



In-Situ Bioaccumulation Tests for Contaminated Sediment Sites

RTDF Sediment Assessment Workshop

Baltimore, MD

March 12, 2002

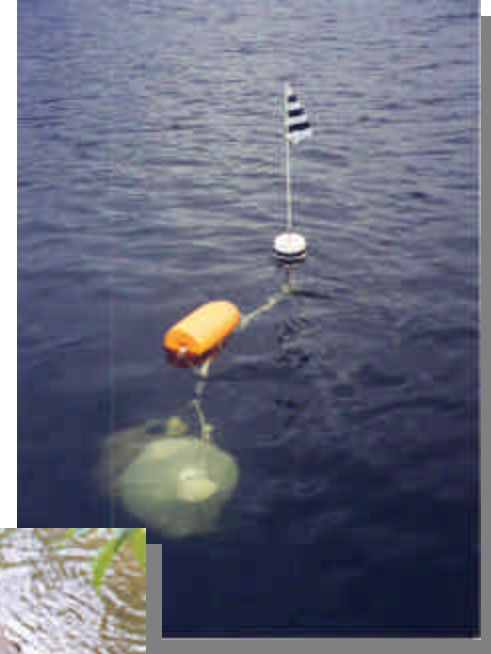
In-Situ Bioaccumulation Tests - Overview

- Purpose/Use
- Methods
 - Species
 - Equipment
 - Logistics
- Applications
- Data/Results
- Issues (Advantages/Disadvantages)



Purpose/Use

- Relative indicator of bioaccumulation
- Short-term
- Location-specific
- Relationship to resident fish



Applications

- Remedial Effectiveness - Pre- vs. Post-
- Containment Effectiveness
- Temporal Trends
- Spatial Trends



Methods - Organisms

- Bivalves - mussels
- Fathead minnows
- Channel catfish



Methods - Organism Sources

- Commercial
- Field - collected



Methods - Equipment Issues

- Enclosure



Methods - Equipment Issues

- Enclosure
- Water flow through



Methods - Equipment Issues

- Enclosure
- Water flow through
- Anchor



Methods - Exposure Protocol

- Locations
 - Proximity to contamination/remediation
 - Upstream and downstream, transects
 - Depth
- Timing
 - Before, during, after remediation



Issues

- Stocking density
 - Mortality
 - Mass



Issues

- Stocking density
 - Mortality
 - Mass
- Temperature



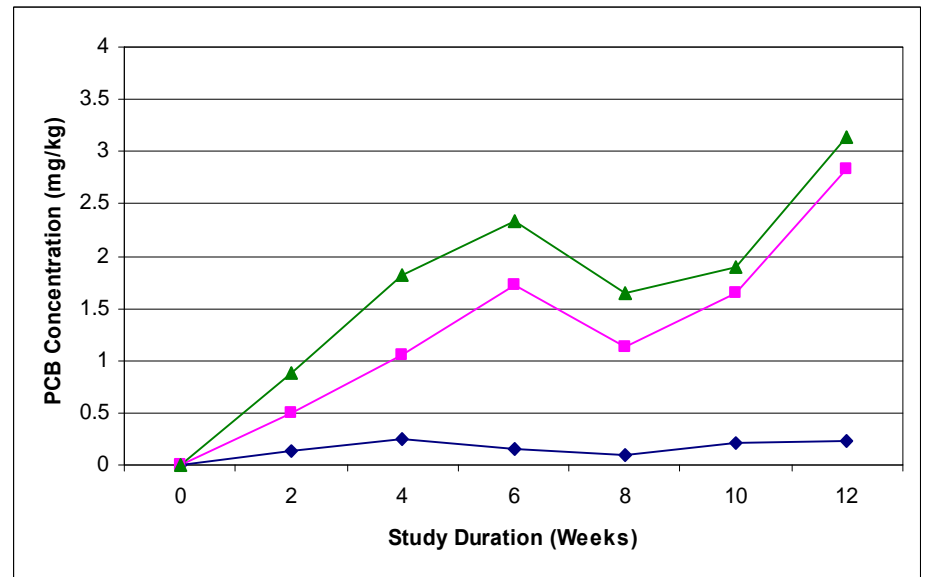
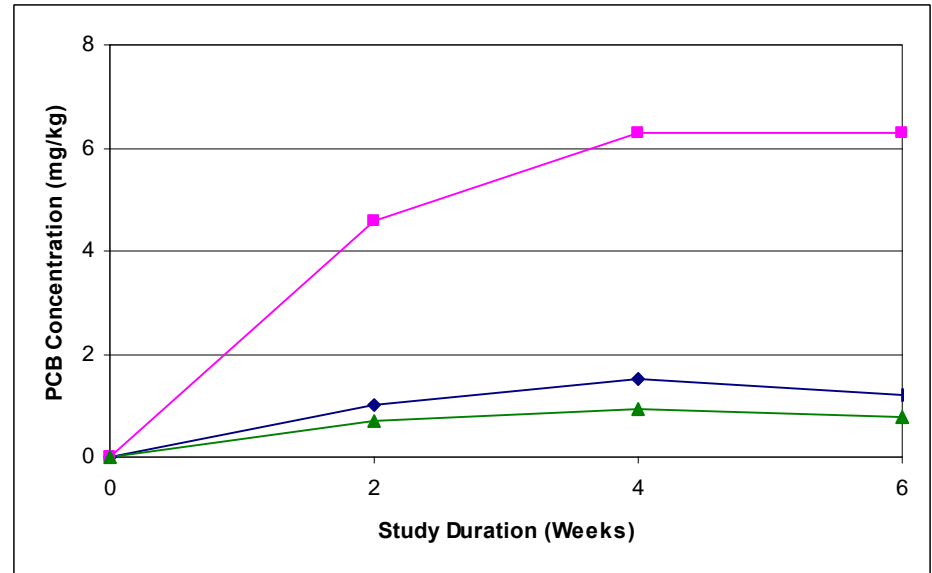
Issues

