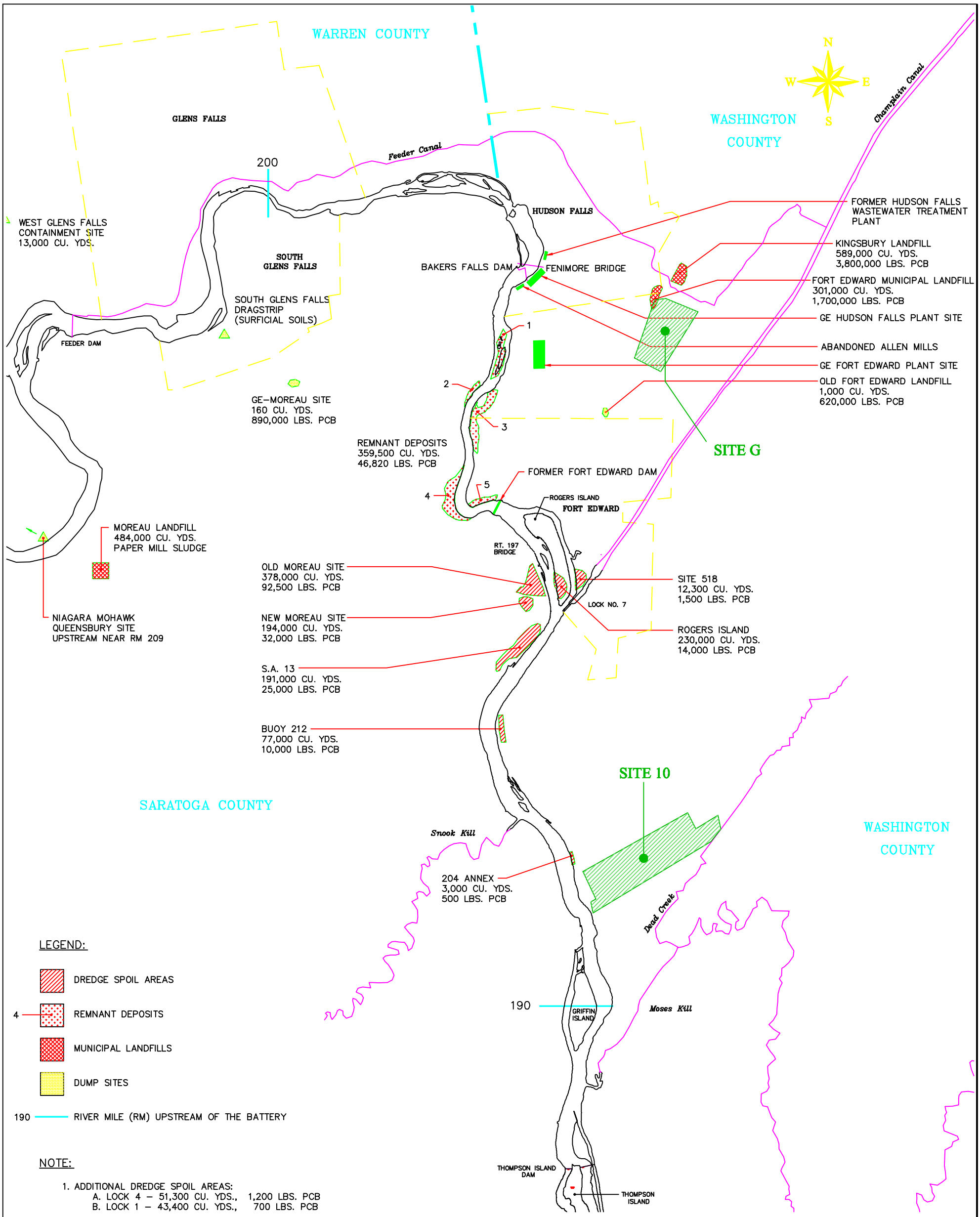
HUDSON RIVER PCBs REASSESSMENT RI/FS
PHASE 3 REPORT: FEASIBILITY STUDY

LIST OF FIGURES
CHAPTER 3



LEGEND:

- DREDGE SPOIL AREAS
- 4 — REMNANT DEPOSITS
- MUNICIPAL LANDFILLS
- DUMP SITES
- 190 — RIVER MILE (RM) UPSTREAM OF THE BATTERY

NOTE:

1. ADDITIONAL DREDGE SPOIL AREAS:
   A. LOCK 4 – 51,300 CU. YDS., 1,200 LBS. PCB
   B. LOCK 1 – 43,400 CU. YDS., 700 LBS. PCB

SOURCES:

1. SITE LOCATIONS AND DATA (SEDIMENT VOLUMES AND PCB MASS) OBTAINED FROM NYSDEC (1993a) EXCEPT BOUNDARIES OF REMNANT DEPOSIT AREAS 2, 3, 4 AND 5 OBTAINED FROM GENERAL ELECTRIC CO. HUDSON RIVER REMNANT DEPOSIT CHARACTERIZATION (CANONIE ENVIRONMENTAL, 1991). REMNANT DEPOSIT VOLUMES AND PCB MASS OBTAINED FROM NUS (1984).
2. SHORELINE IS APPROXIMATE AND WAS PRINCIPALLY DERIVED FROM THE HUDSON RIVER SURVEY, 1976–1977 FOR NYSDEC (NORMANDEAU ASSOCIATES, INC., 1977). PORTIONS OF THE SHORELINE AROUND ROGERS ISLAND AND BAKERS FALLS WERE OBTAINED FROM NYSDEC BASED ON SUBSEQUENT SURVEYS PERFORMED IN 1986–1992 (UNPUBLISHED). SHORELINE ABOVE HUDSON FALLS AND TRIBUTARIES WERE OBTAINED FROM USGS TOPOGRAPHIC MAPS.

2000' 1000' 0' 2000'

HUDSON RIVER PCBs REASSESSMENT RI/FS
FEASIBILITY STUDY

FEATURES OF INTEREST IN THE UPPER HUDSON VICINITY

TAMS CONSULTANTS, Inc.

FIGURE 3-1

Former Fort Edward Dam
(RM 194.8)

195

Rogers Island

194

Old Moreau
Landfill

197

New Moreau
Landfill

Lock 7 (RM 193.7)

193

US Hwy 4

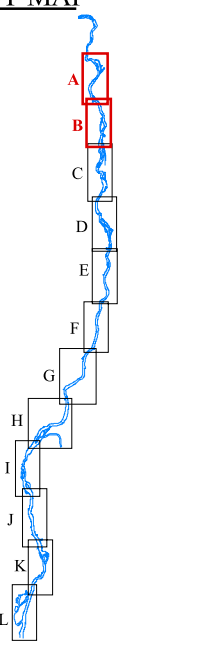
192

Match Line 1

Match Line 1

Griffin Island

KEY MAP



LEGEND

1996-1997 GE Float Survey Sample Locations

- West Shore Channel
- Center Channel
- East Shore Channel
- Dam and Lock
- 192 River Mile Marker
- Shoreline at 8,471 cfs
- Road
- Railroad/Siding

TAMS

TAMS Consultants, Inc.

