

Sediment Monitored Natural Restoration Initial Case Studies



Presented to

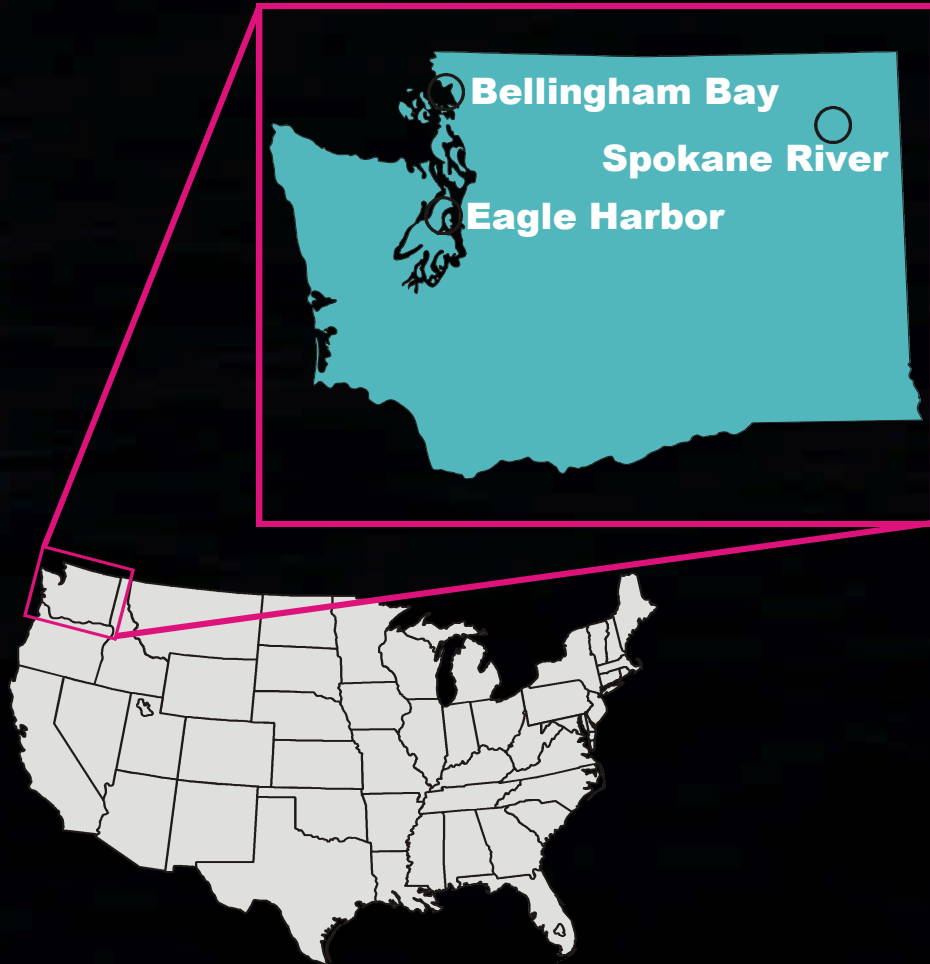
**RTDF
Sediment
Remediation
Action Team**

Presented by

Clay Patmont

March 11, 2002

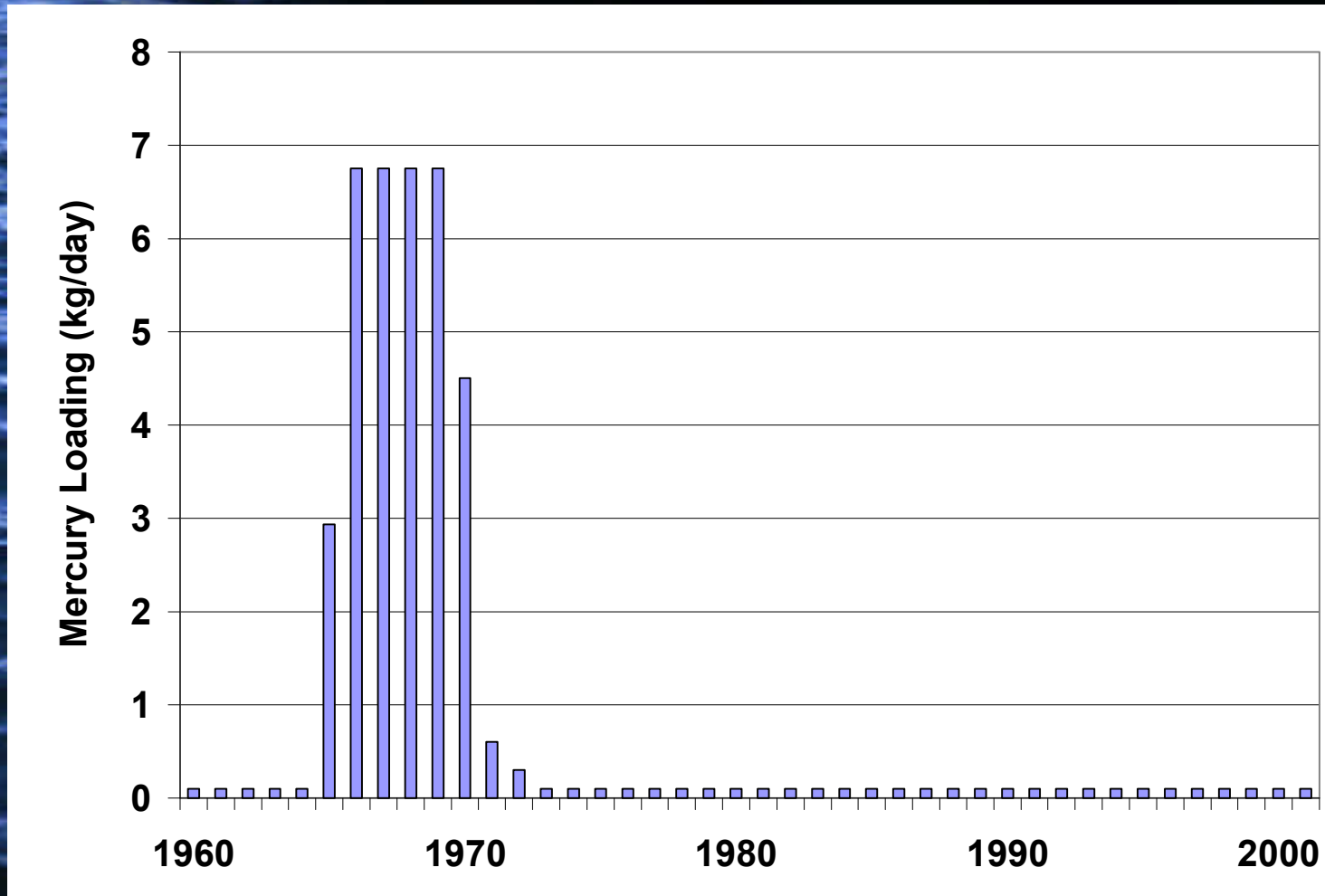
Washington State Monitored Natural Restoration Case History Examples



