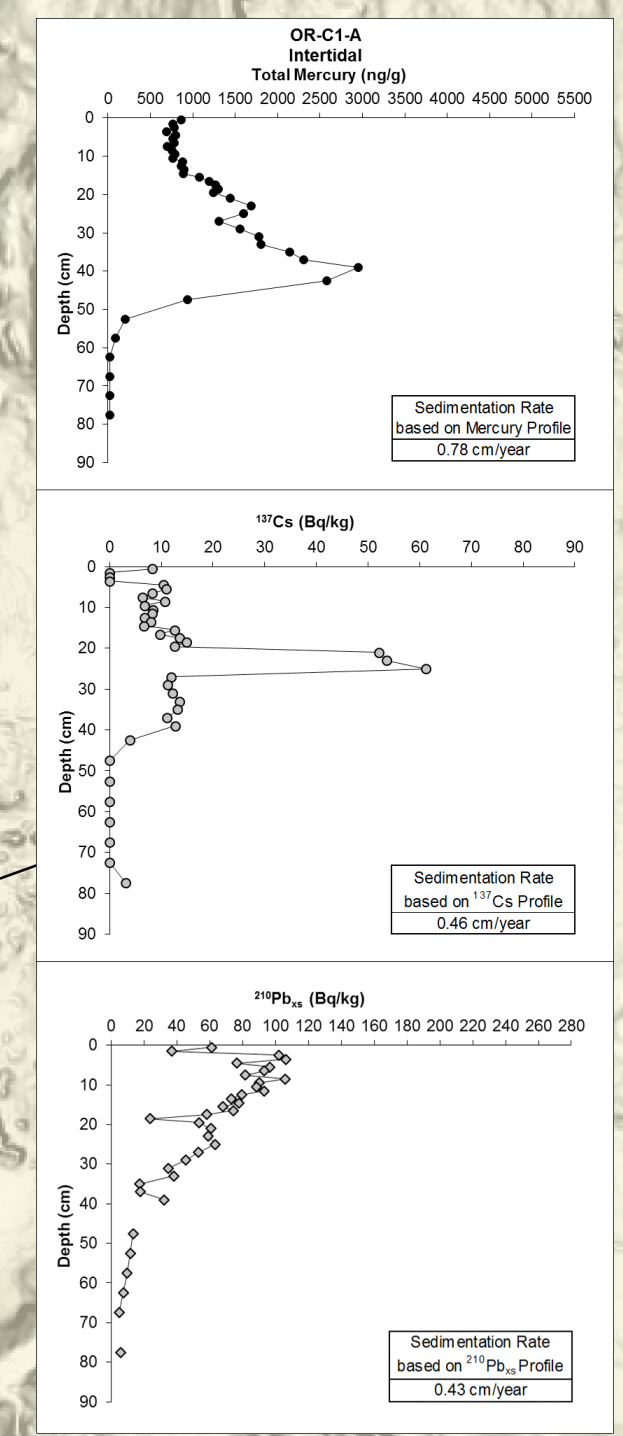
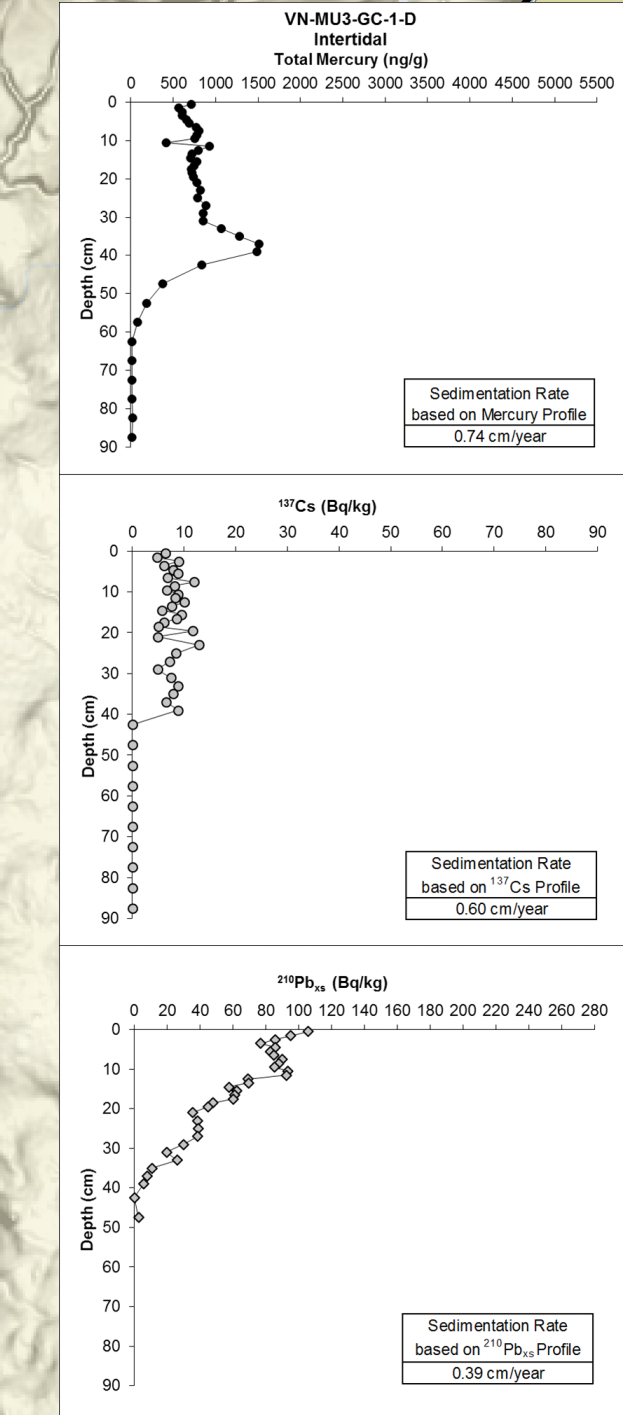
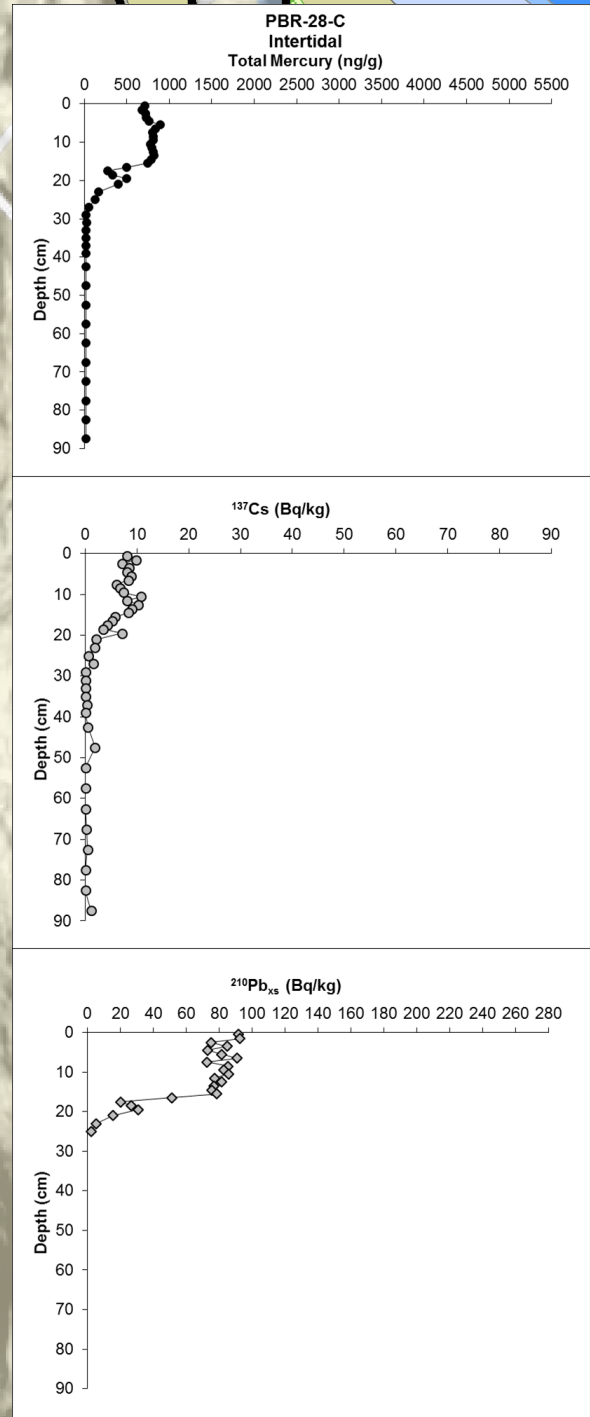
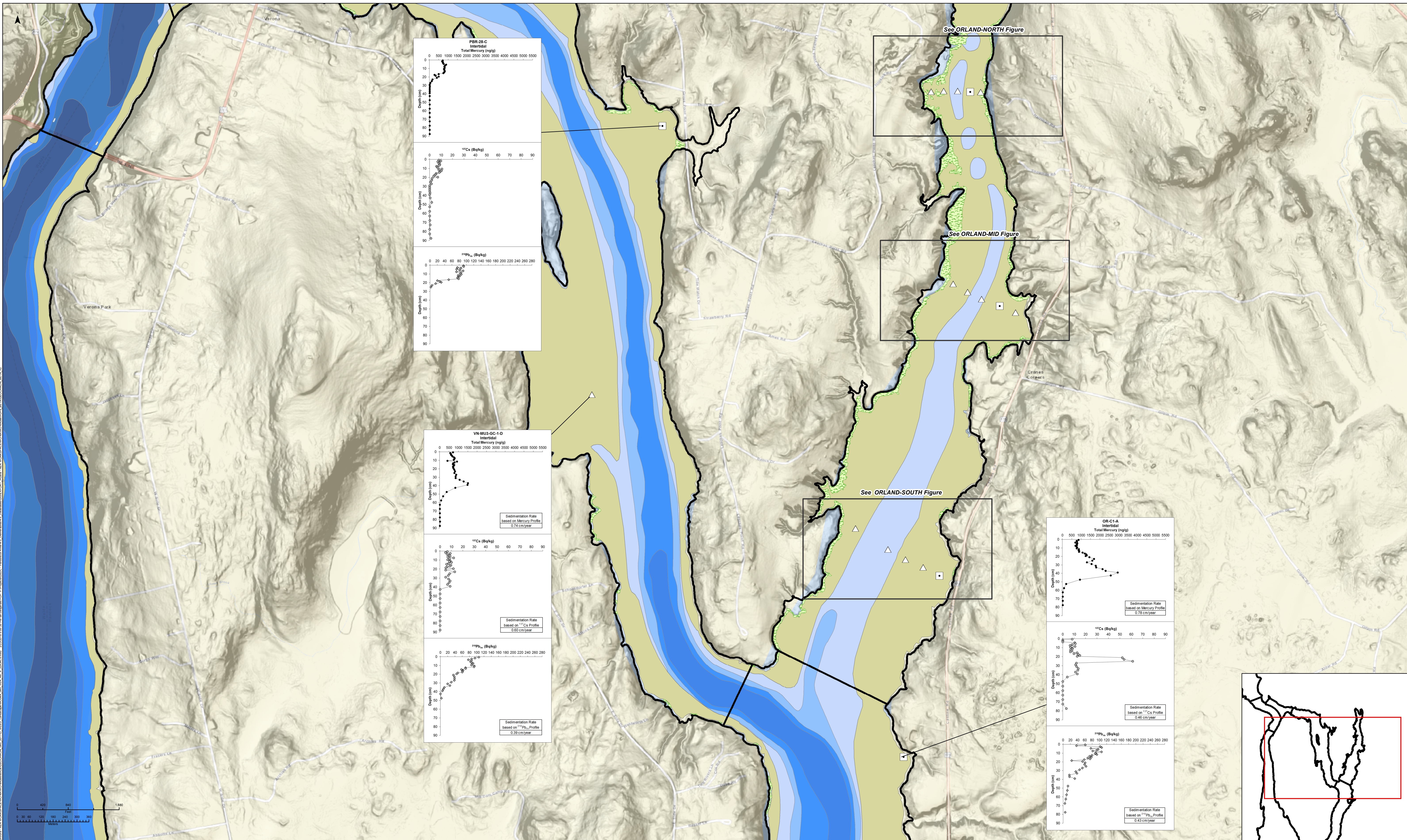


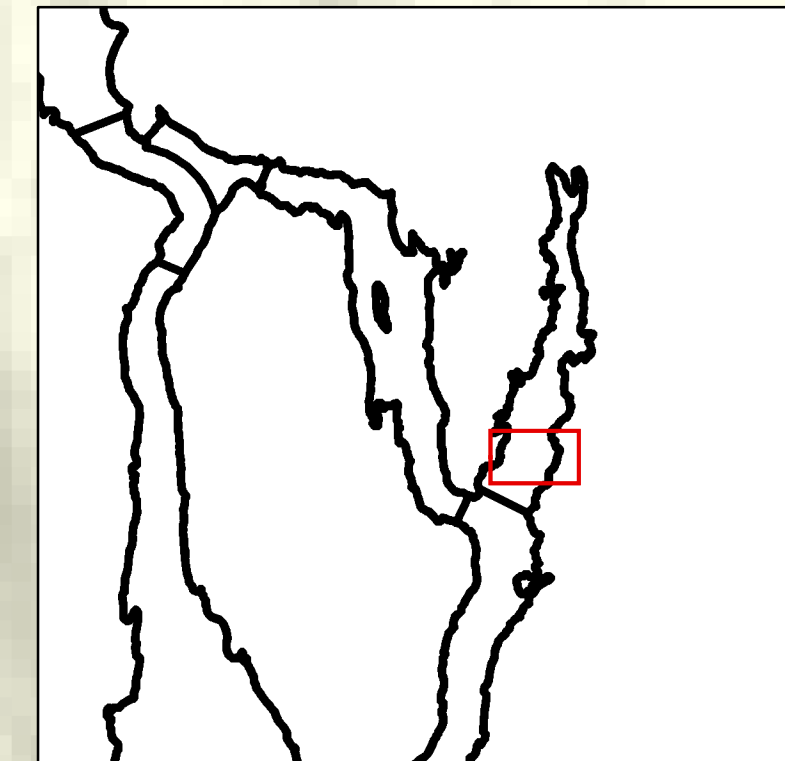