N
W E
S

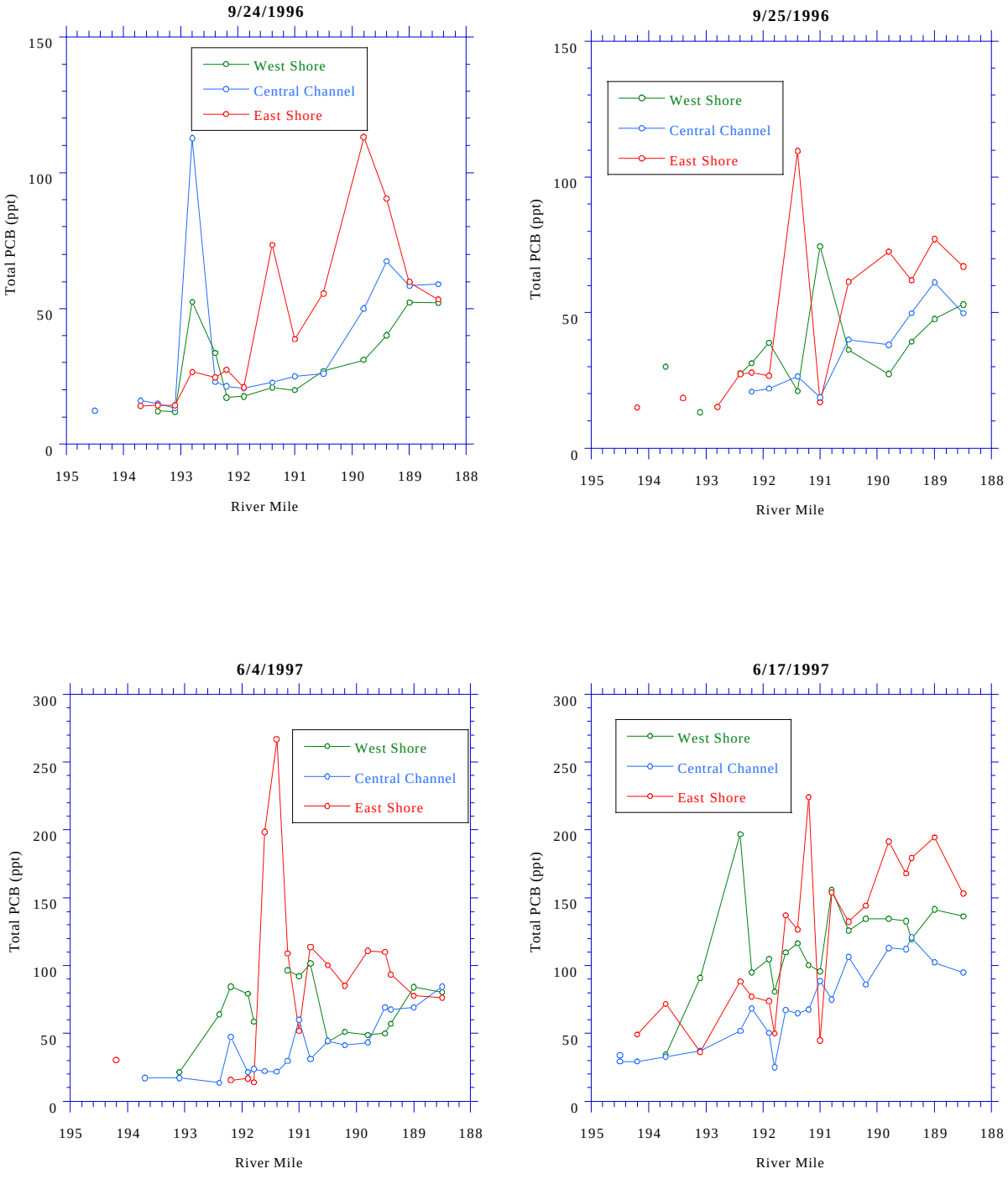
1000 0 1000
Scale in Feet

300 0 300
Scale in Meters

Hudson River PCBs Reassessment
Feasibility Study

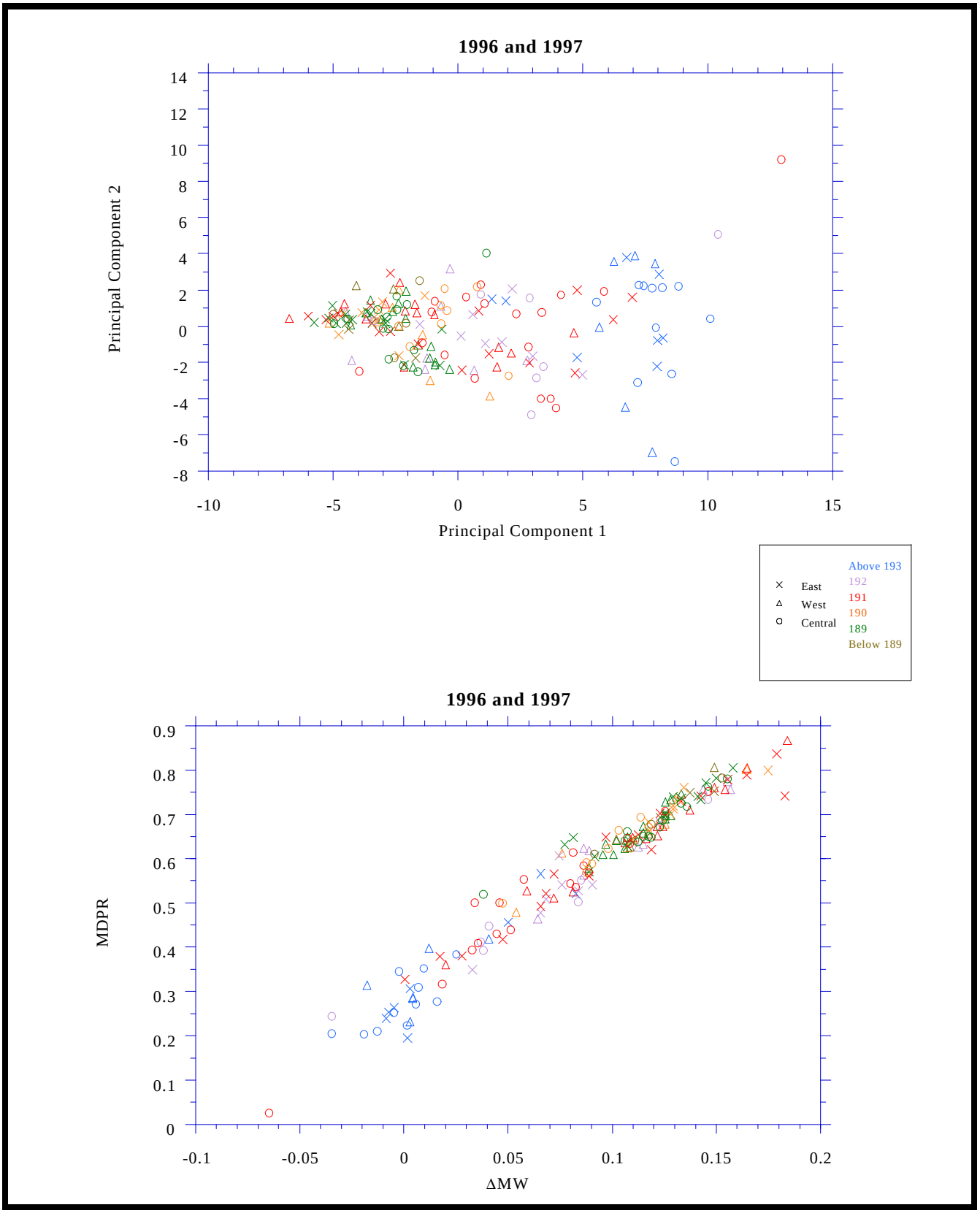
Figure 3-2
Locations of 1996 and 1997
GE Float Survey Samples