Case Study Site Comparisons

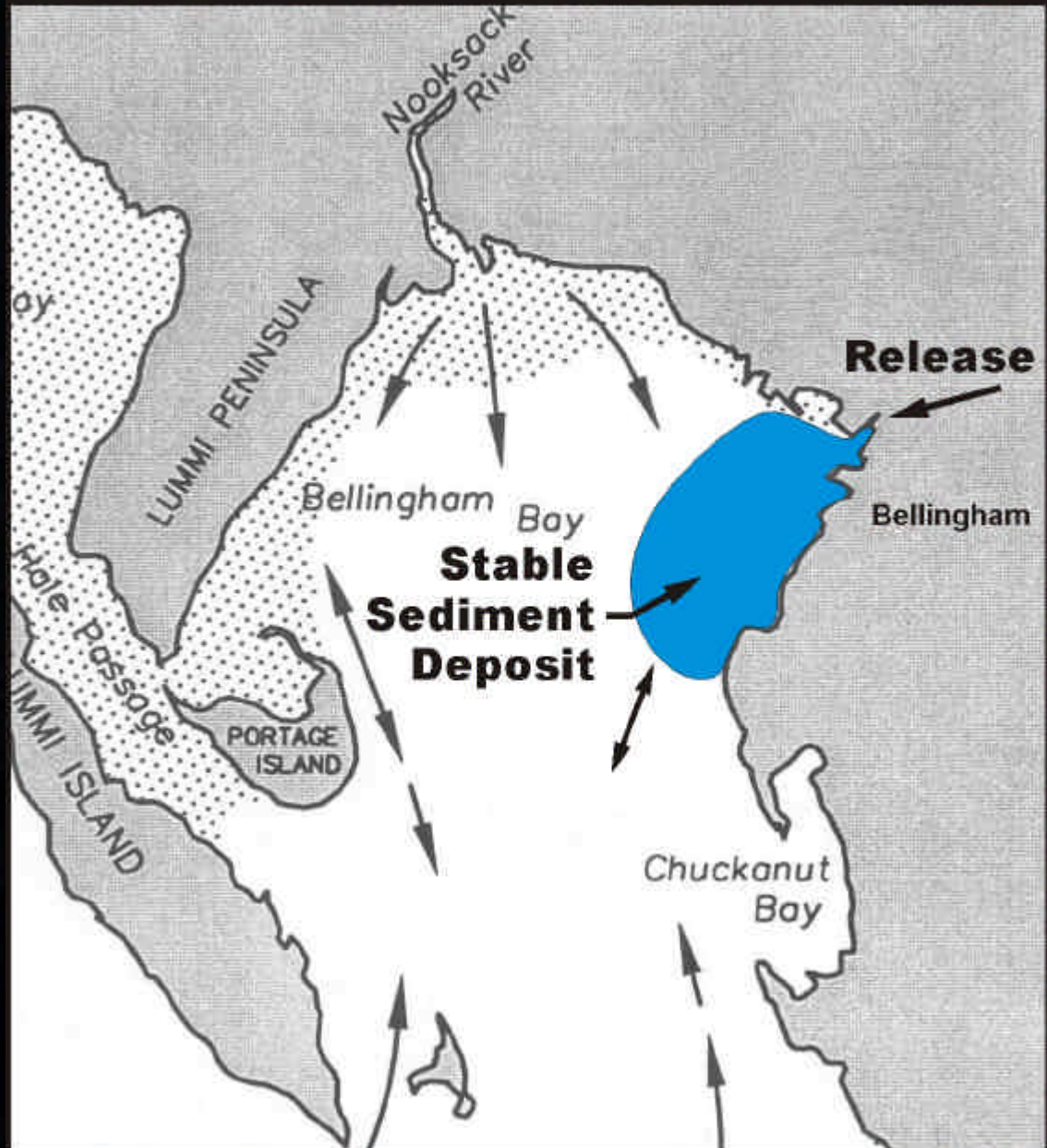


Mercury Release and Source Control: Bellingham Bay

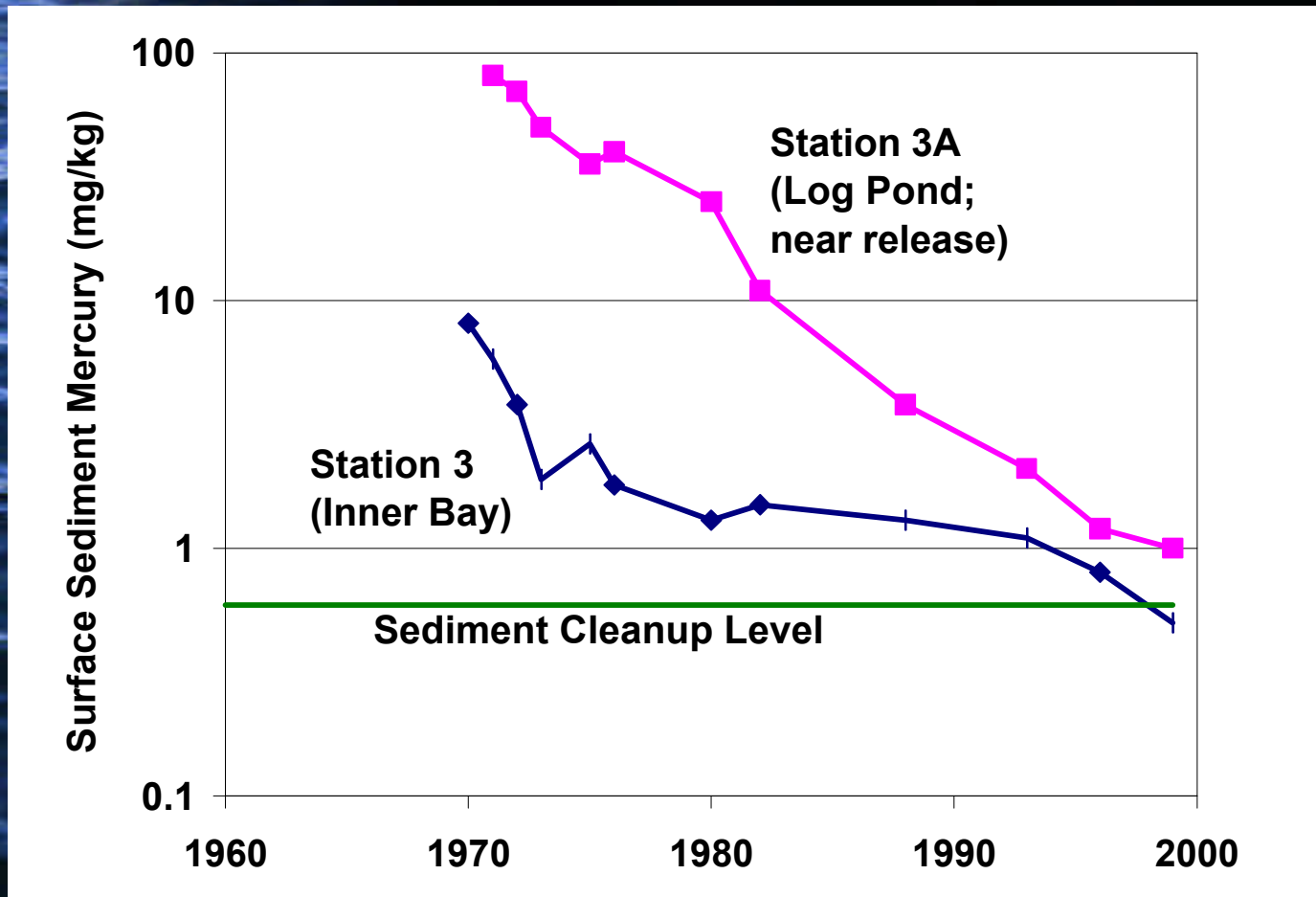


Sediment Deposition and Stability:

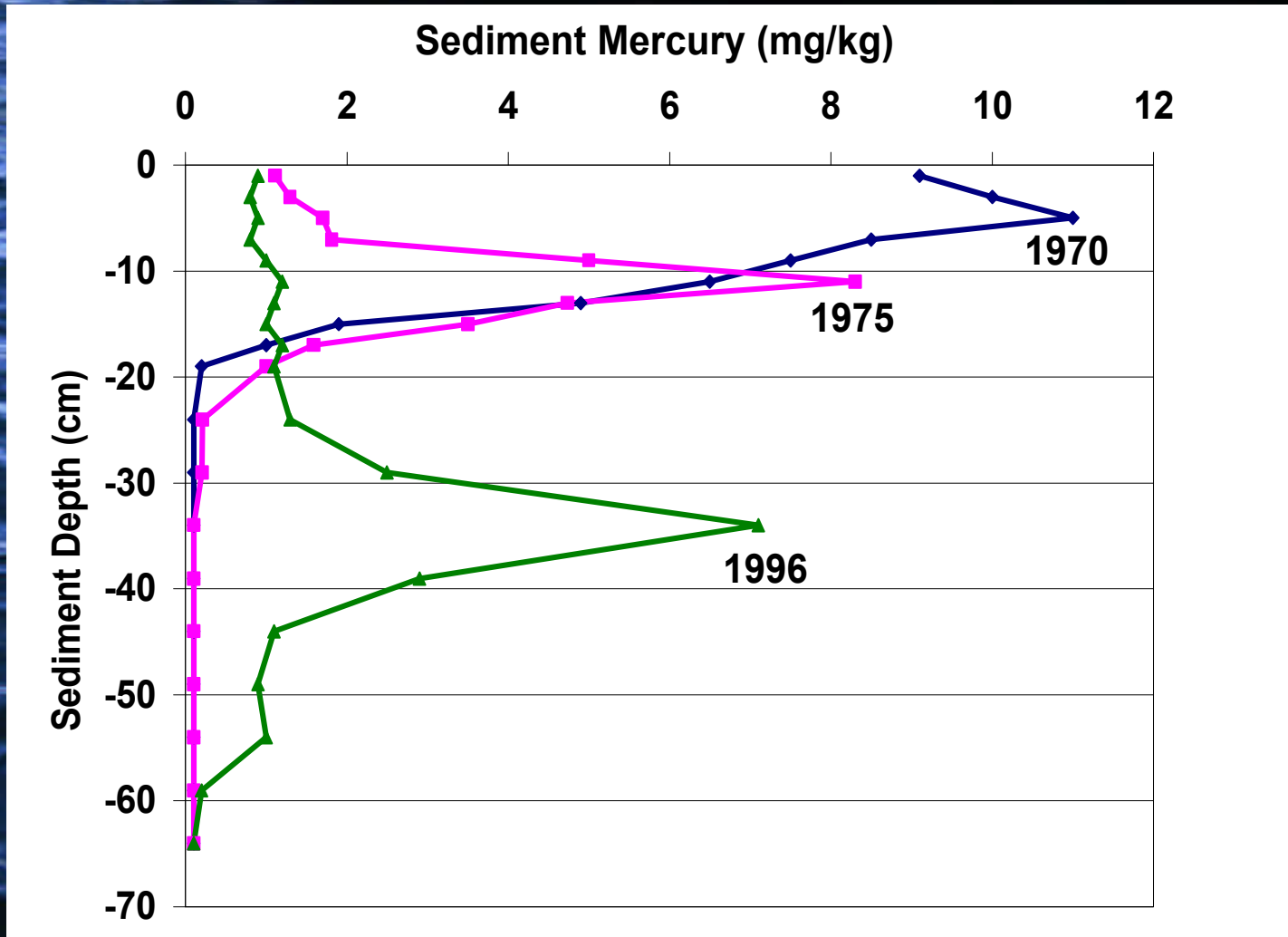
Bellingham Bay



Decline in Surface Sediment Mercury Following Source Control: Bellingham Bay



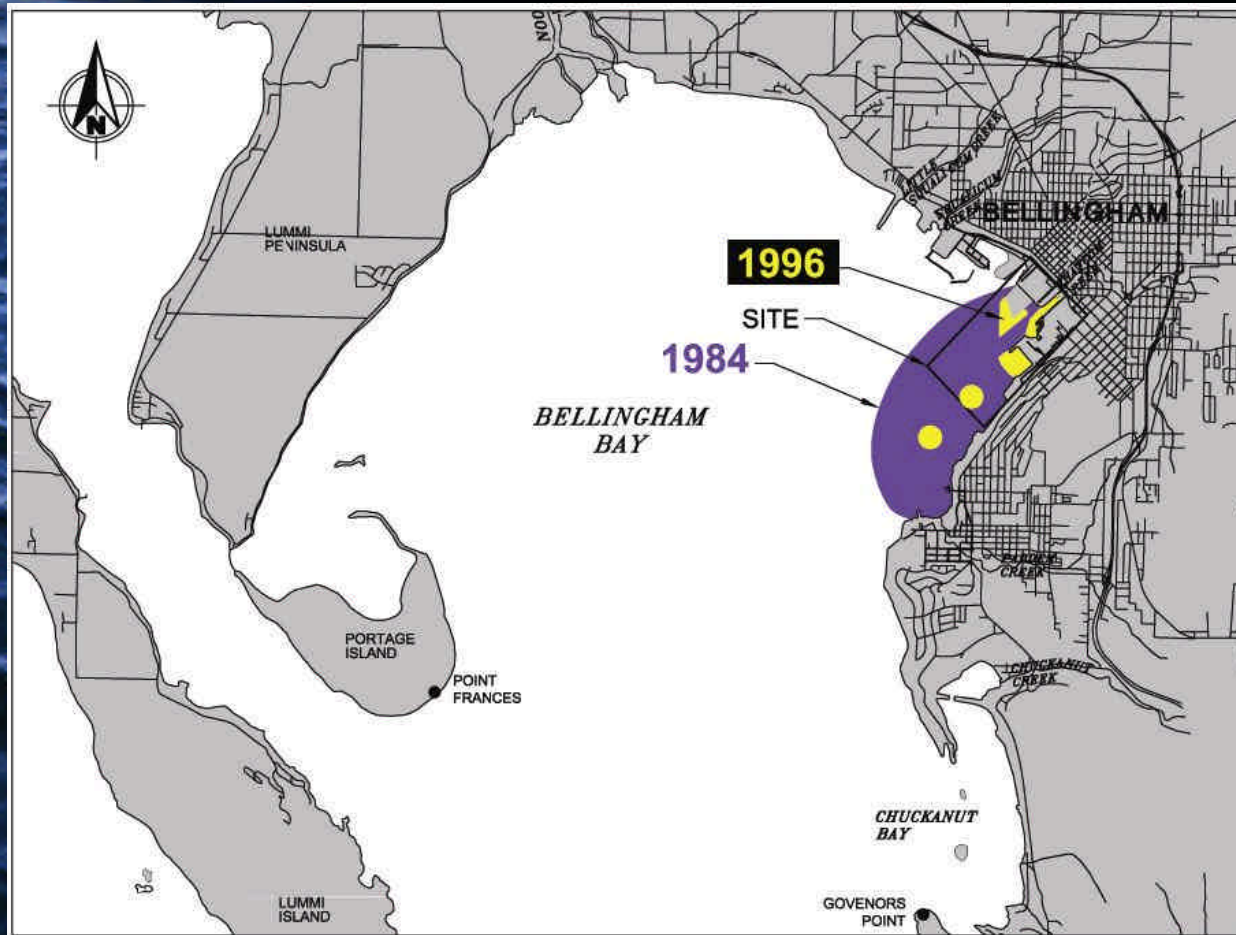
Temporal Change in Core Profiles: Inner Bellingham Bay Station 3



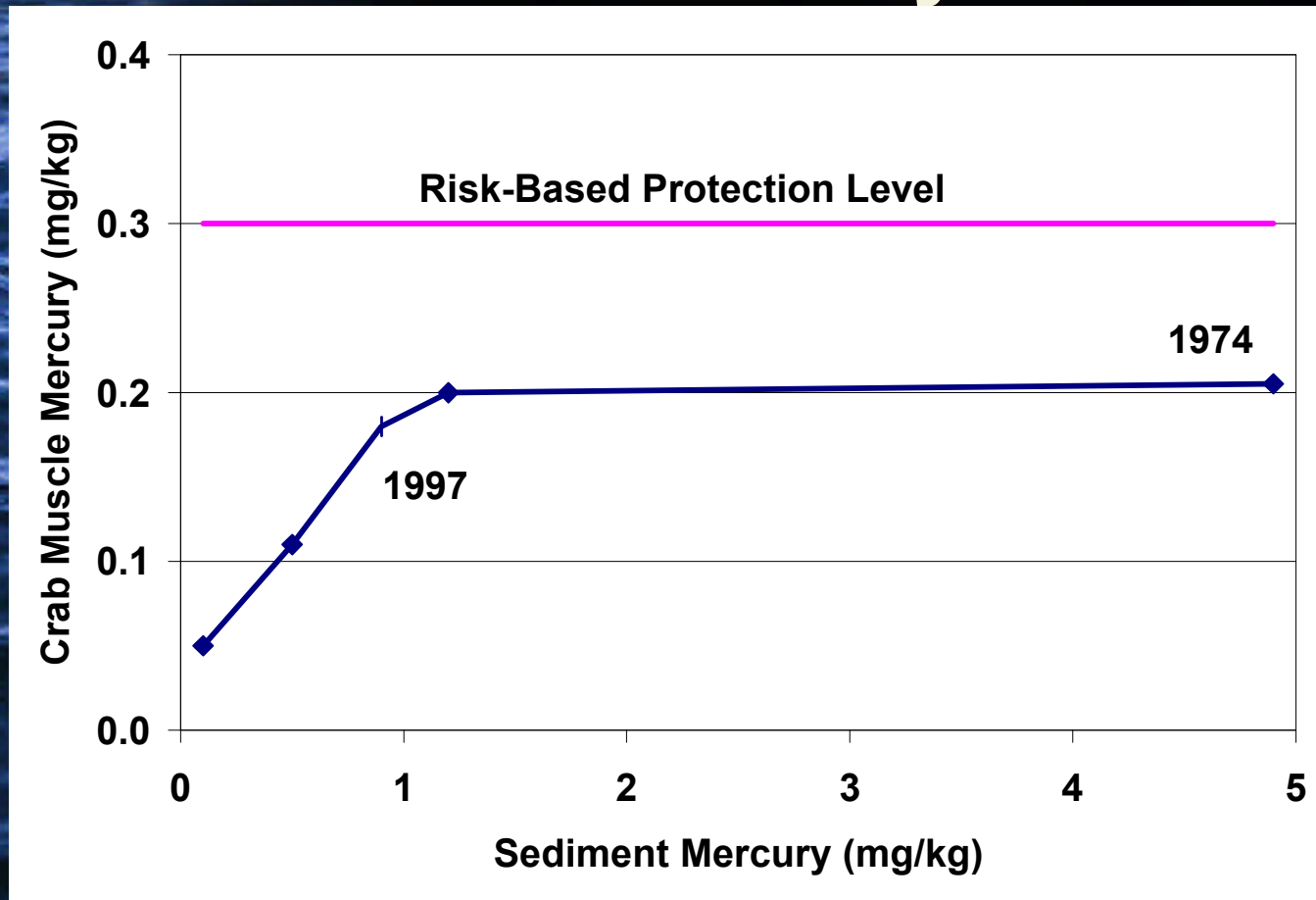
Bellingham Bay Sediment Recovery Modeling

- Initial Model Development in 1980
 - Radioisotope Dating
- Model Refinements in 1989 and 1996
 - Sediment Traps; Resuspension Rates
- Several Models Used
 - Officer and Lynch; WASP
- Model Validation
 - Predicted Changes in Core Profiles

Biological Endpoint Recovery: Reduction in Bellingham Bay Surface Sediment Toxicity