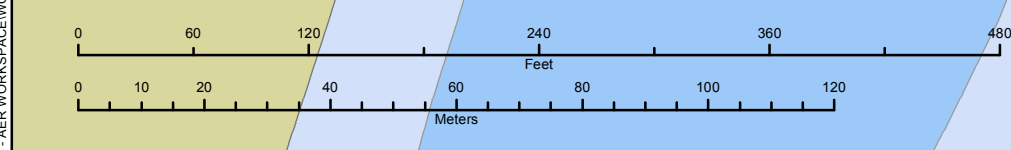
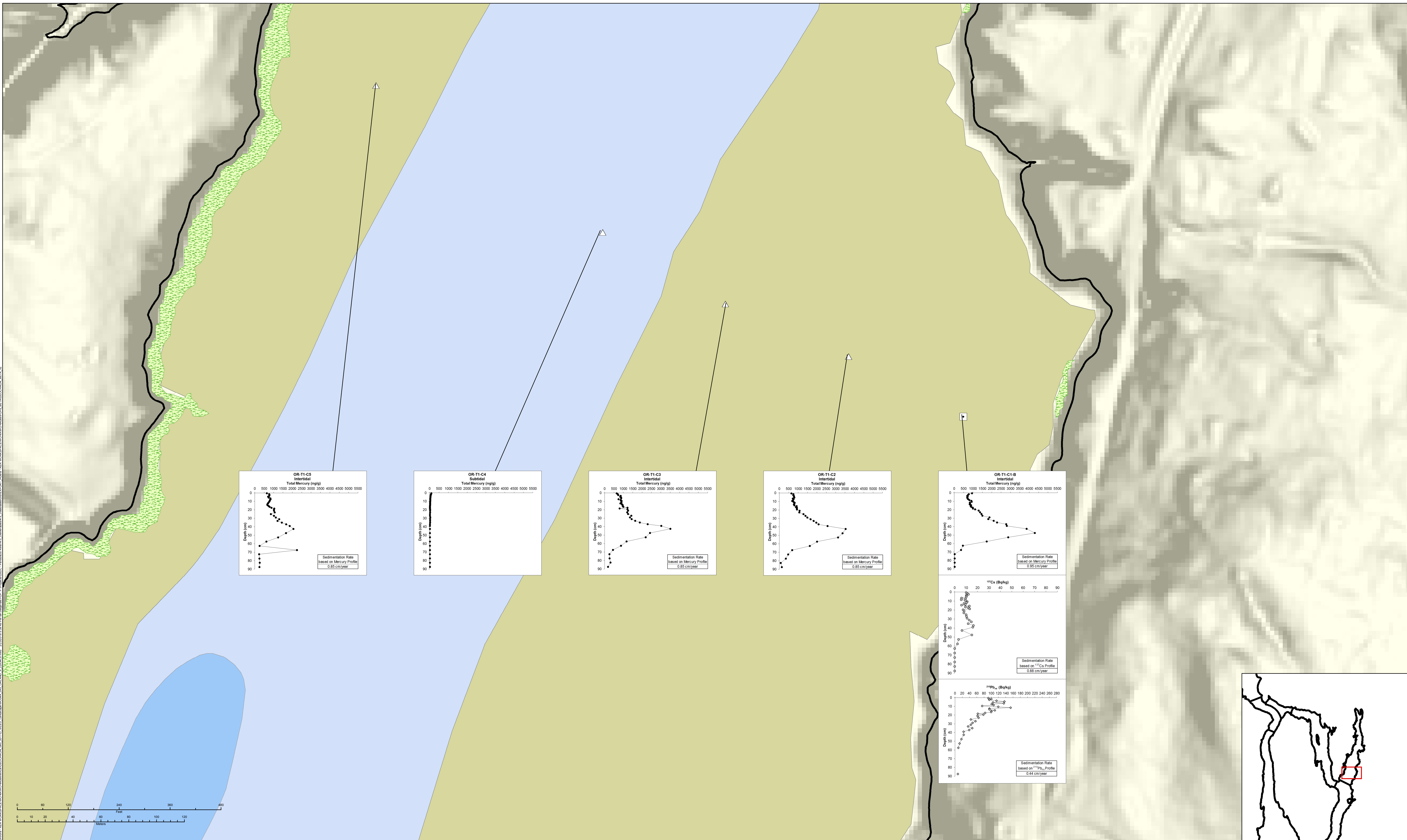
- Symbol Key**
- New Phase III Sample Location
 - Phase II Repeat Location
 - Official Study Reach
 - Marsh Platform
 - Intertidal Zone