Sheet 1 of 1
RM 194.8 - 188.5



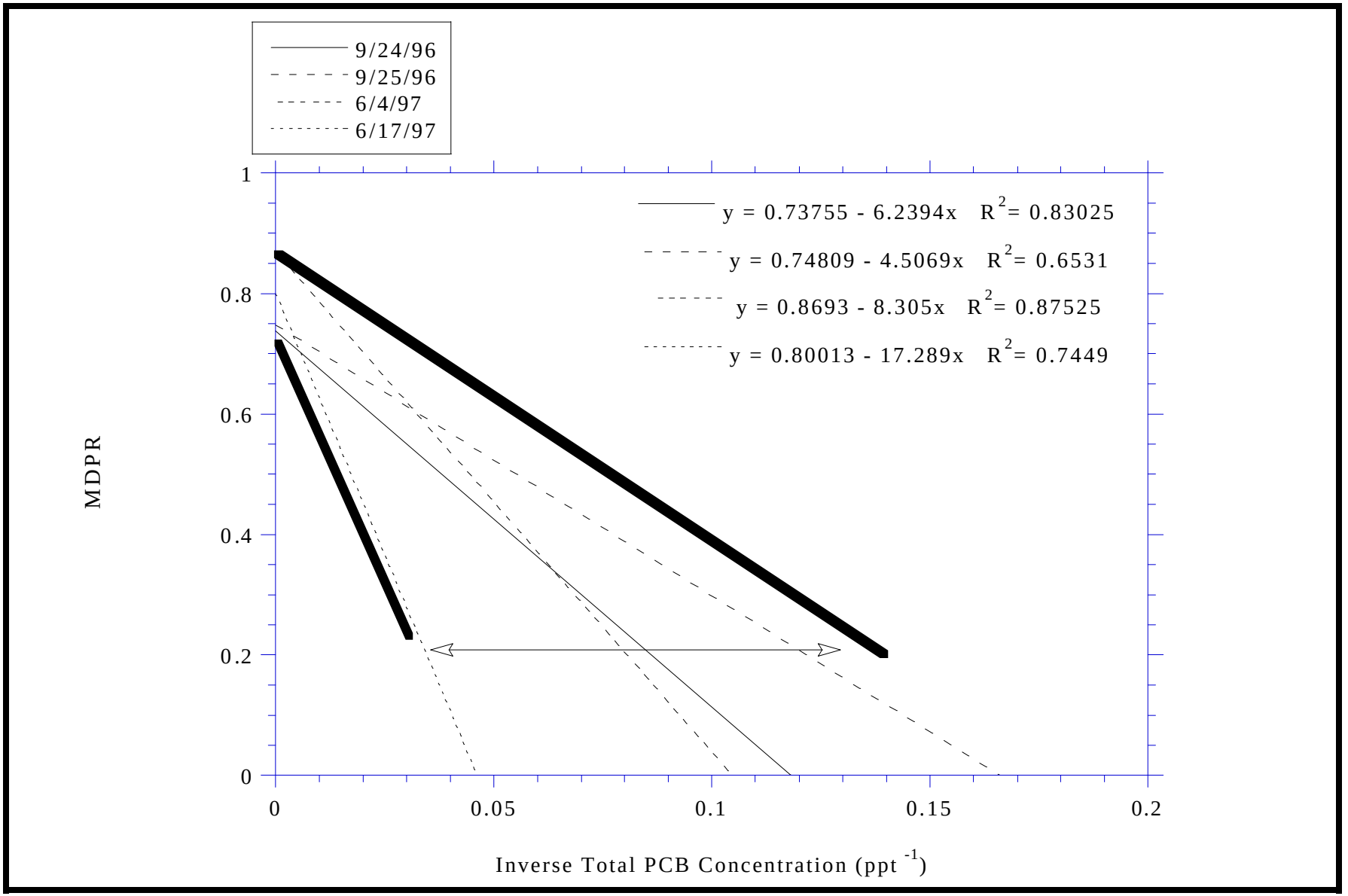
TAMS

Figure 3-3
GE Float Survey Results for the TI Pool



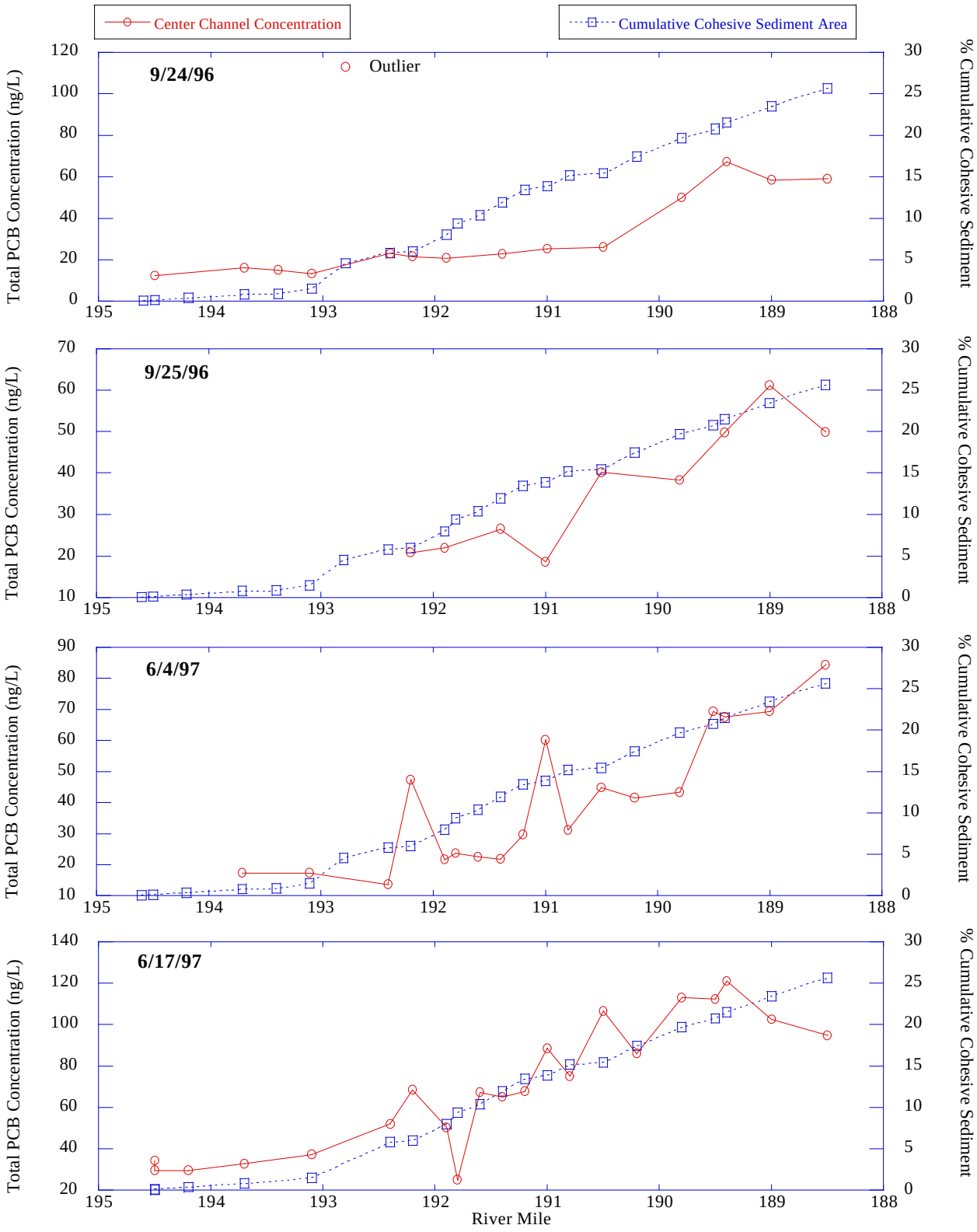
TAMS

Figure 3-4
Principal Component 1 versus Principal Component 2
and MDPR versus DMW for GE Float Survay Data



TAMS

Figure 3-5
Effective Rogers Island Concentration on Mixing Curve

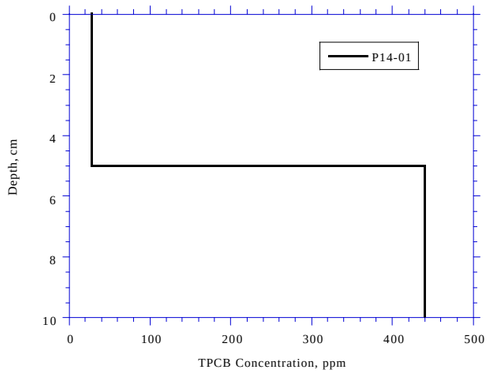


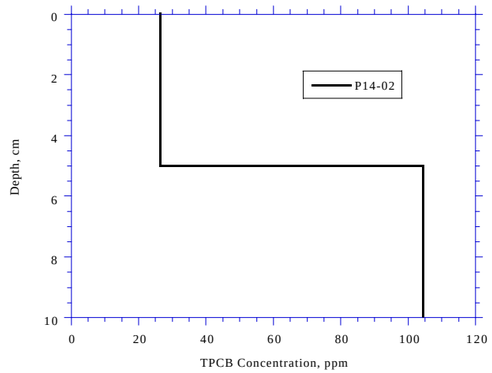
Source: GE Database Transmittal June 2000 (Werth, 2000) GE 1996-1997 Float Surveys of the TI Pool
USEPA Sidescan Sonar Survey Hudson River Database Release 5 , October 2000

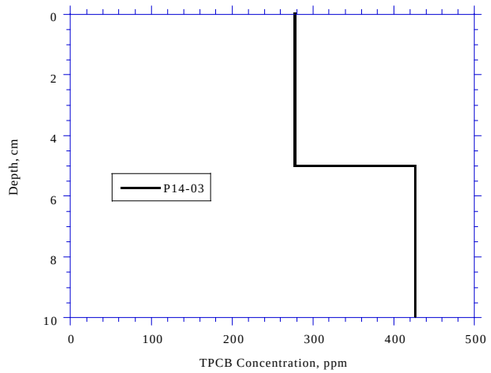
Note: Cumulative cohesive sediment is based on the side-scan sonar surveys (Flood, 1993) and is normalized to the total surface area of the TI Pool

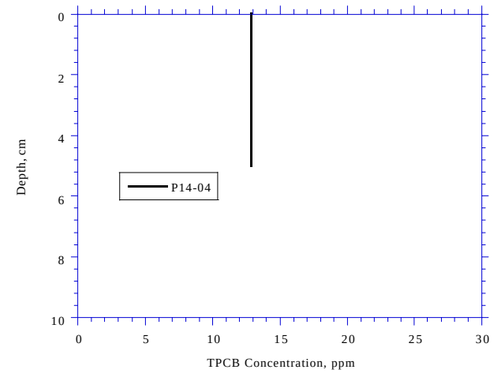
TAMS

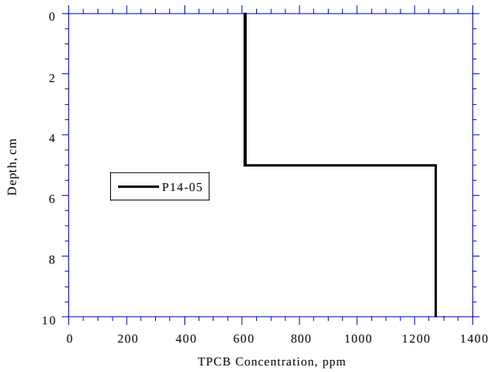
Figure 3-6
Cohesive Sediment Area and Central Channel Total PCBs as a Function of River Mile