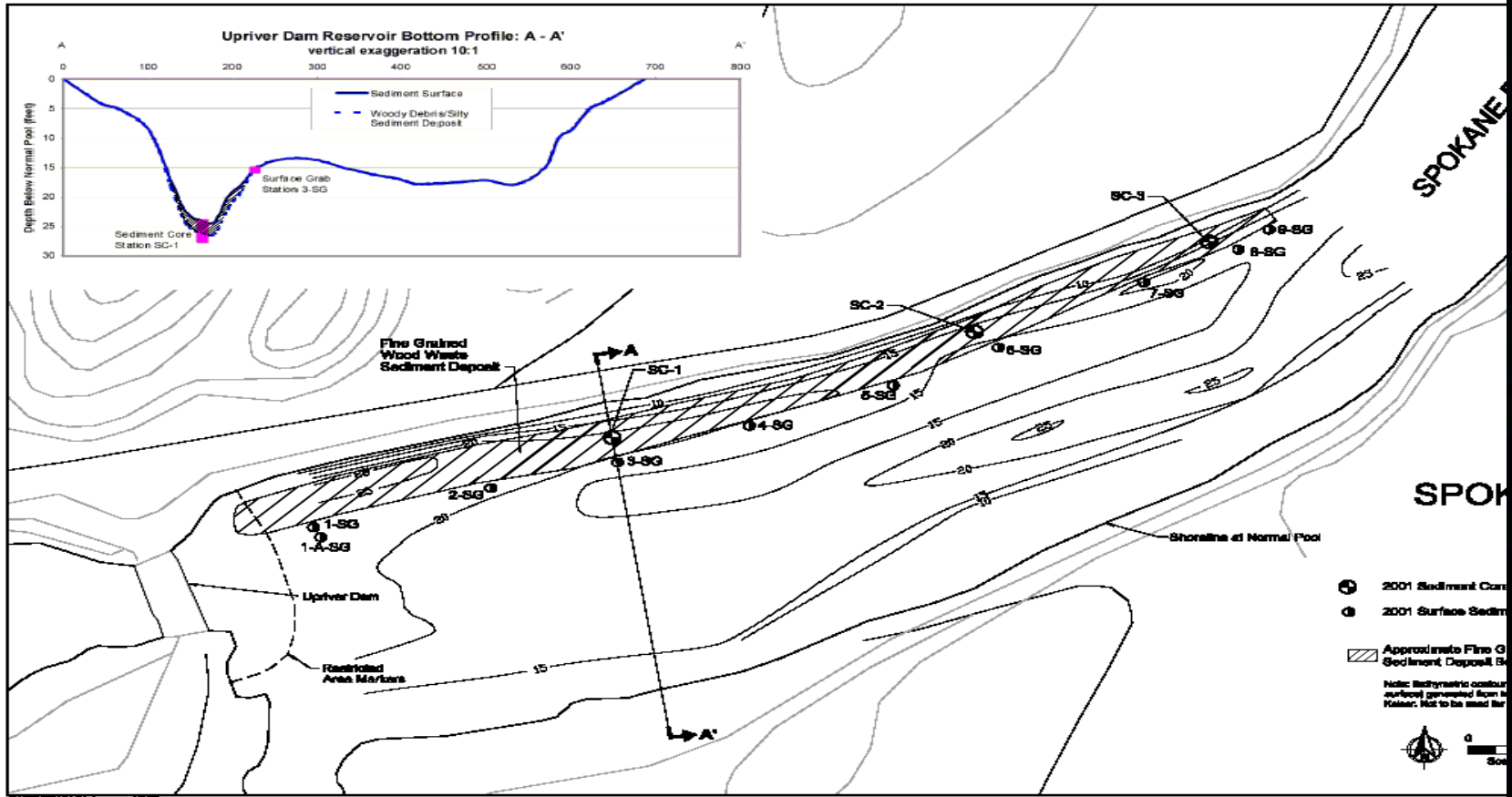
Biological Endpoint Recovery: Reduction in Bellingham Bay Crab Tissue Mercury Levels



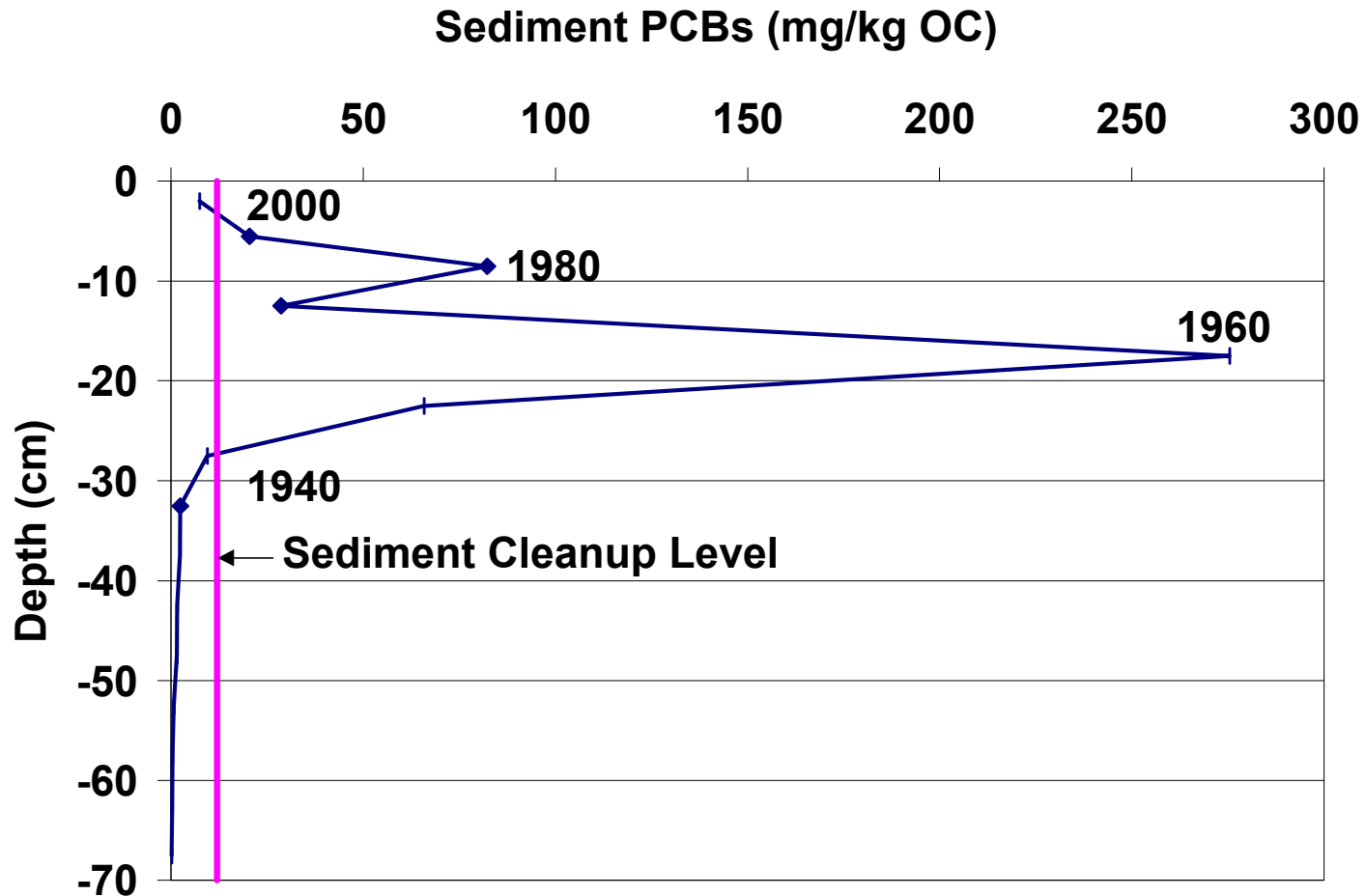
PCBs and Metals Release & Control: Spokane River