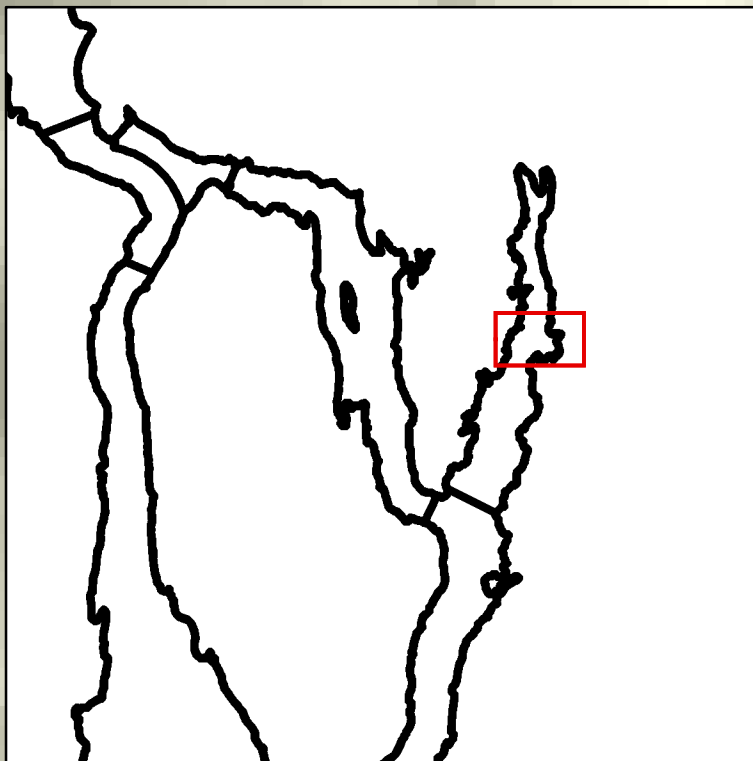
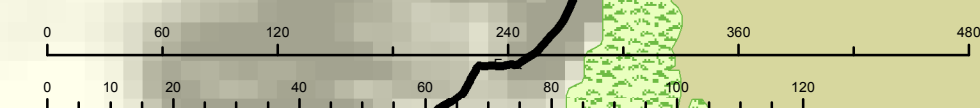
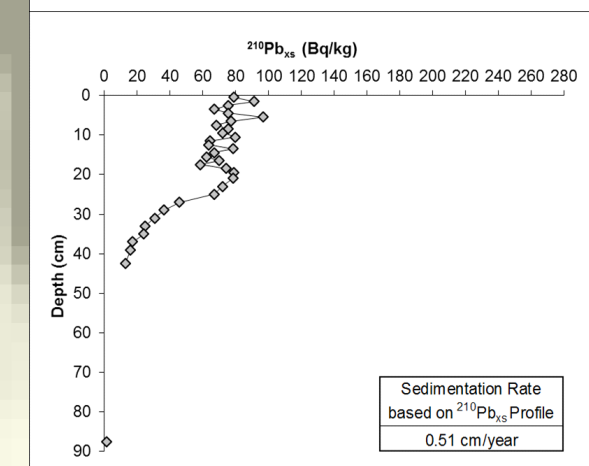
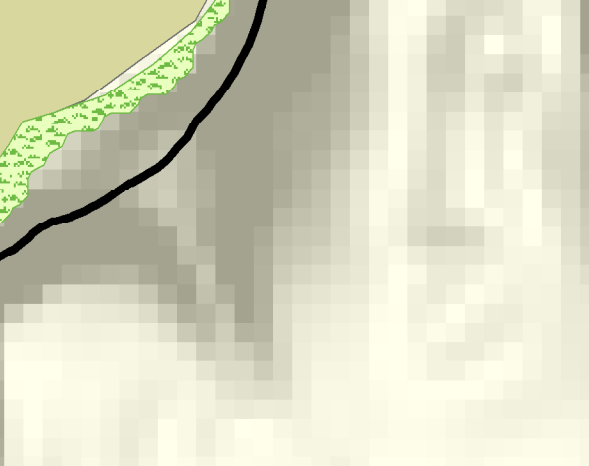
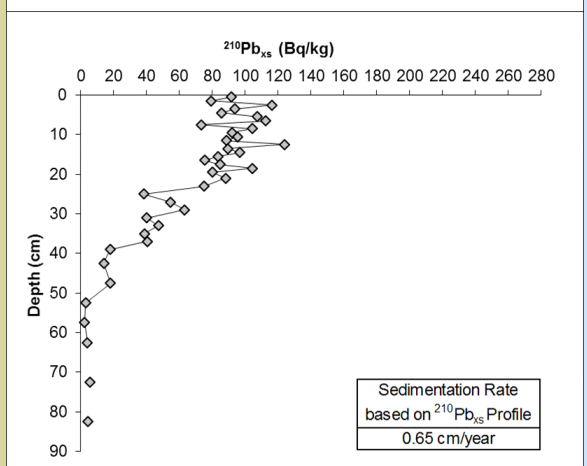
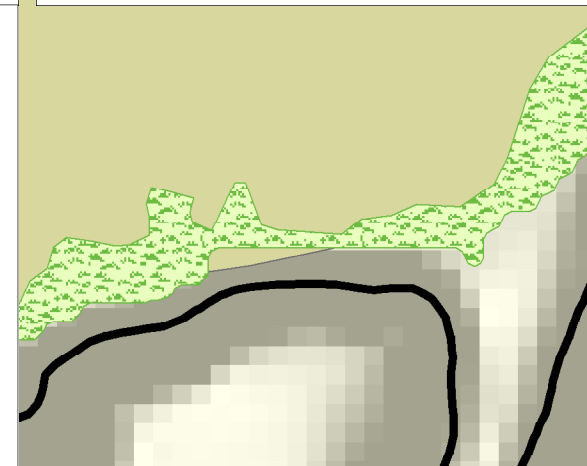