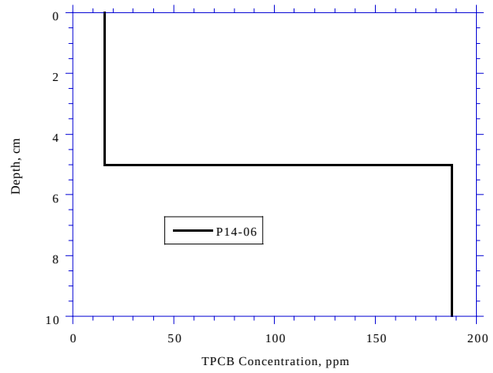


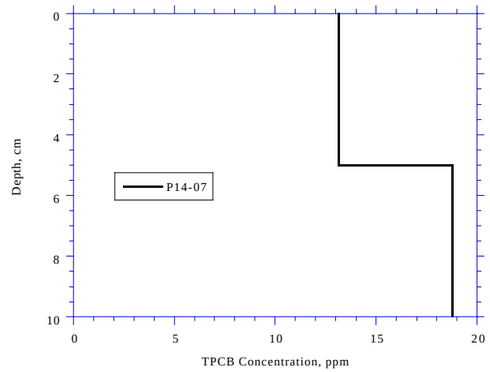


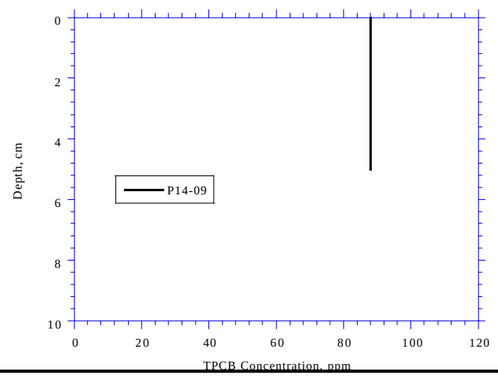


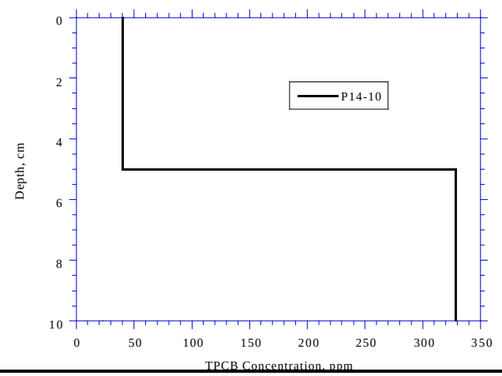


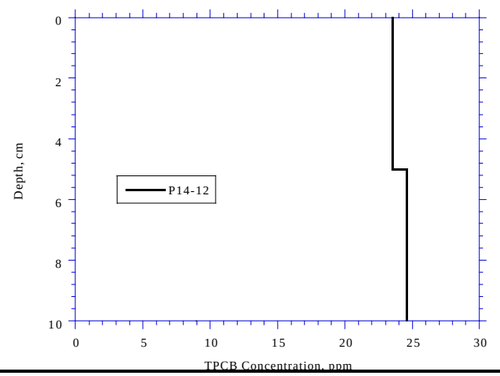


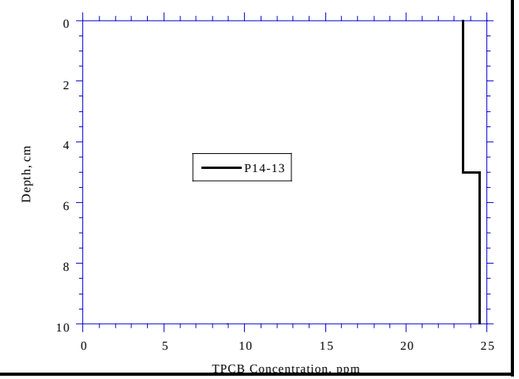






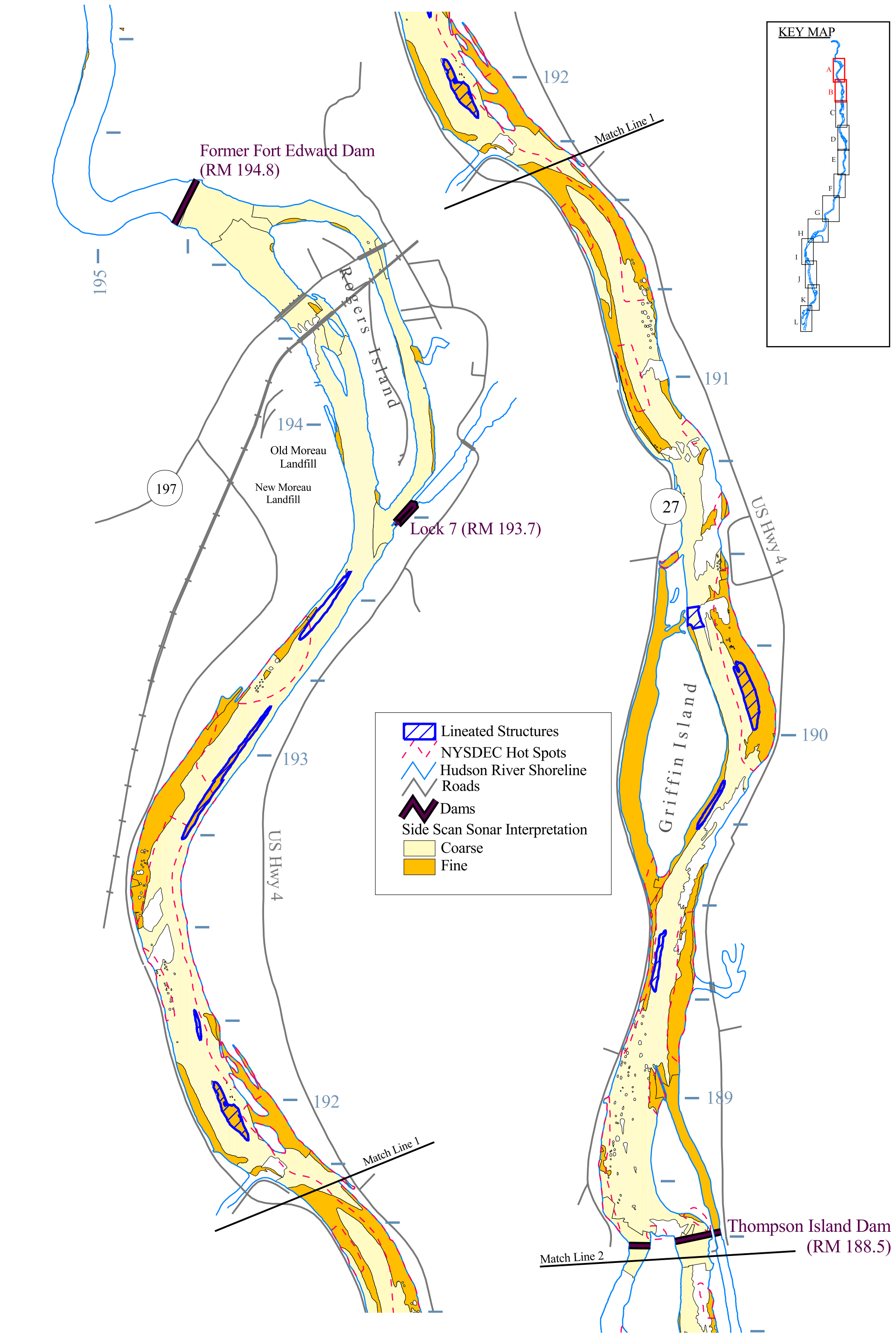






TAMS

Figure 3-7
1999 Coring Results in Hot Spot 14



TAMS
TAMS Consultants, Inc.

N
W E
S

1000 0 1000
Scale in Feet

300 0 300
Scale in Meters

Hudson River PCBs Reassessment Feasibility Study	Figure 3-8 Erosion Area in TI Pool As indentified by Side Scan Sonar	Sheet 1 of 2 RM 194.8 - 188.5

Thompson Island Dam (RM 188.5)

Match Line 2

Match Line 3

Northumberland Dam (RM 183.4)

Fort Miller Dam (RM 186.2)

Lock 6 (RM 186.2)

Lock 5 (RM 182.6)

Match Line 3

Match Line 4

185

188

187

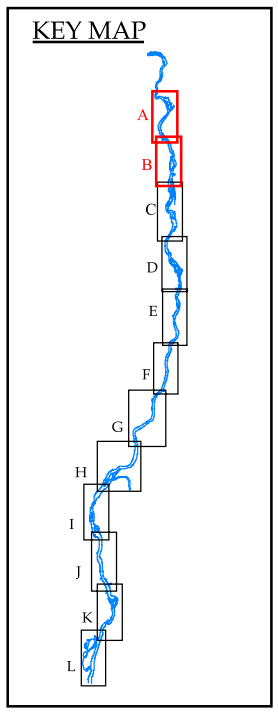
186

184

183

182

KEY MAP



Lineated Structures
NYSDEC Hot Spots
Hudson River Shoreline
Roads
Dams

Side Scan Sonar Interpretation
Coarse
Fine

N
W
E
S

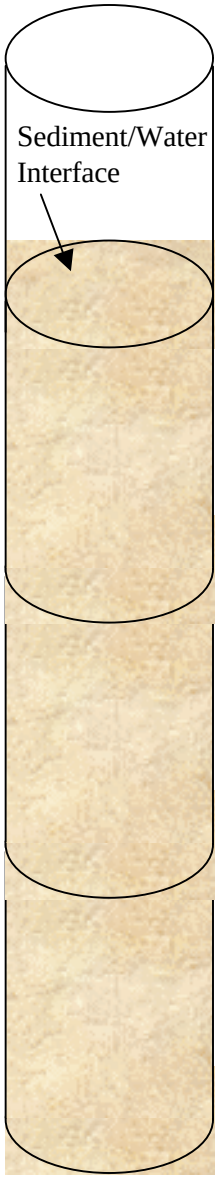
1000 0 1000
Scale in Feet

300 0 300
Scale in Meters

TAMS
TAMS Consultants, Inc.

Hudson River PCBs Reassessment Feasibility Study	Figure 3-8 Erosion Area in TI Pool As indentified by Side Scan Sonar	Sheet 2 of 2 (RM 188.5 - 181.0)

Figure 3-9 Length Weighted Average Concentration and Mass per Unit Area Calculations

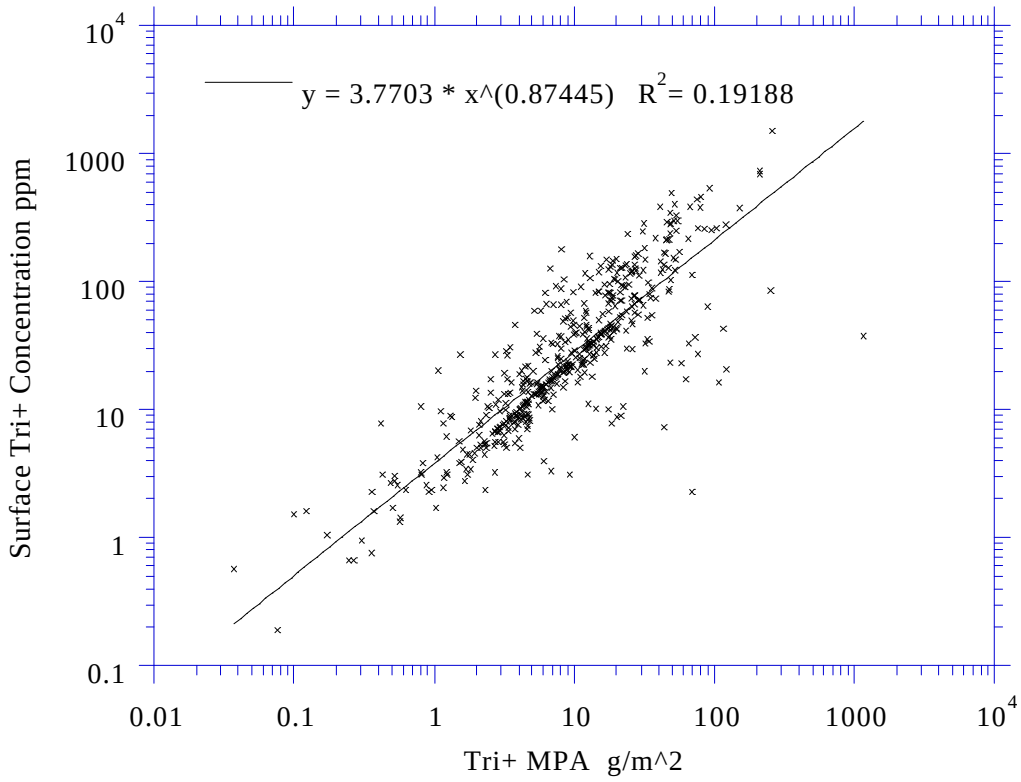


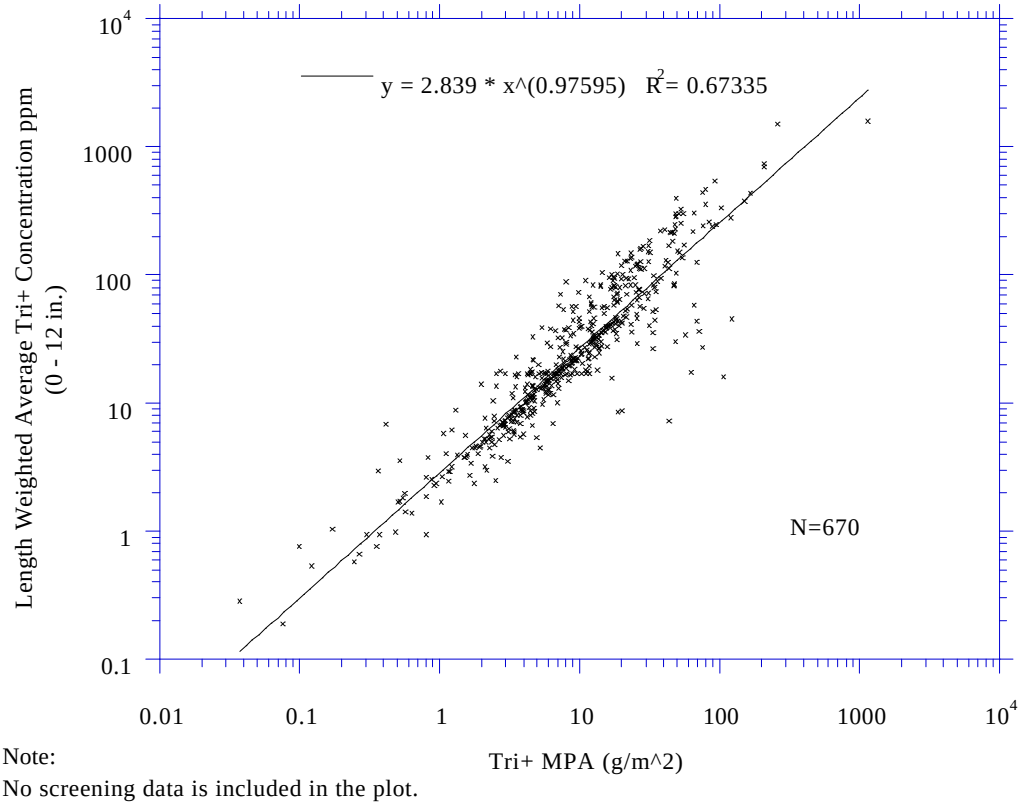
Length	×	PCBs Concentration[1]	=	Product of Above Two	×	Solid Specific Weight	×	Unit Corrections	=	Mass PCBs Per Unit Area
25 cm	×	1,352 µg/g	=	33,800 cm* µg/g	×	0.52 g/cm^3	×	10^{-6} g/µg	×	10^4 cm^2/m^2 = 179 g/m^2
25 cm	×	343 µg/g	=	8,575 cm* µg/g	×	0.74 g/cm^3	×	10^{-6} g/µg	×	10^4 cm^2/m^2 = 64 g/m^2
25 cm	×	5 µg/g	=	125 cm* µg/g	×	0.88 g/cm^3	×	10^{-6} g/µg	×	10^4 cm^2/m^2 = 1 g/m^2
		Total:		42,500 cm* µg/g						
				/ 75 cm						