- PCB Releases:
 - Sources Not Well Documented Before 1990
 - Restricted Use After 1972
 - Source Control Complete by 1993
- Metals Releases:
 - Initial Control Efforts Began in 1977
 - Significant Ongoing Mine Tailings Release

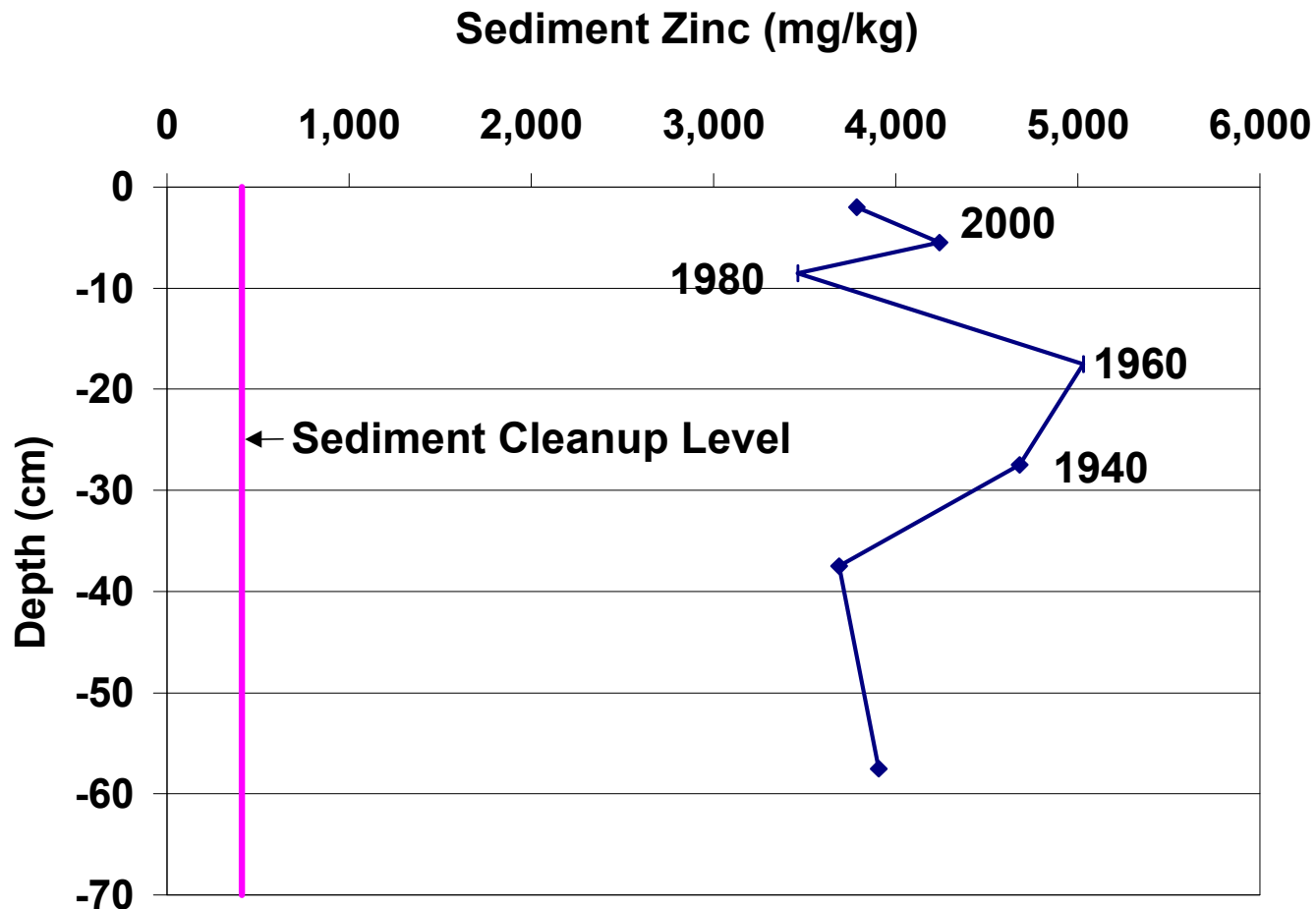
Sediment Deposition and Stability: Spokane River



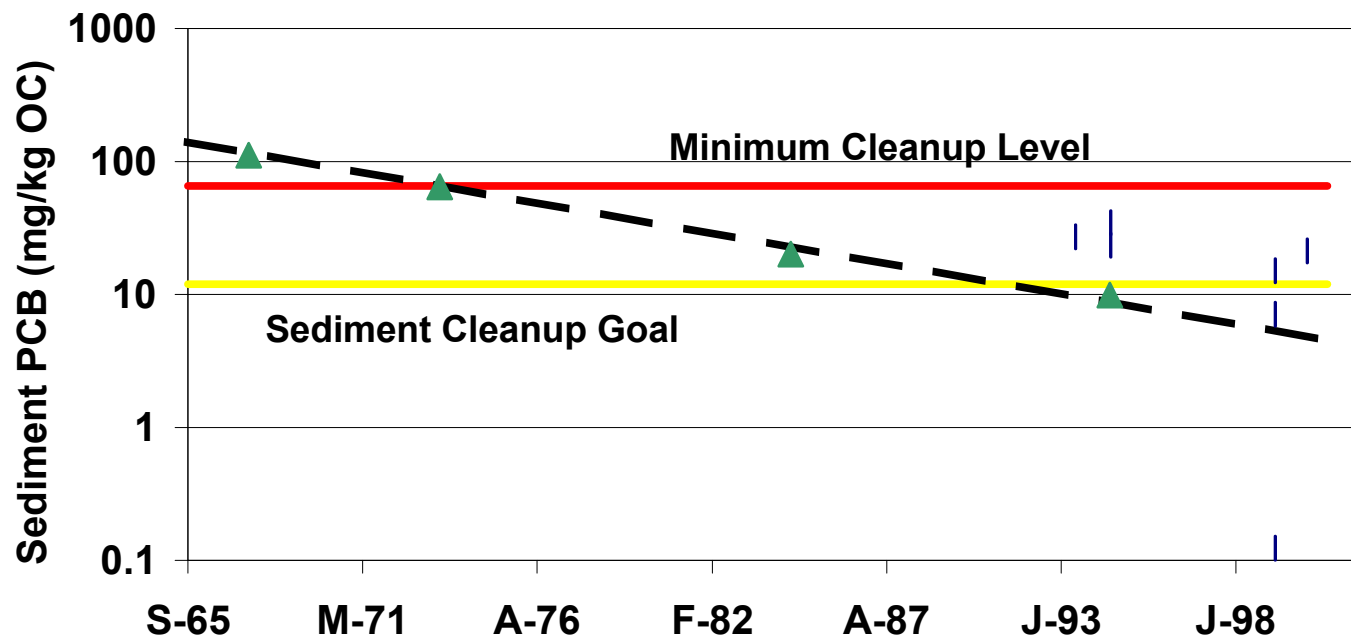
PCB Core Profile: Spokane River Stable Deposit