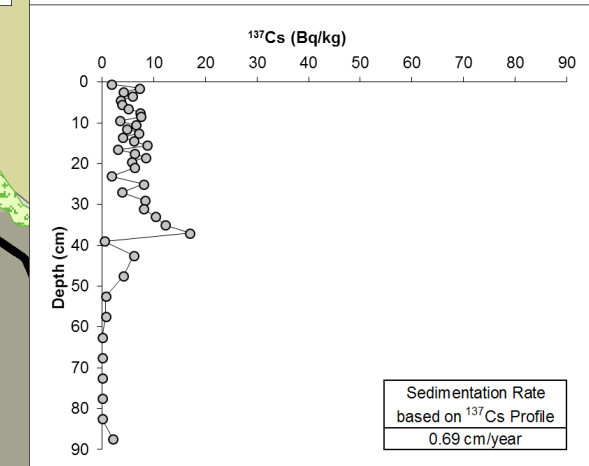
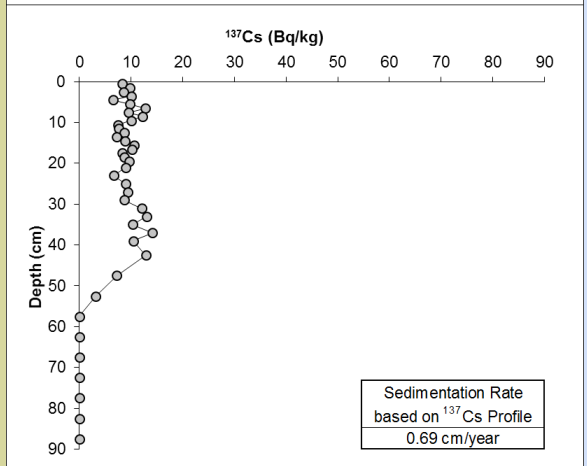
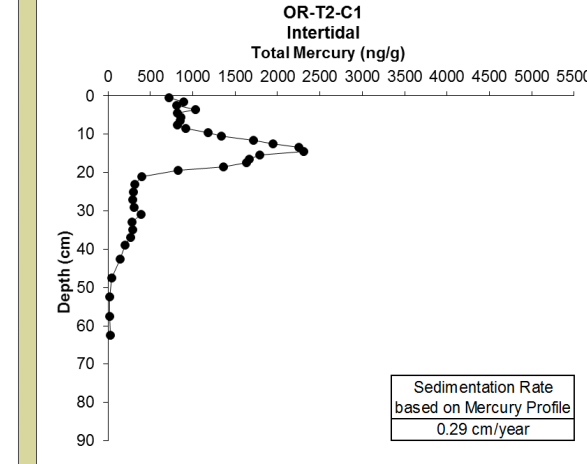
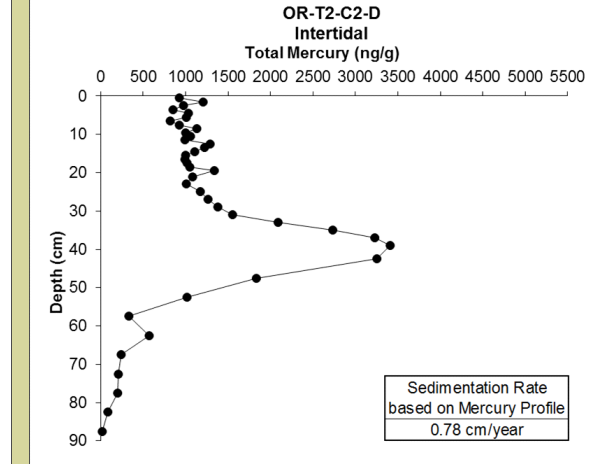
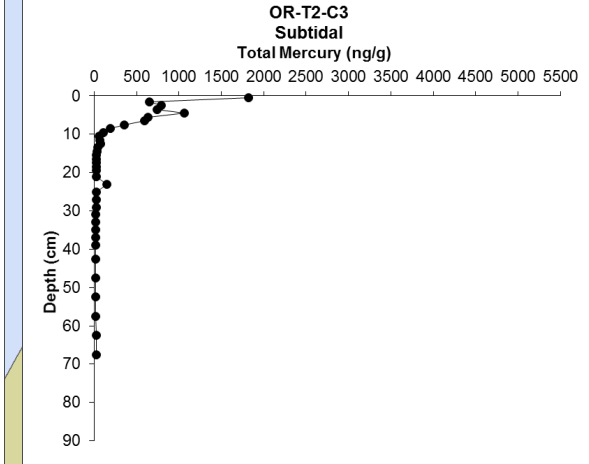