- Stocking density
 - Mortality
 - Mass
- Temperature
- Accessibility



Issues

- Stocking density
 - Mortality
 - Mass
- Temperature
- Accessibility
- Duration



Applications

- Remedial Effectiveness - Pre- vs. Post-
- Containment Effectiveness

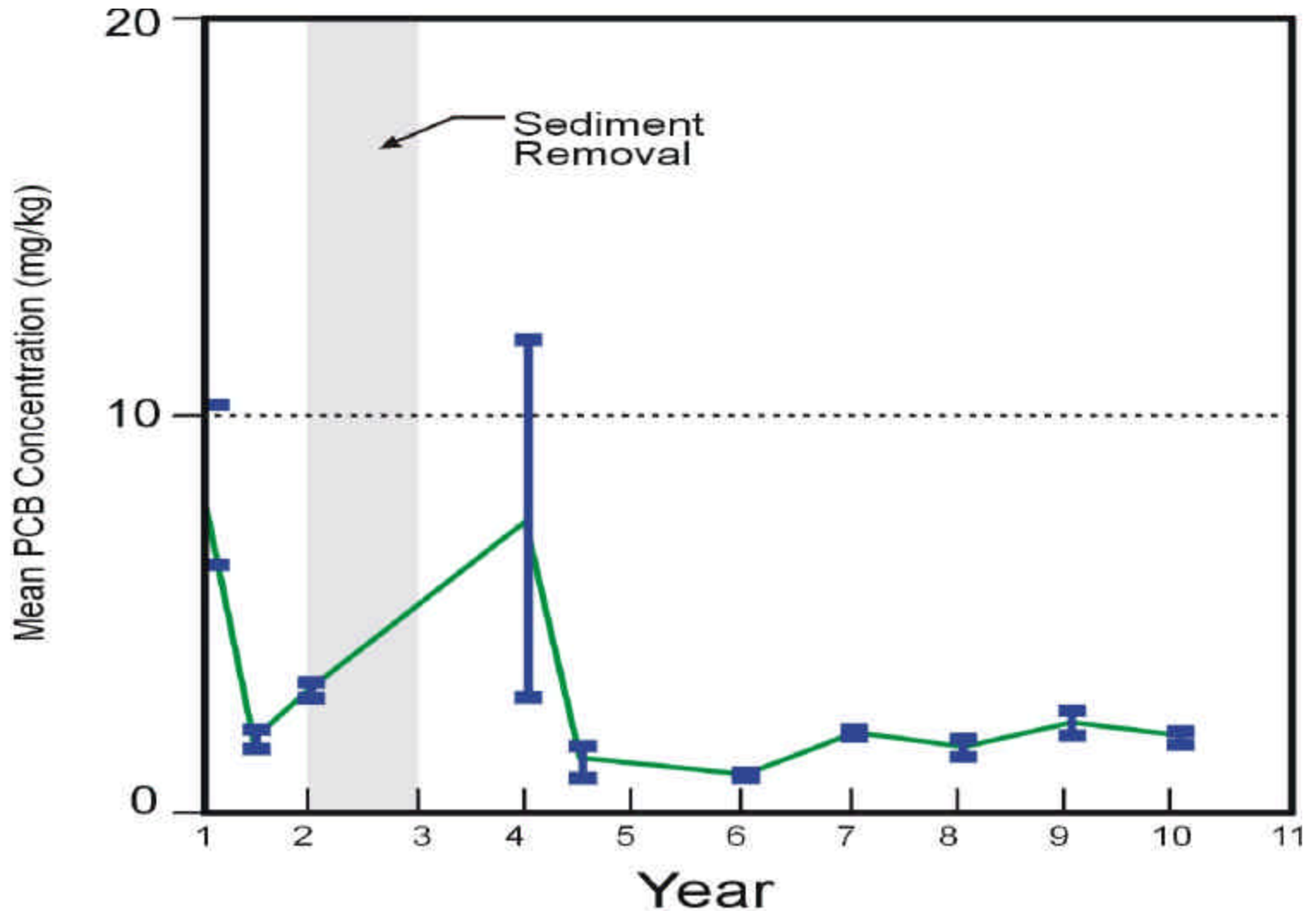


Applications

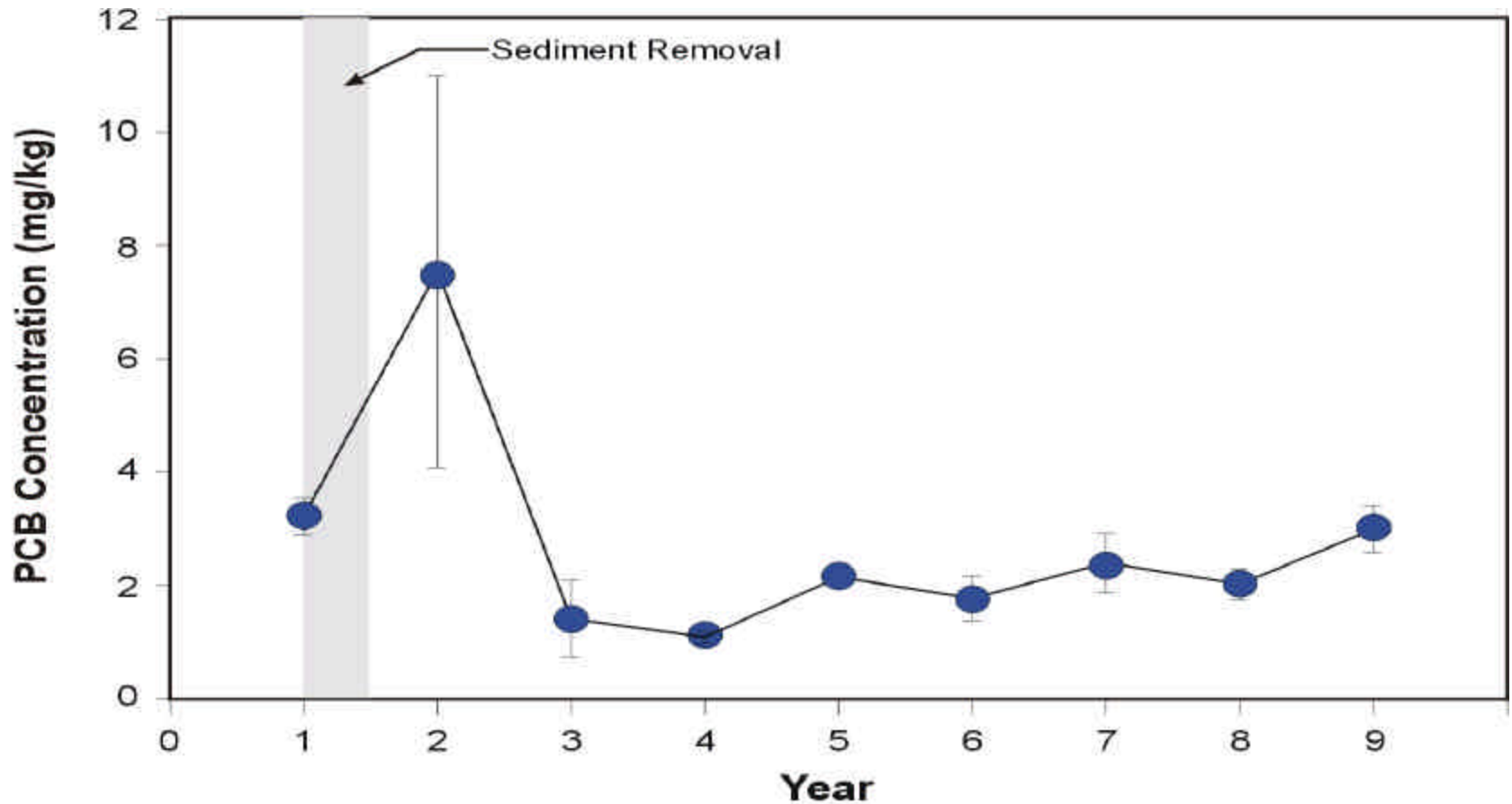
- Temporal Trends
- Spatial Trends



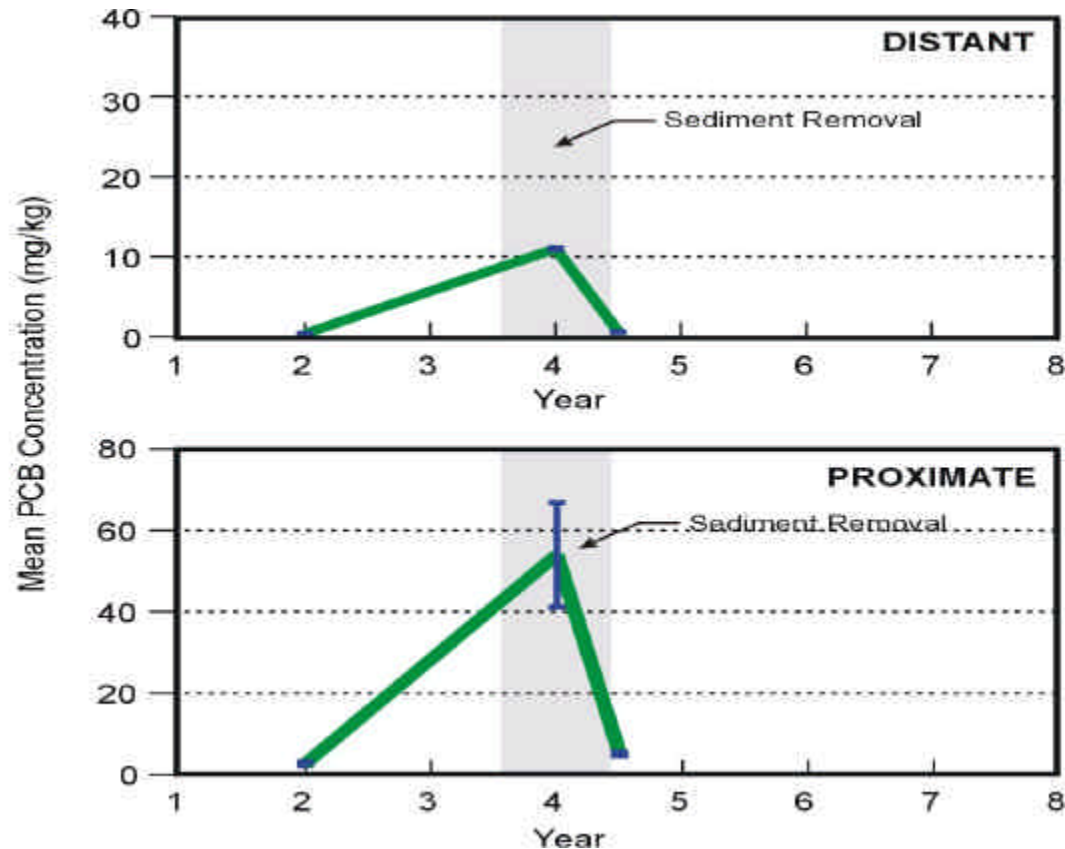
Example Data - Temporal Trends