Length Weighted Average Concentration: 567 µg/g

Total Mass per Unit Area in Core: 244 g/m^2

1. PCB concentration represents parts-per-million.

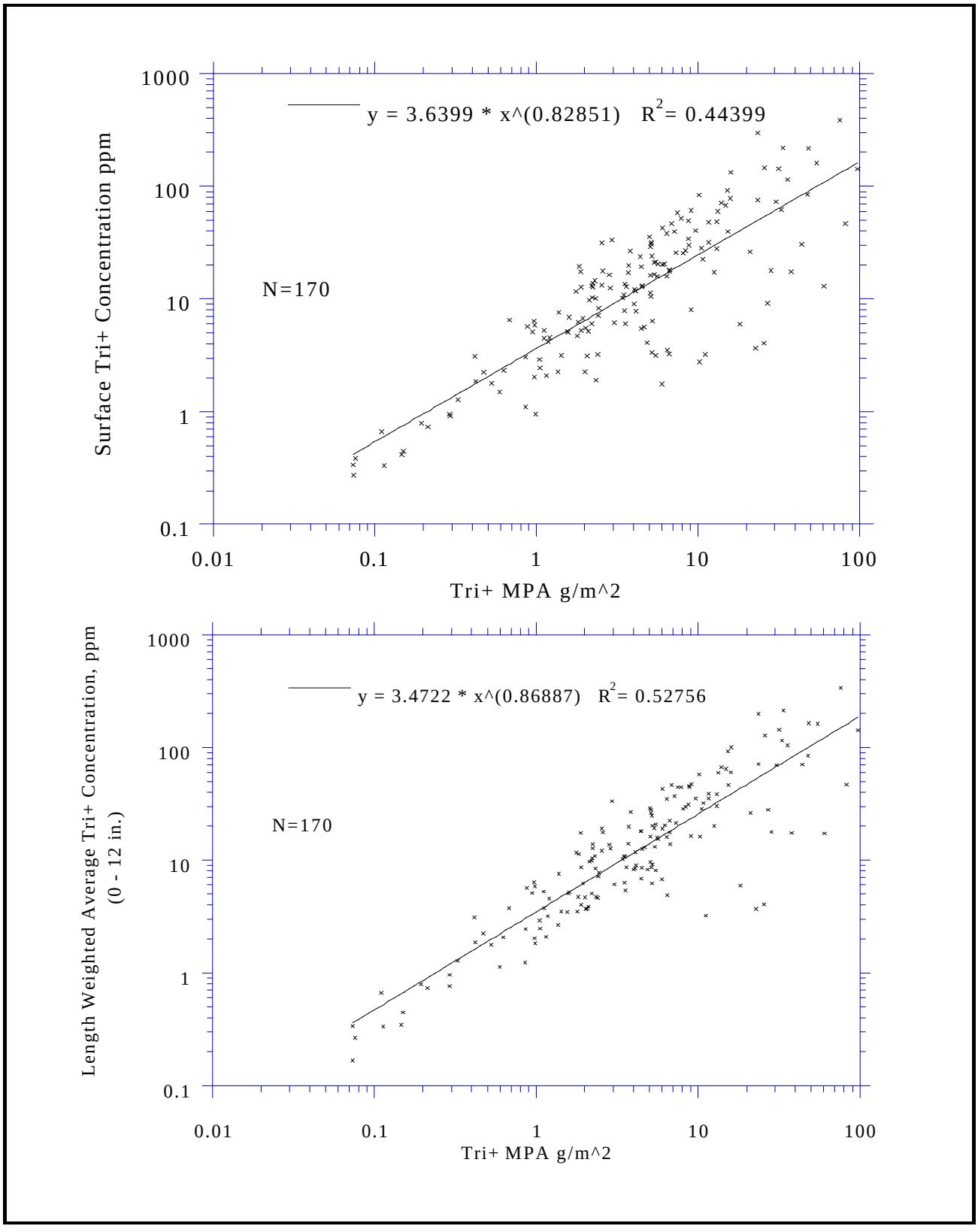




Note:
No screening data is included in the plot.