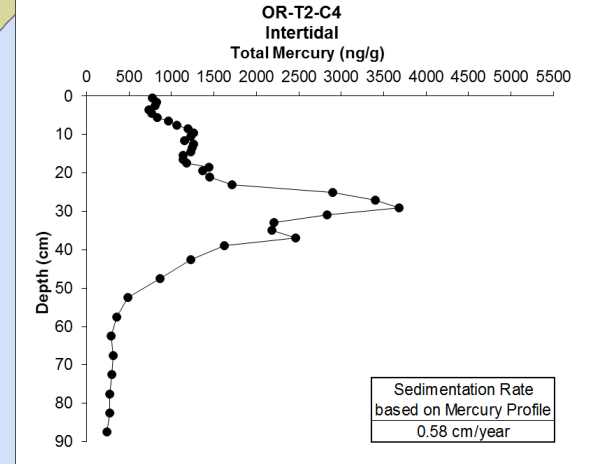
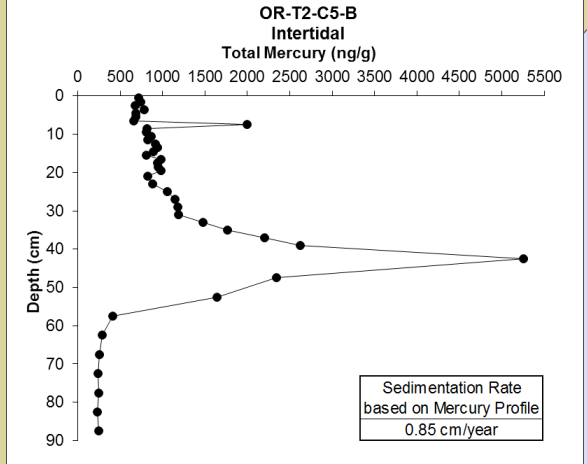
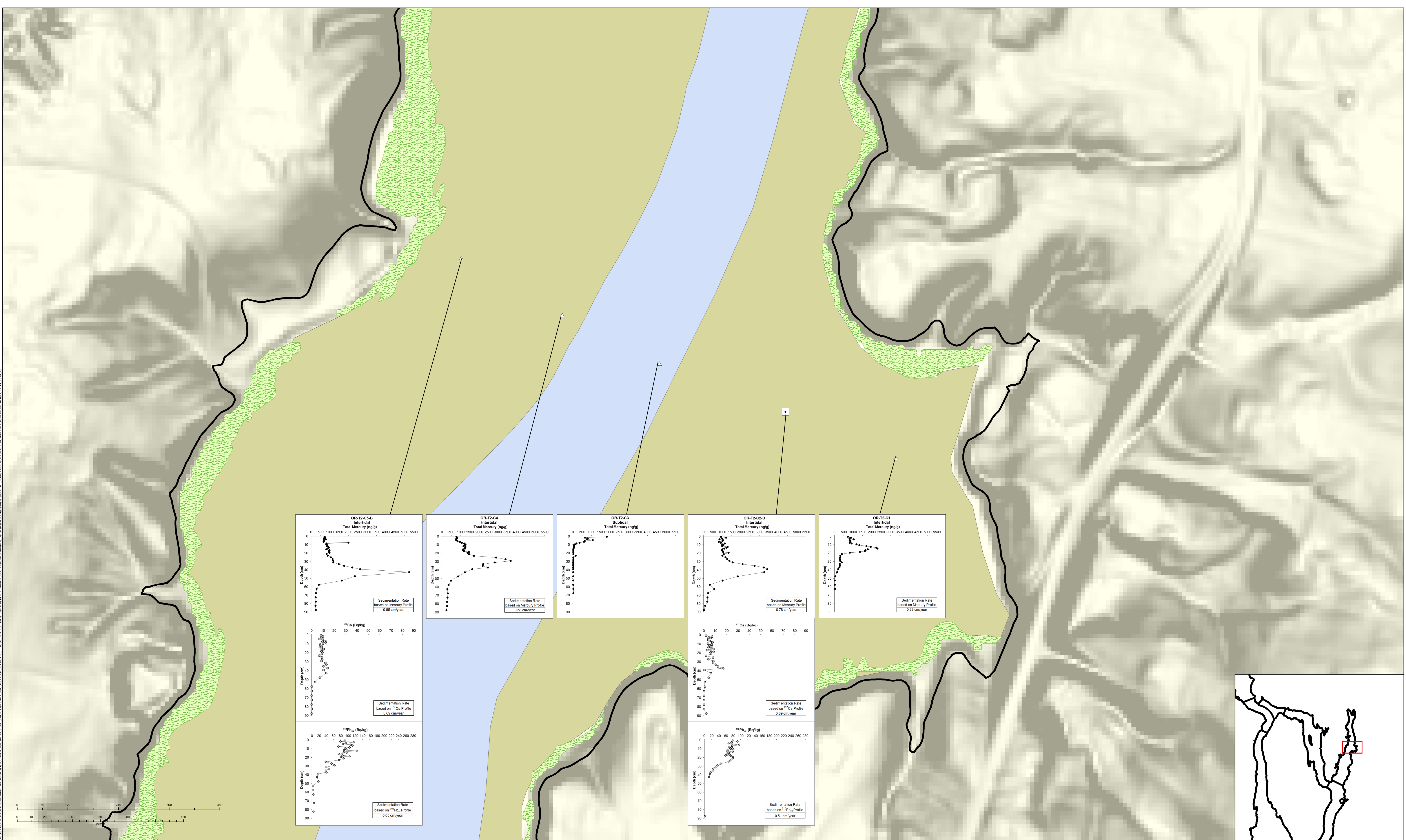
□□□□□□□□□□□□□□ Mendall Marsh Mid-South

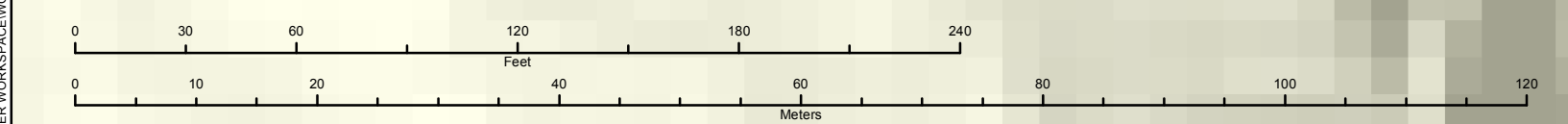
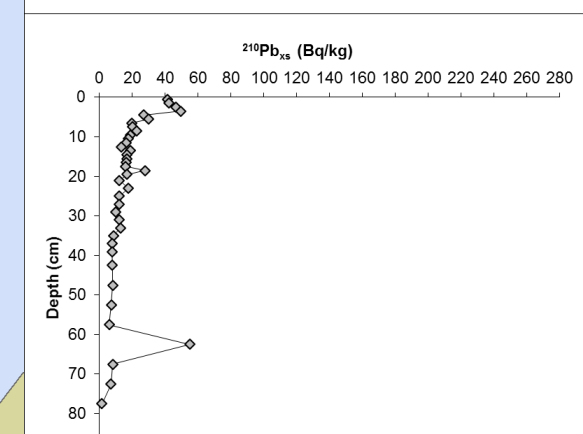