Example Data - Remedial Effectiveness

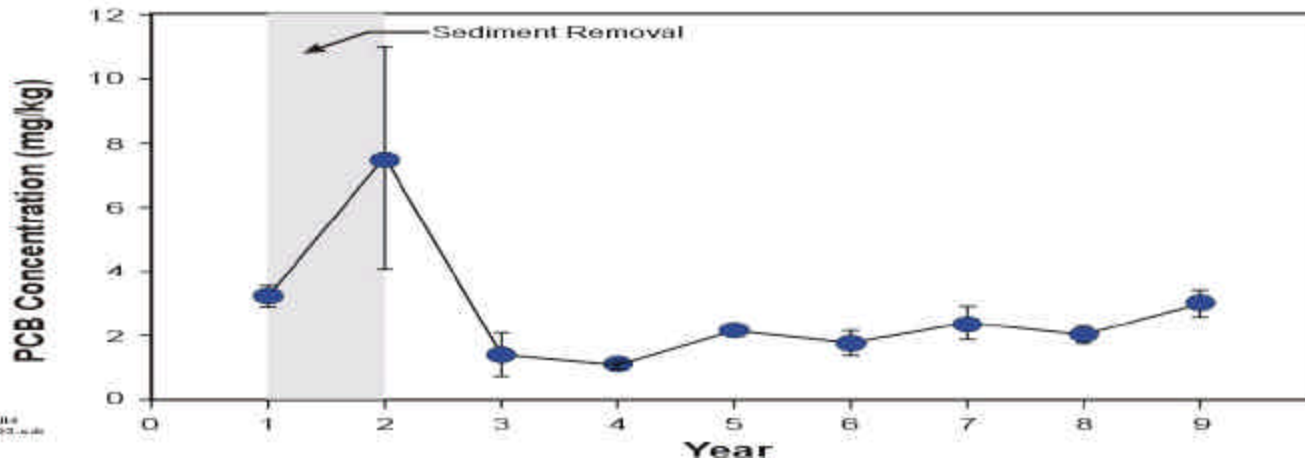
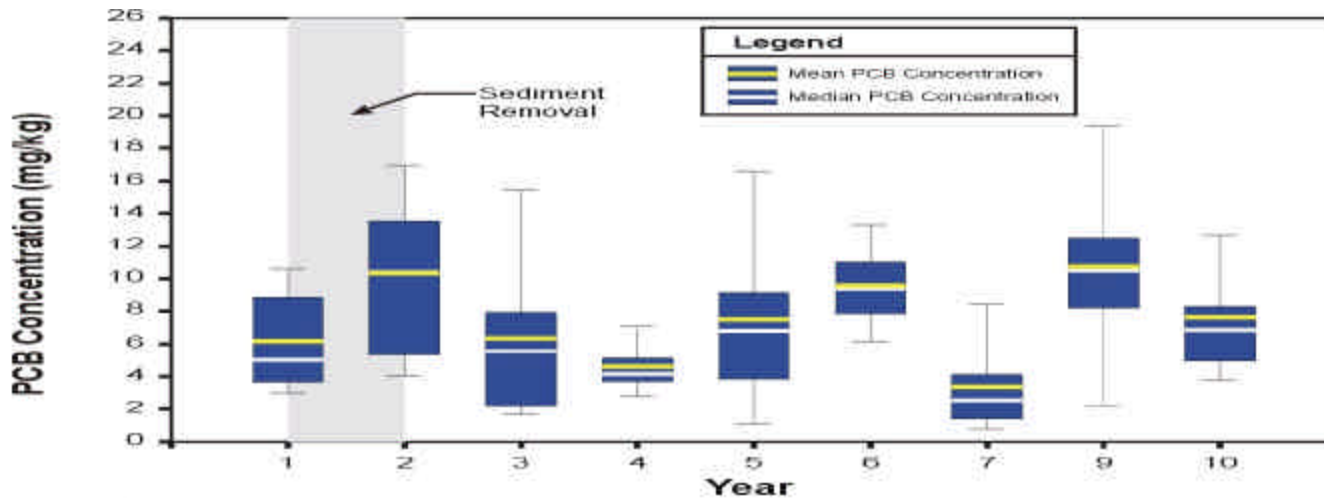


Example Data - Containment Effectiveness



03/02 MYR.DS4-BJH
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Example Data - Comparison with Resident Fish



Conclusions

- Useful short-term, location-specific indicator of contaminant availability
- Relative indicator
- Little direct value for risk assessment
- Supplement resident species tissue residue data