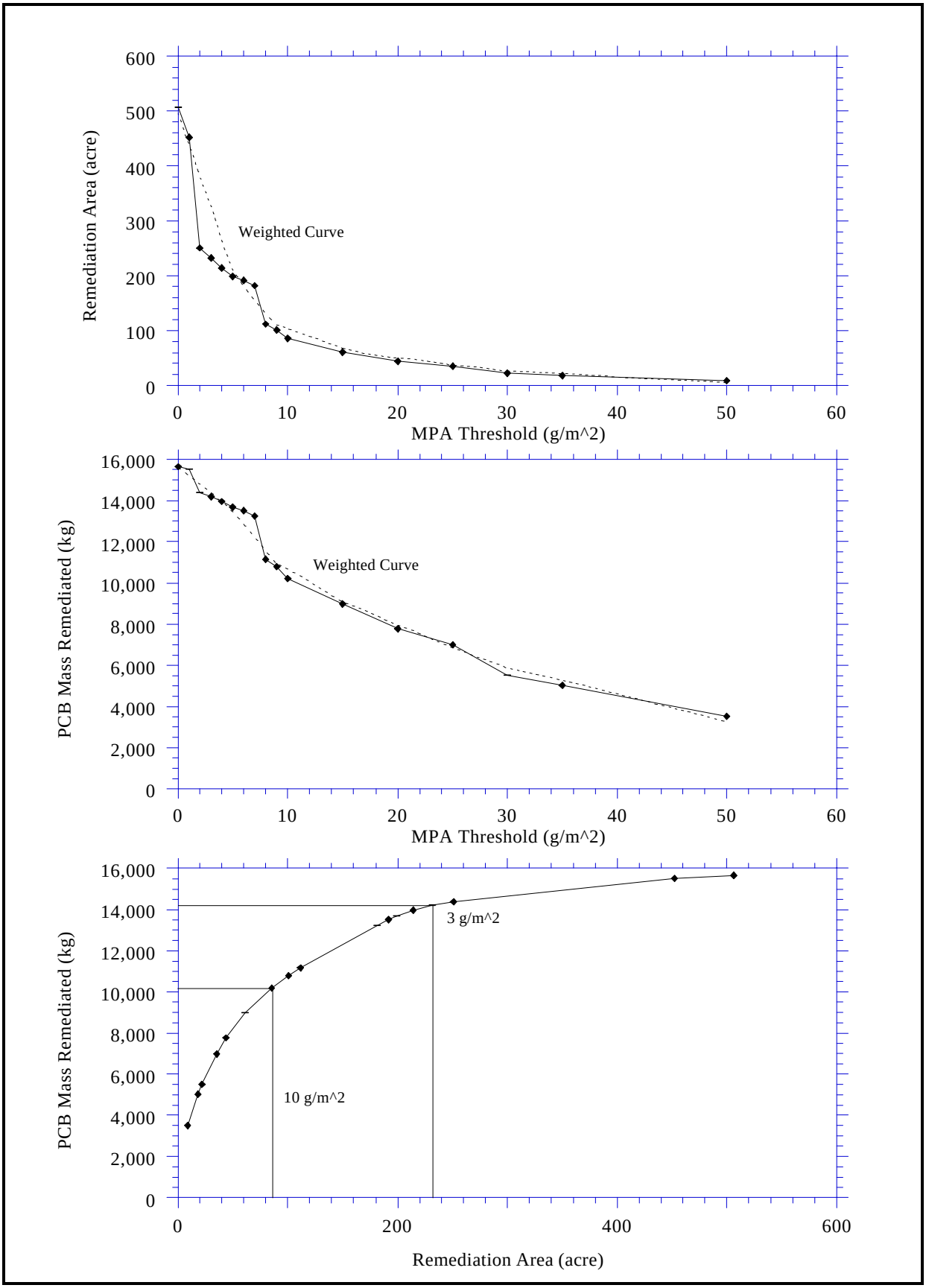
TAMS

Figure 3-10
Correlations Among PCB Metrics for 1984 NYSDEC Sediment Survey



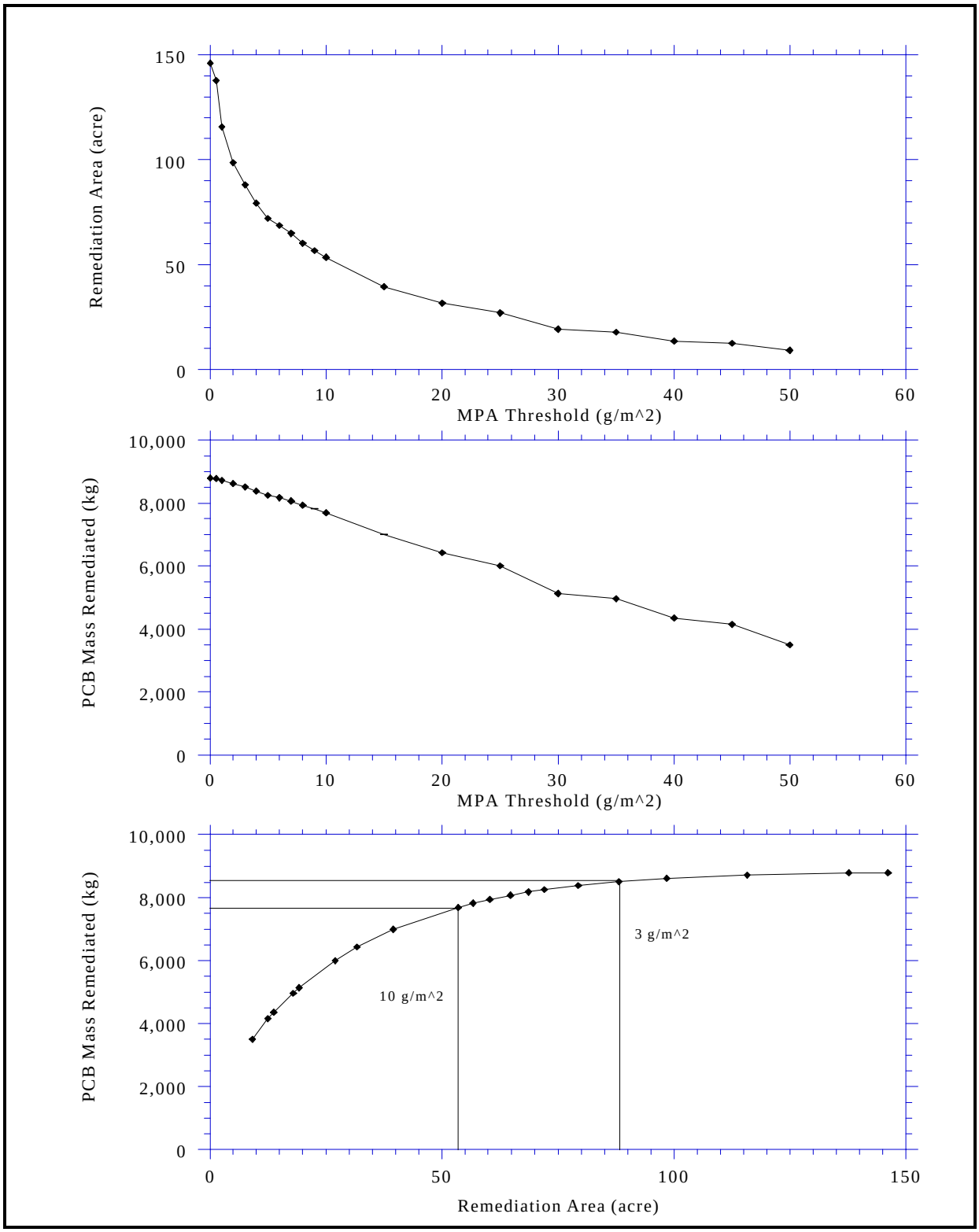
TAMS

Figure 3-11
Correlations Among PCB Metrics for USEPA Low Resolution Sediment Coring Survey



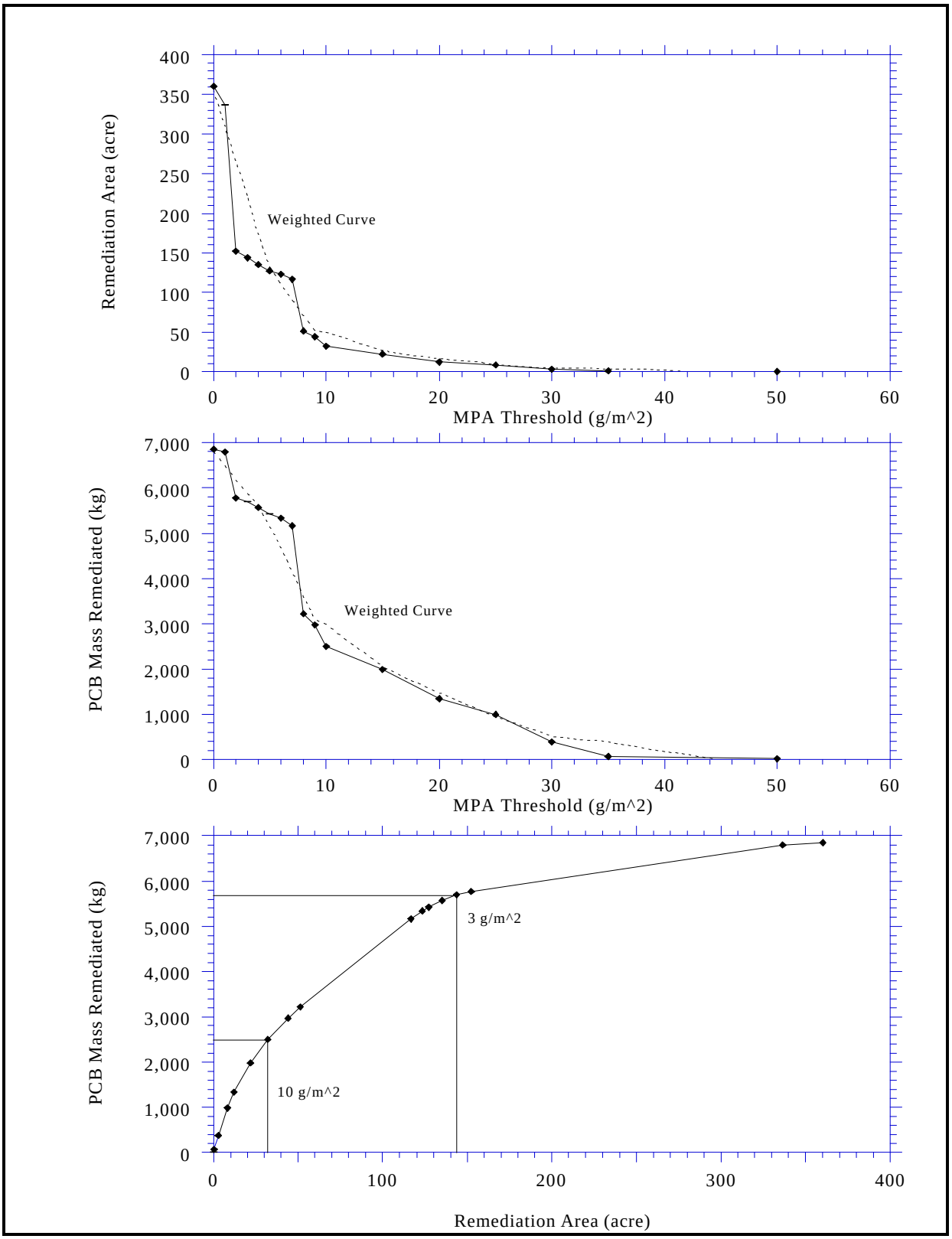
TAMS

Figure 3-12
Relationship among MPA, PCB Mass and Sediment Area in TI Pool
(based on 1984 sediment survey)



TAMS

Figure 3-13
Relationship among MPA, PCB Mass and Sediment Area in the Cohesive Area in the TI Pool (based on 1984 sediment survey)

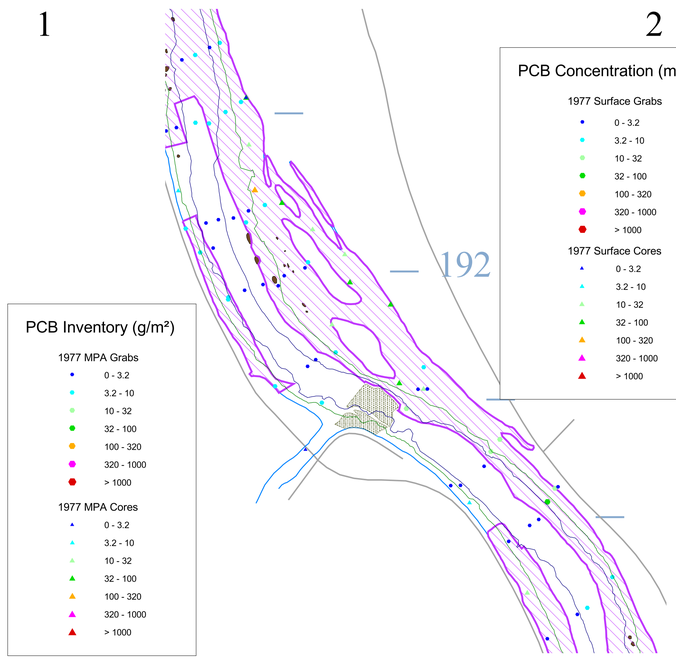


TAMS

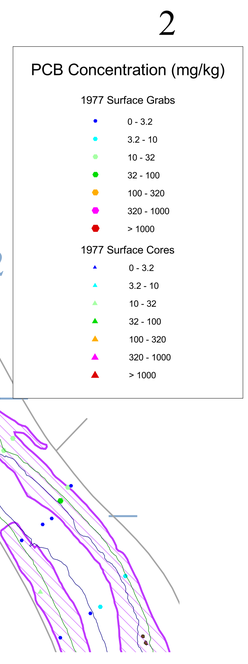
Figure 3-14
Relationship among MPA, PCB Mass and Sediment Area in the Non-cohesive Area in the TI Pool (based on 1984 sediment survey)

Figure 3-15. Selection of Remediation Areas for Expanded Hot Spot Removal: *Hot Spot 8*