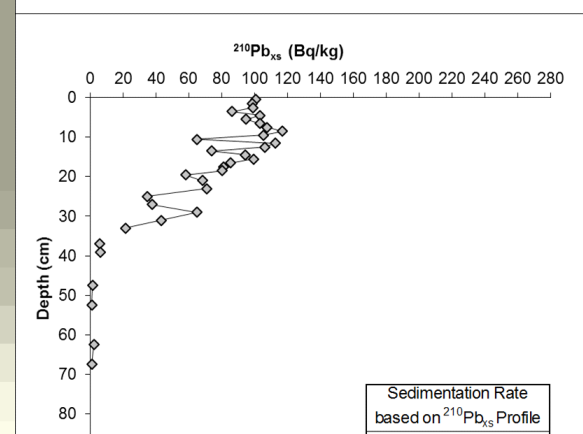
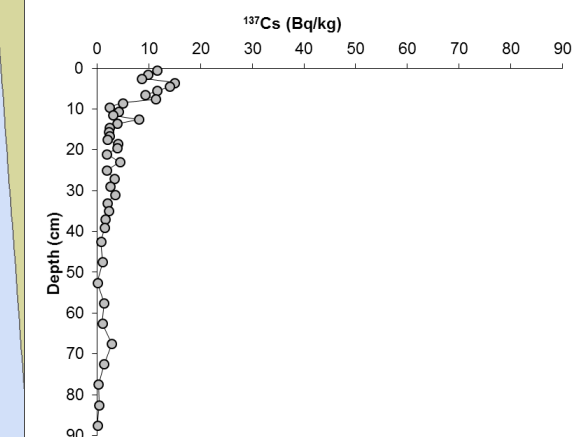
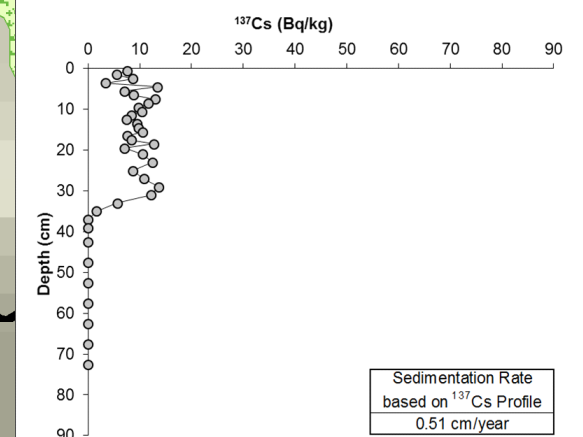
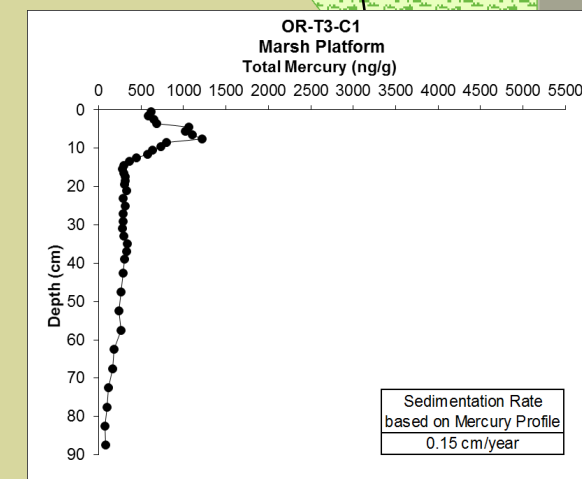
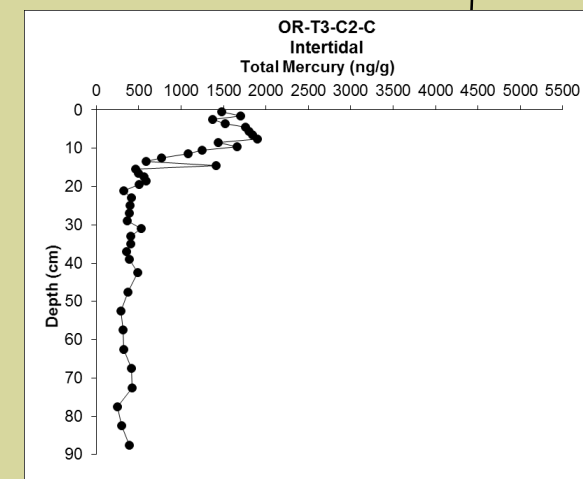