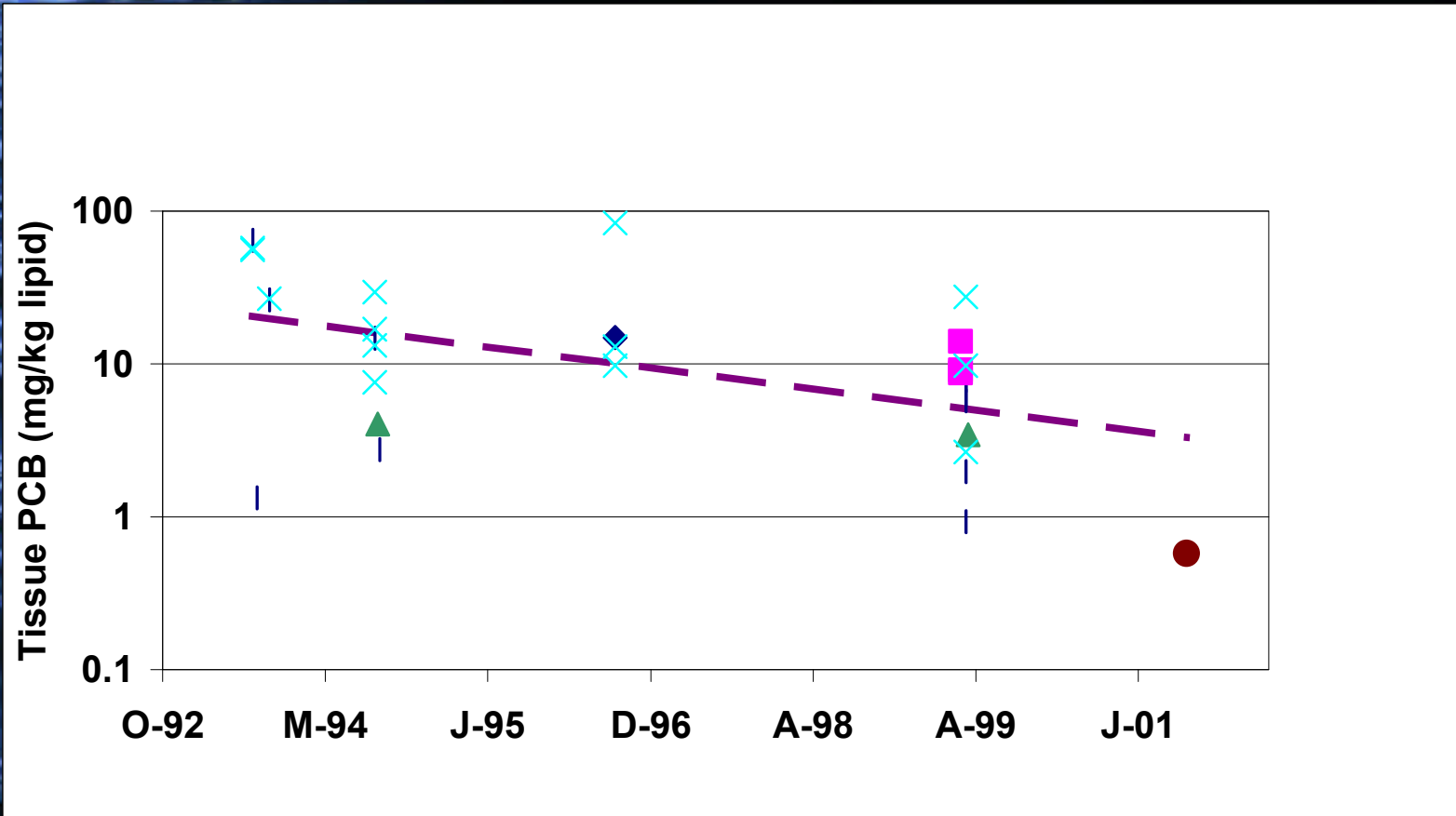
Zinc Core Profile: Spokane River Stable Deposit