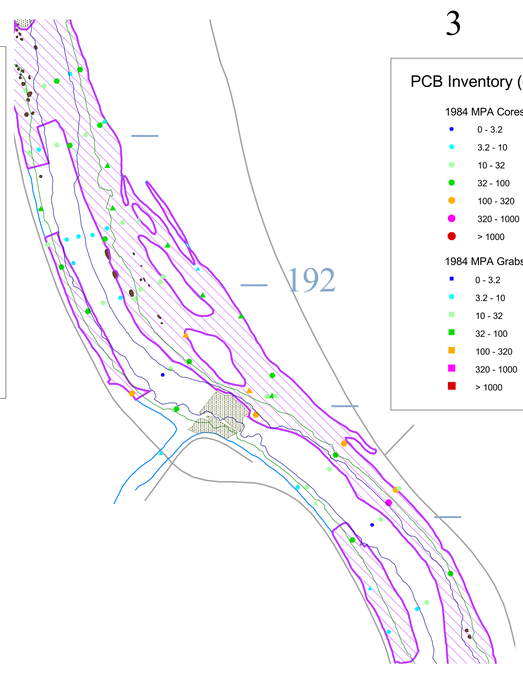
1



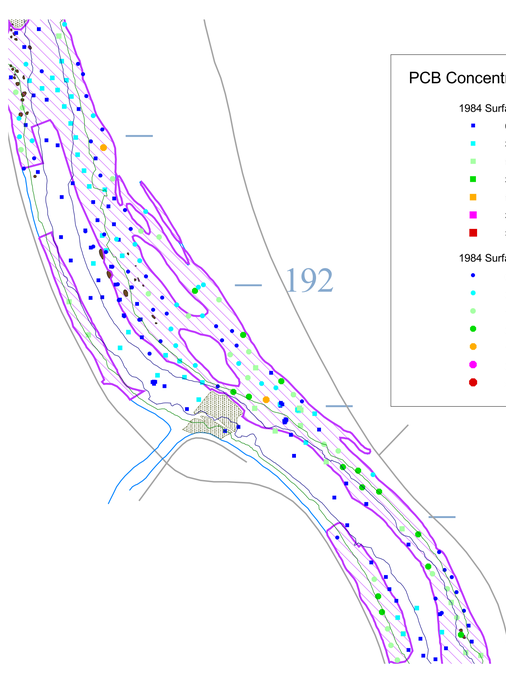
2



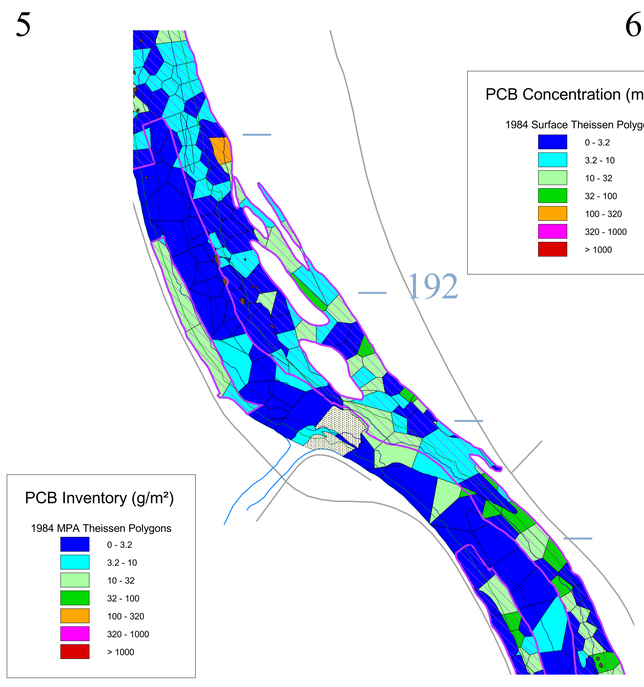
3



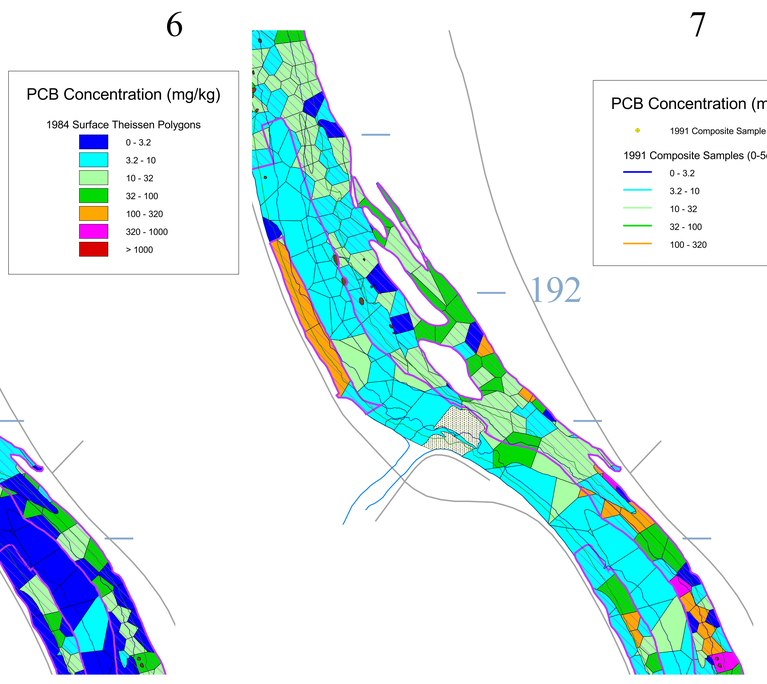
4



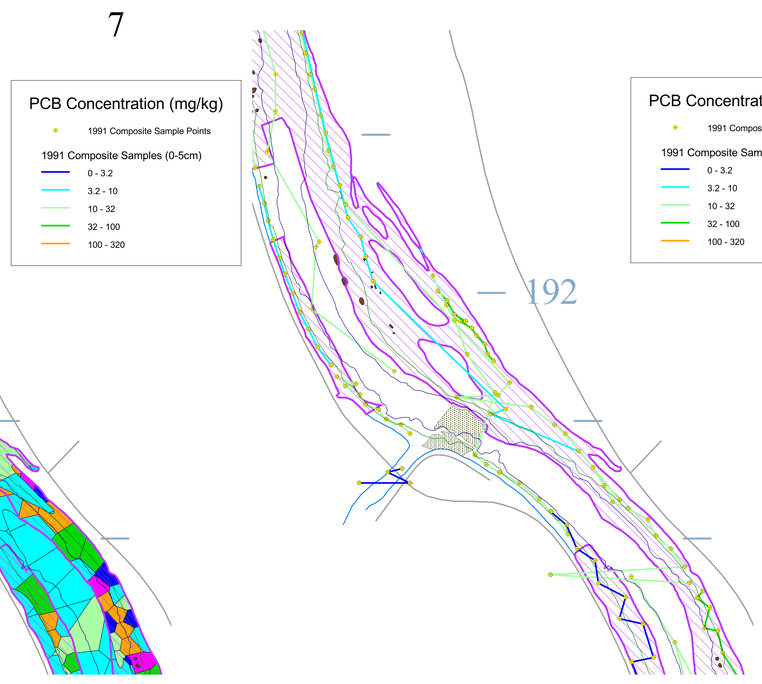
5



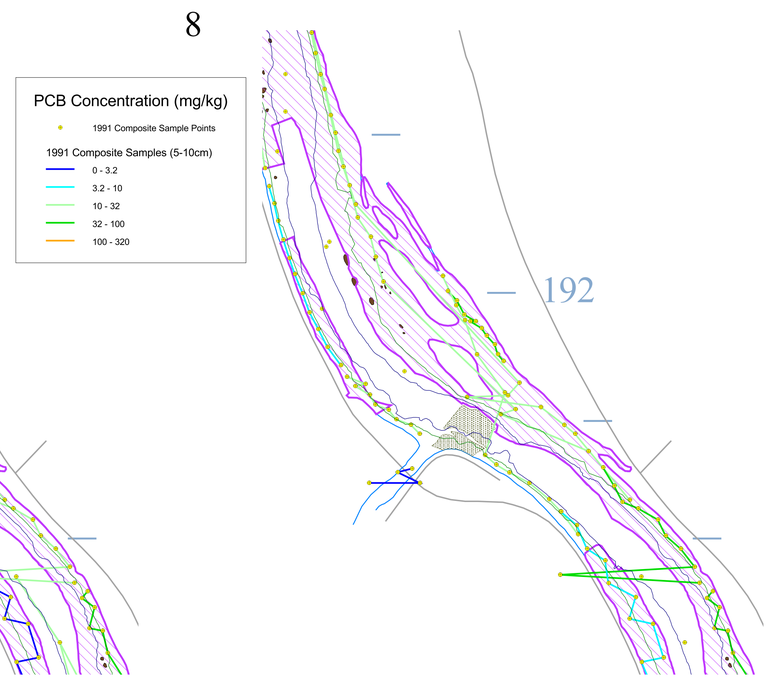
6



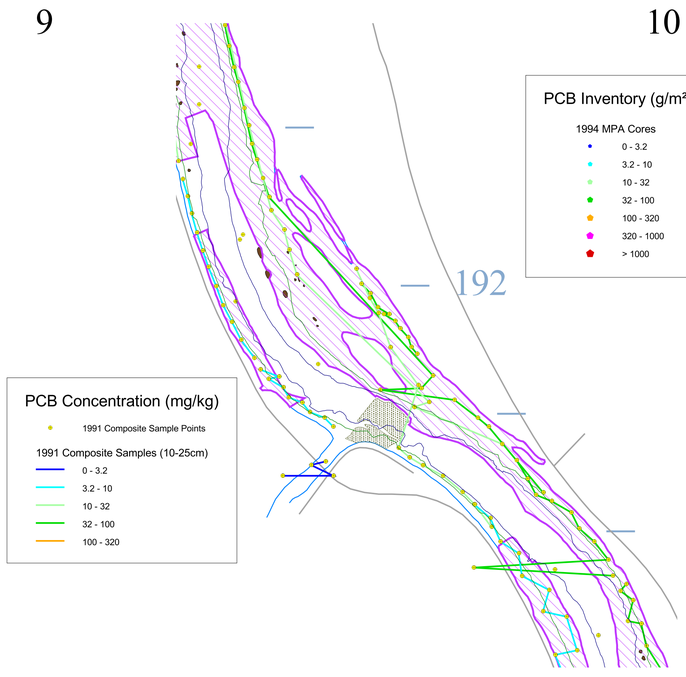
7



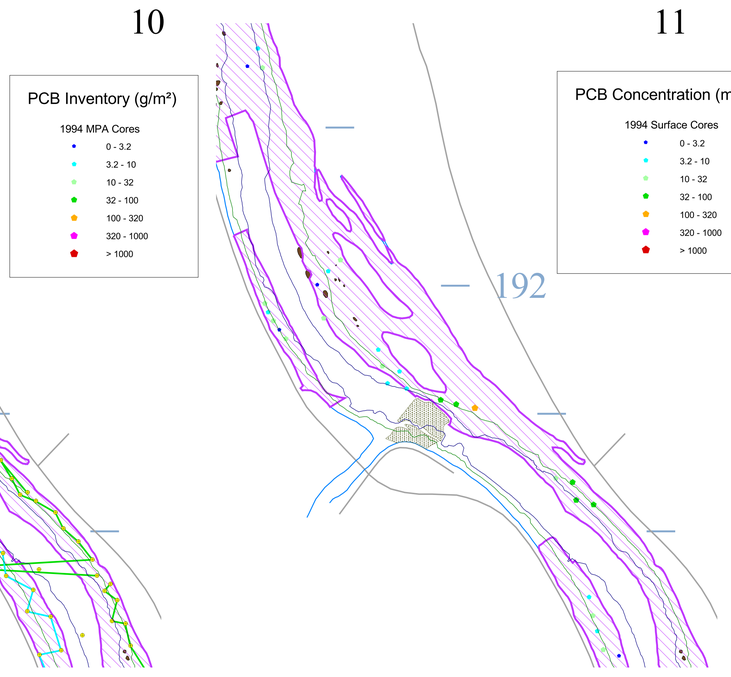
8



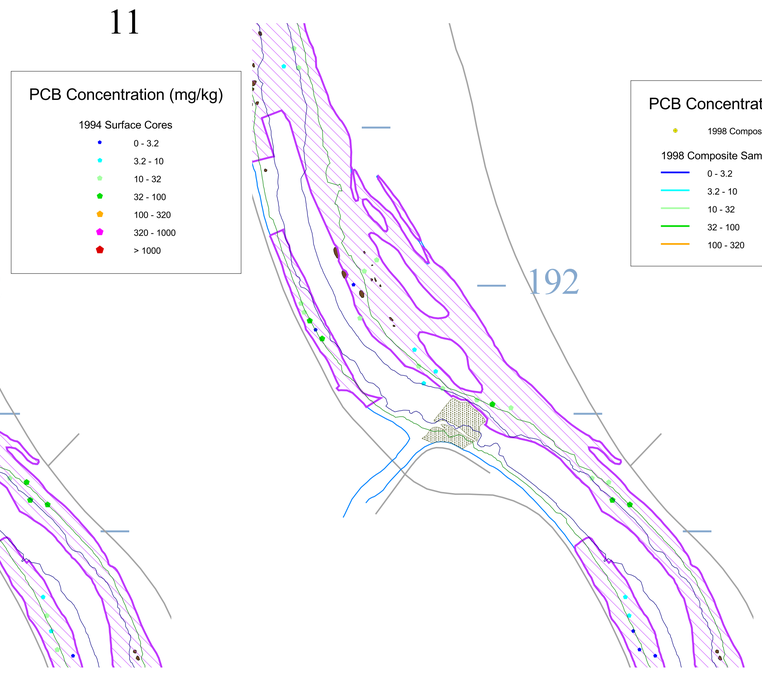
9



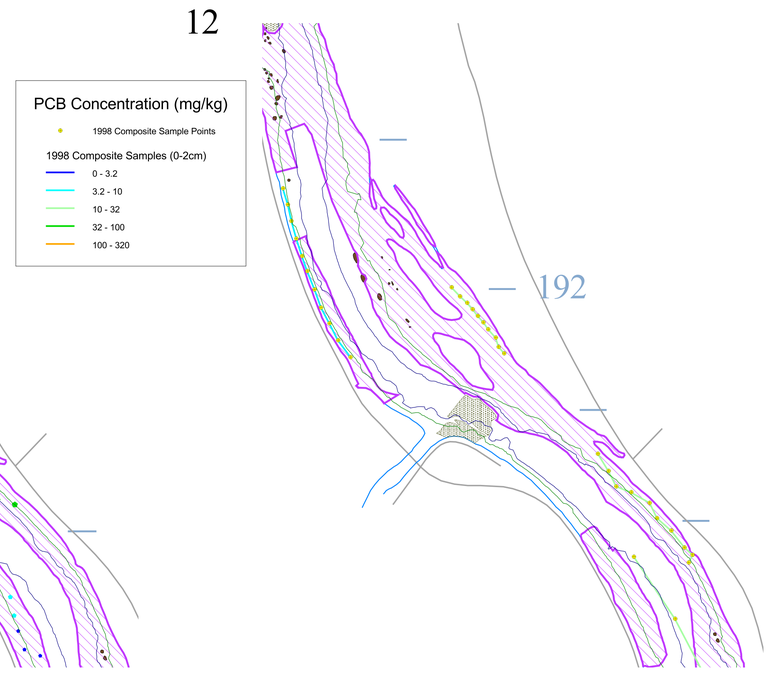
10



11



12



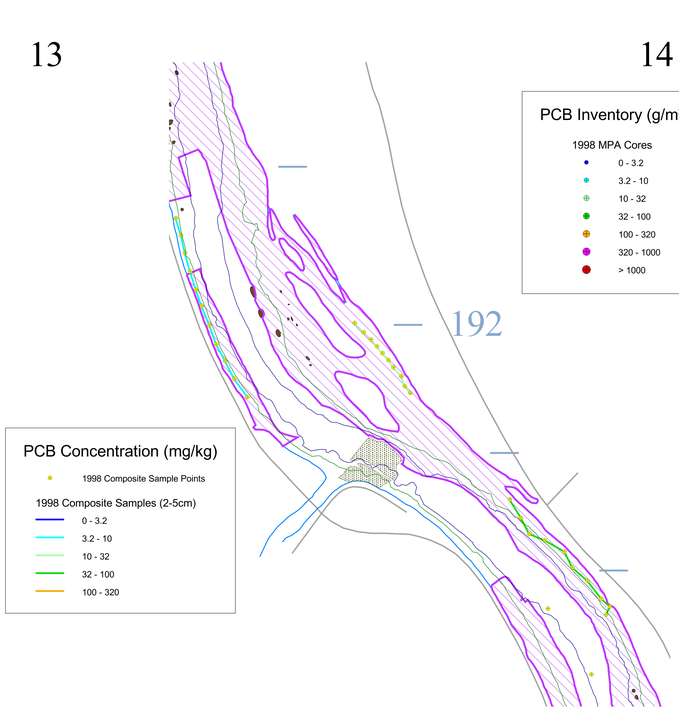
13

14