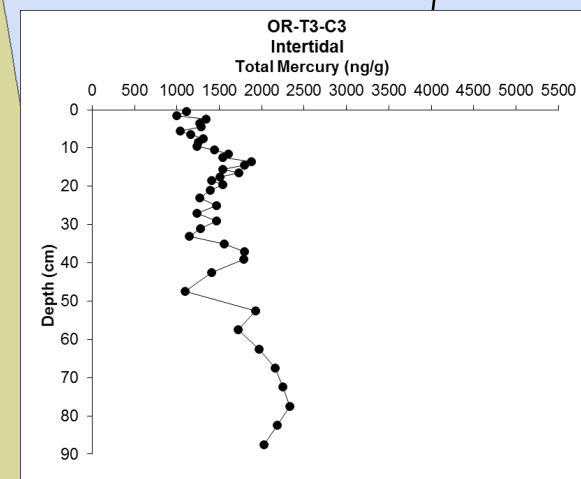
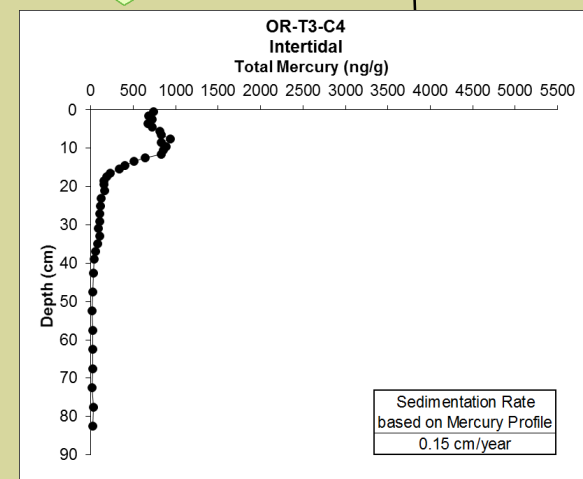
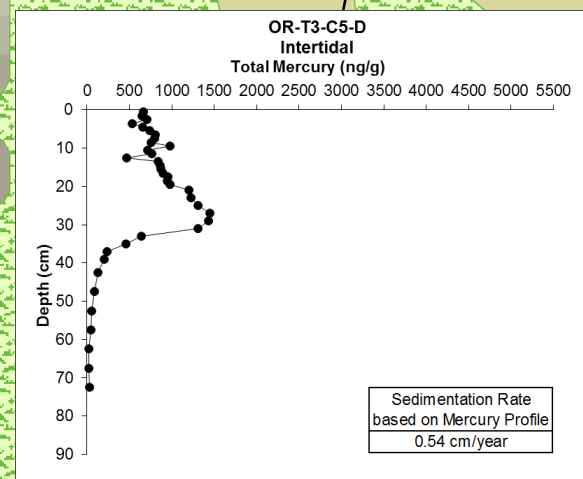
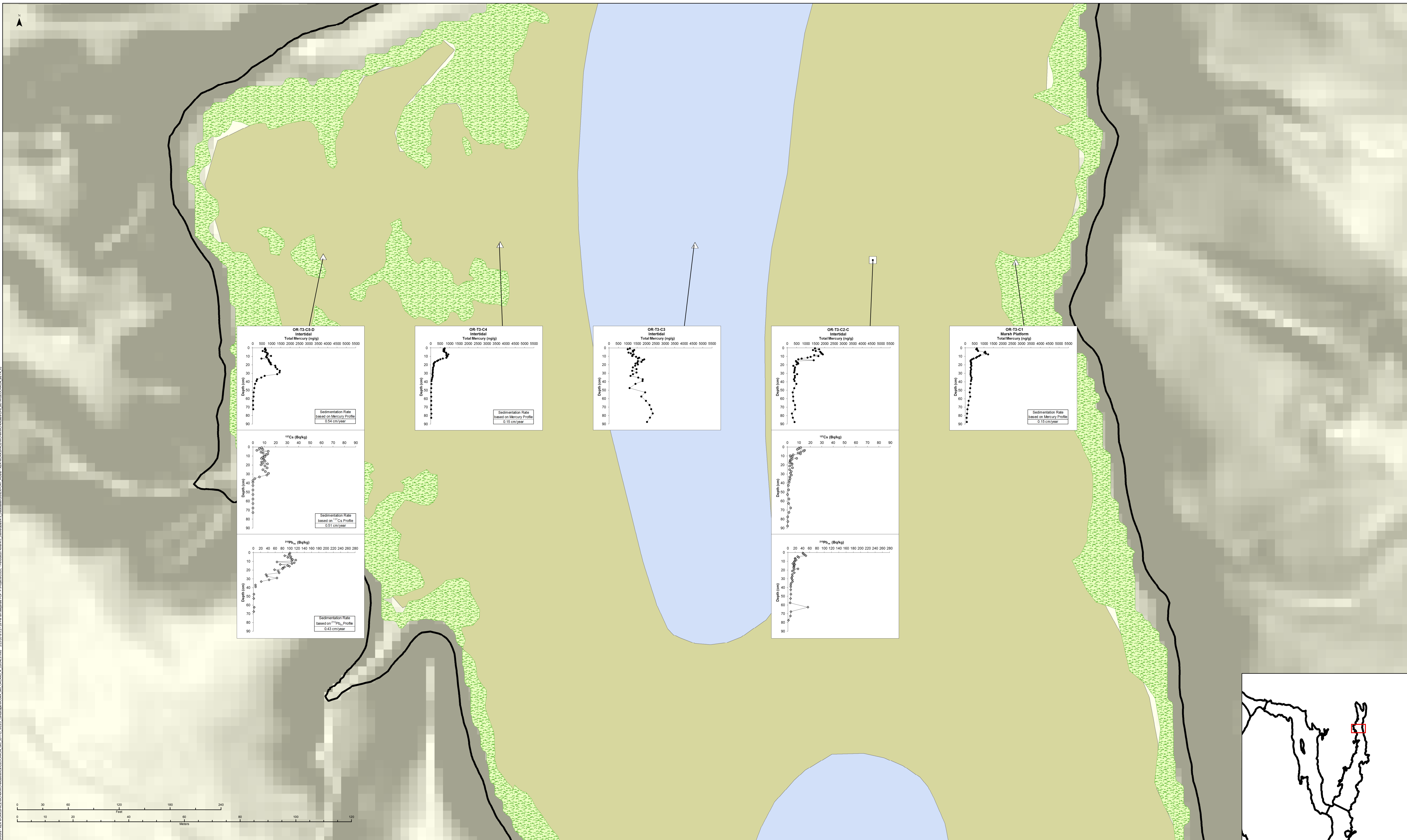
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