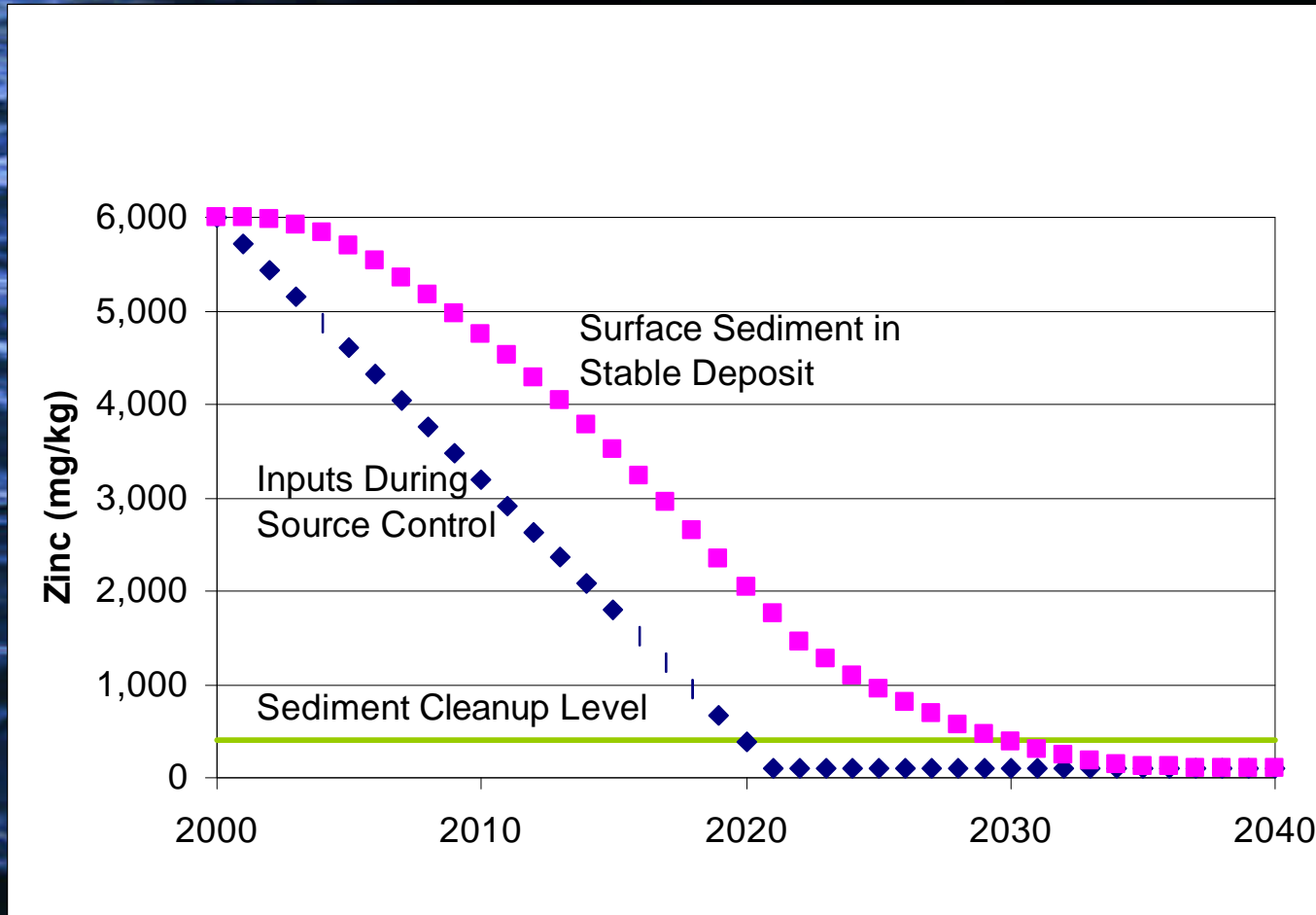
Decline in Surface Sediment PCB Levels Following Source Control: Spokane River



Decline in Fish Tissue PCB Levels Following Source Control: Spokane River



Predicted Recovery of Zinc Following Future Source Controls: Spokane River



Case Study Site Comparisons

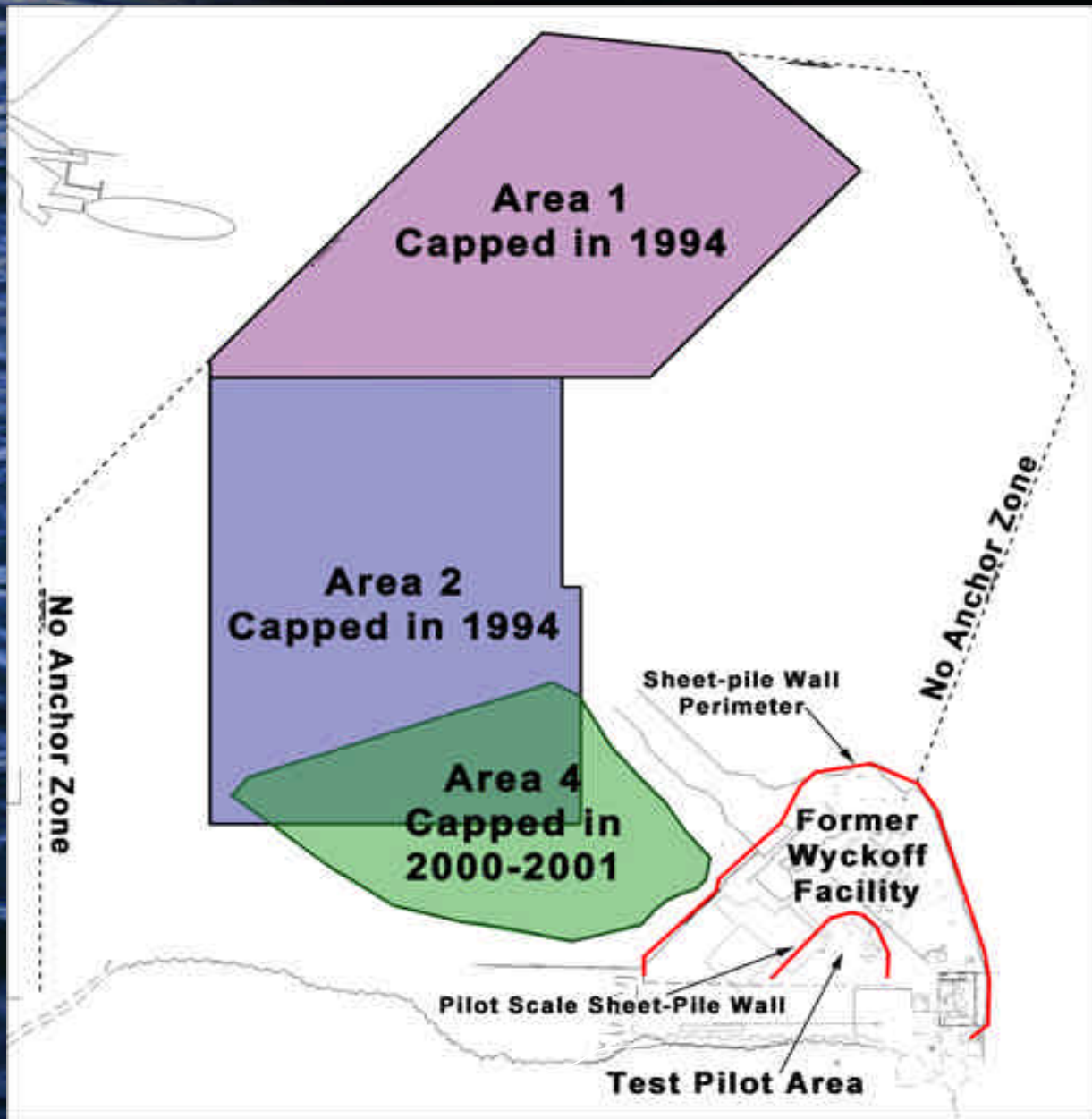




**West Harbor Mercury
Capping Area - 1997**

**East Harbor PAH
Capping Area - 1994 & 2001**

Eagle Harbor Sediment Cap Areas





Barge Wash-Off Cap Placement - 1994 & 2001

Biological Endpoint Recovery: Fish Histopathology