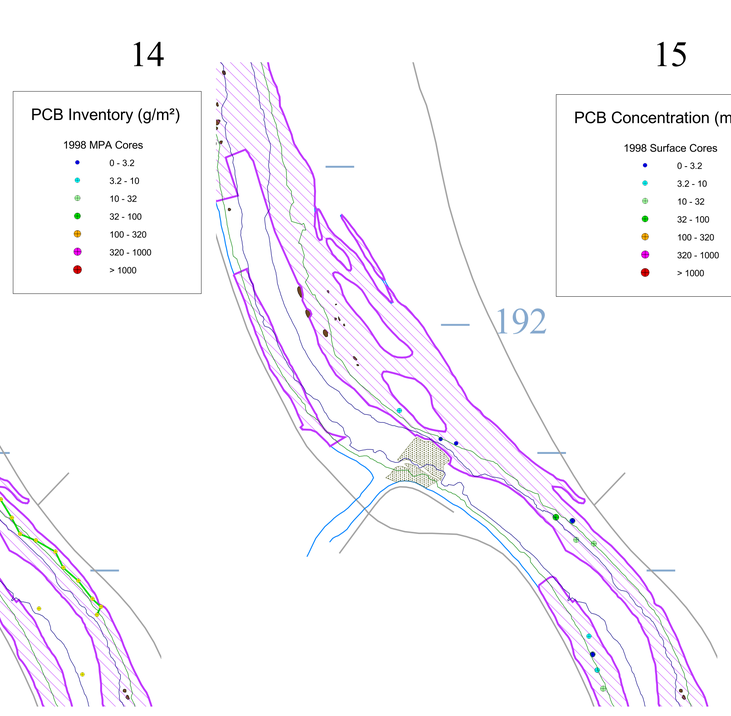
15

16

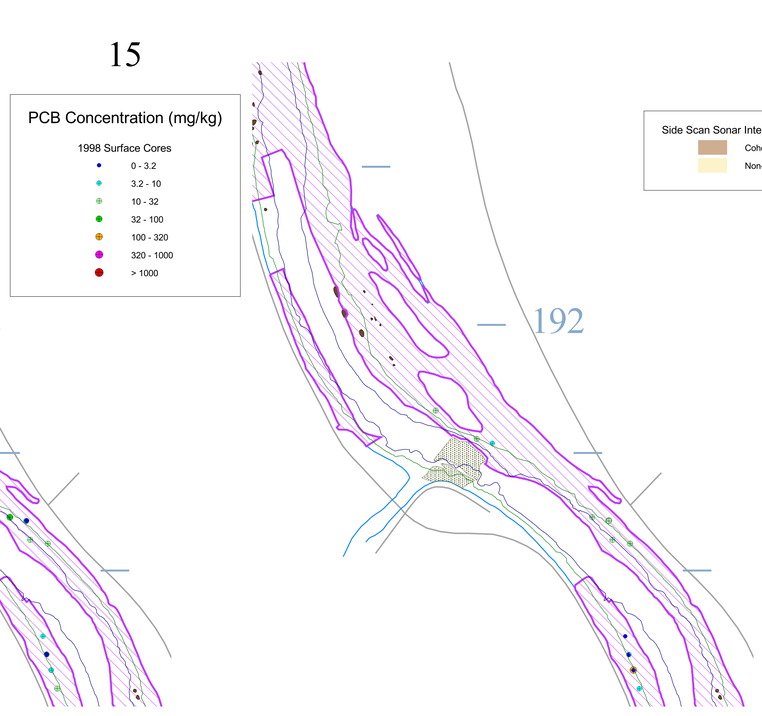
17



18



19



LEGEND

Approximate Water Depth (ft) at 3,090 cfs
- 6.5
- 12.5

Side Scan Sonar Interpretation
- Mound
- Rock
- Remediation Areas for Expanded Hot Spot Removal
- Hudson River Shoreline at 8,471 cfs
- Dam or Lock
- Road
- Rivermile Markers

N W E S

1000 0 1000 2000 Feet

TAMS
TAMS Consultants, Inc.

Hudson River PCBs Reassessment Feasibility Study

Figure 3-15

Selection of Remediation Areas for Expanded Hot Spot Removal: *Hot Spot 8*