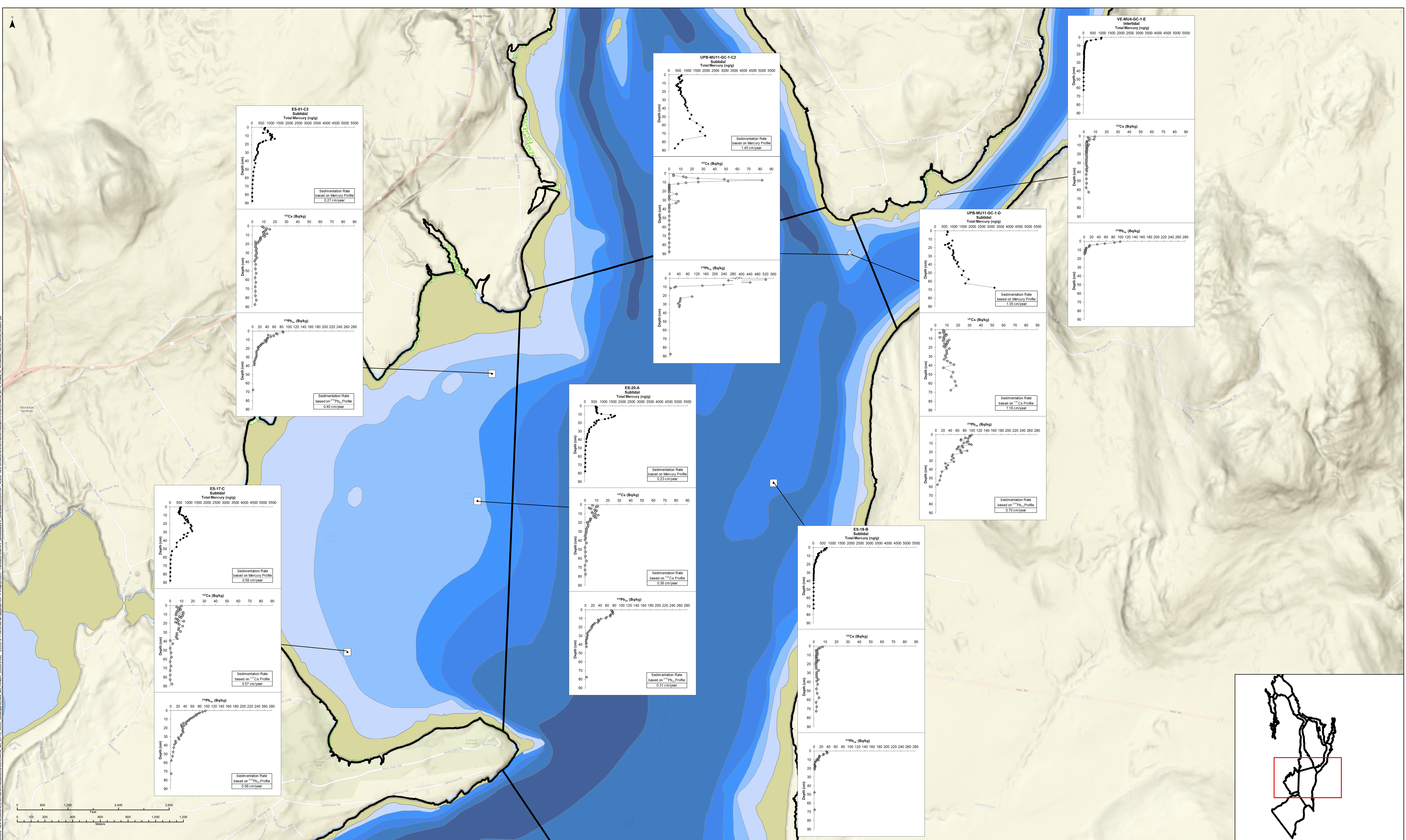












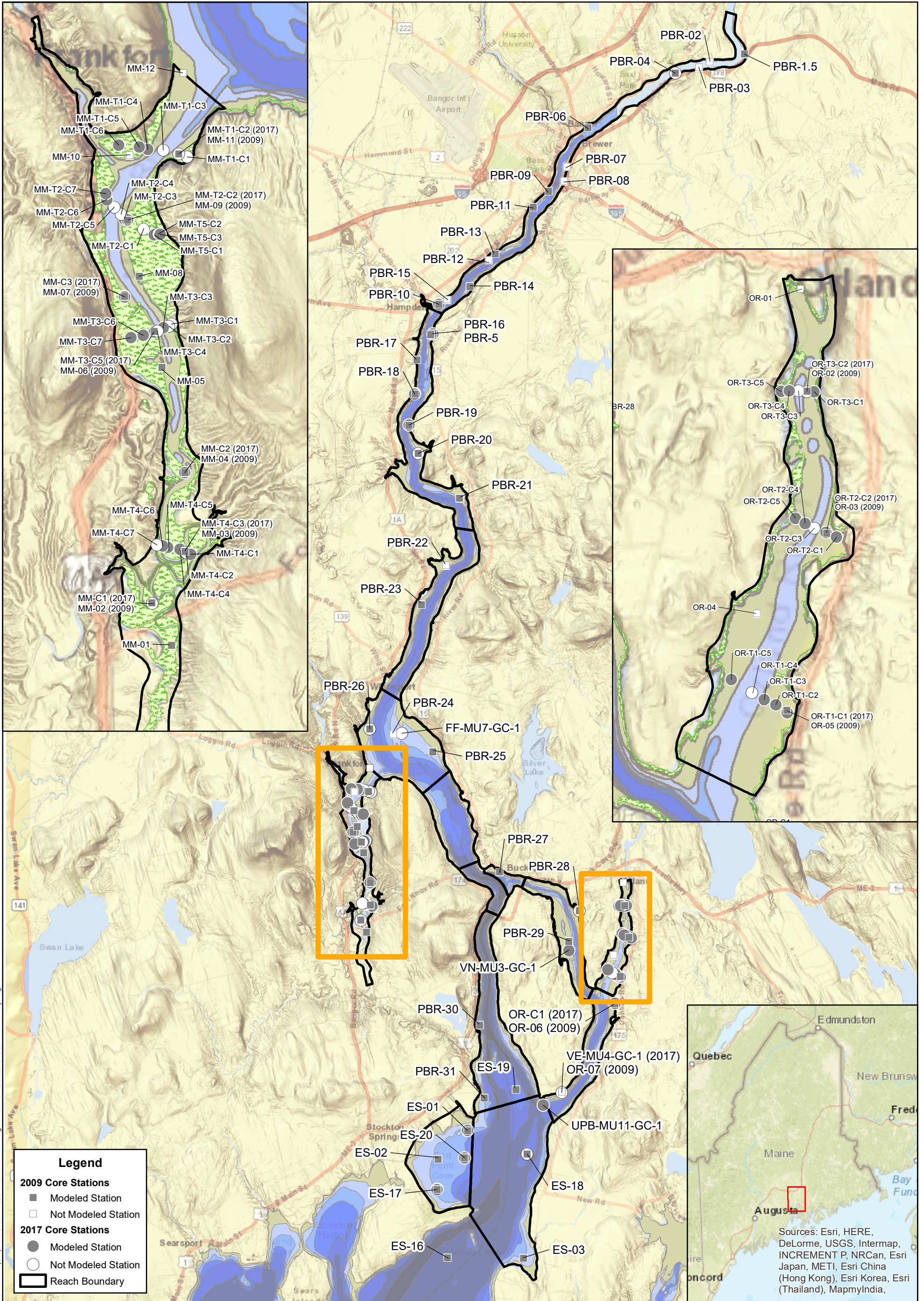


Figure 4-11
2009 and 2017 Station Locations

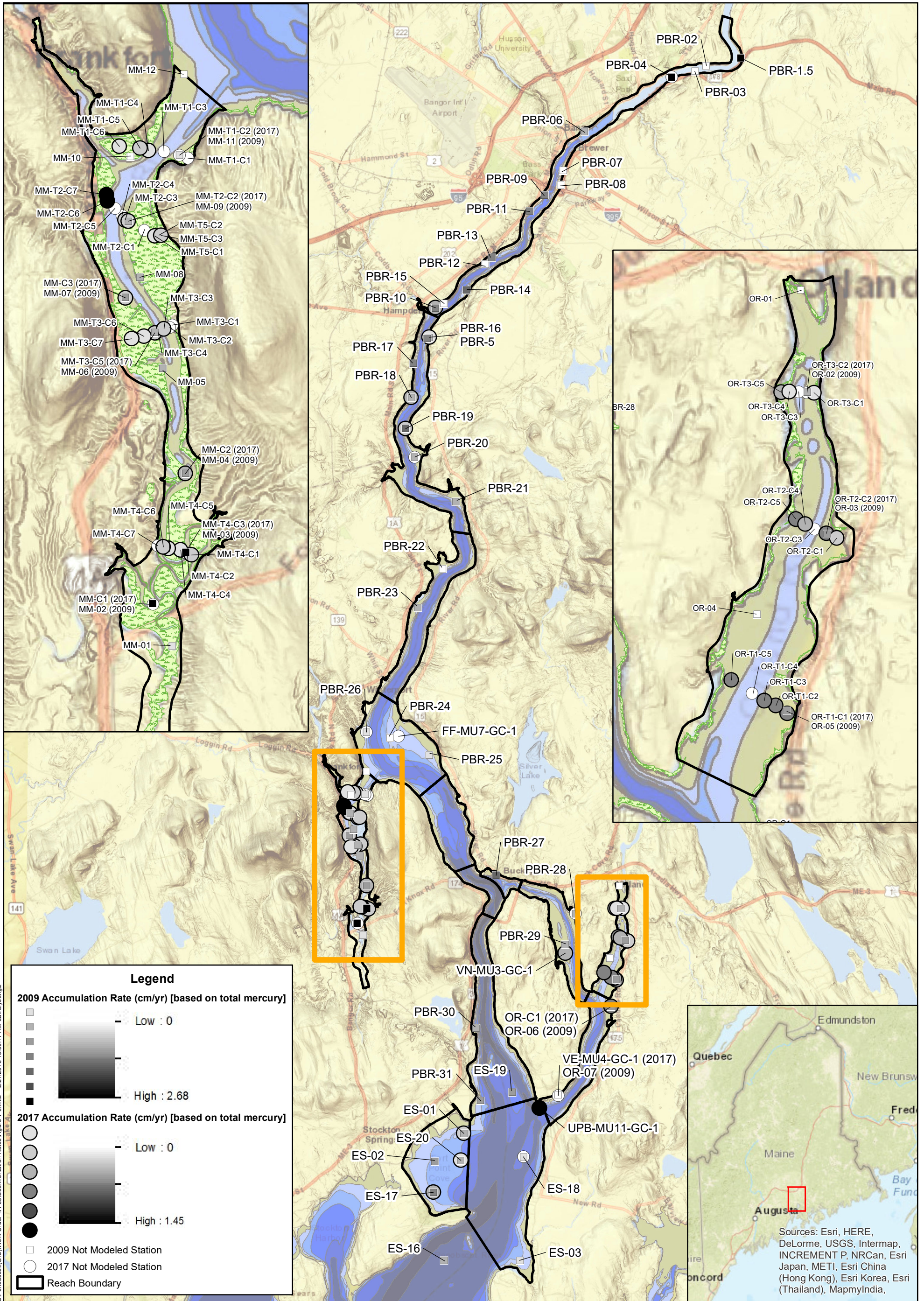


Figure 4-1
Sediment Accumulation Rates

