

Ecological Study: Phase II Plans

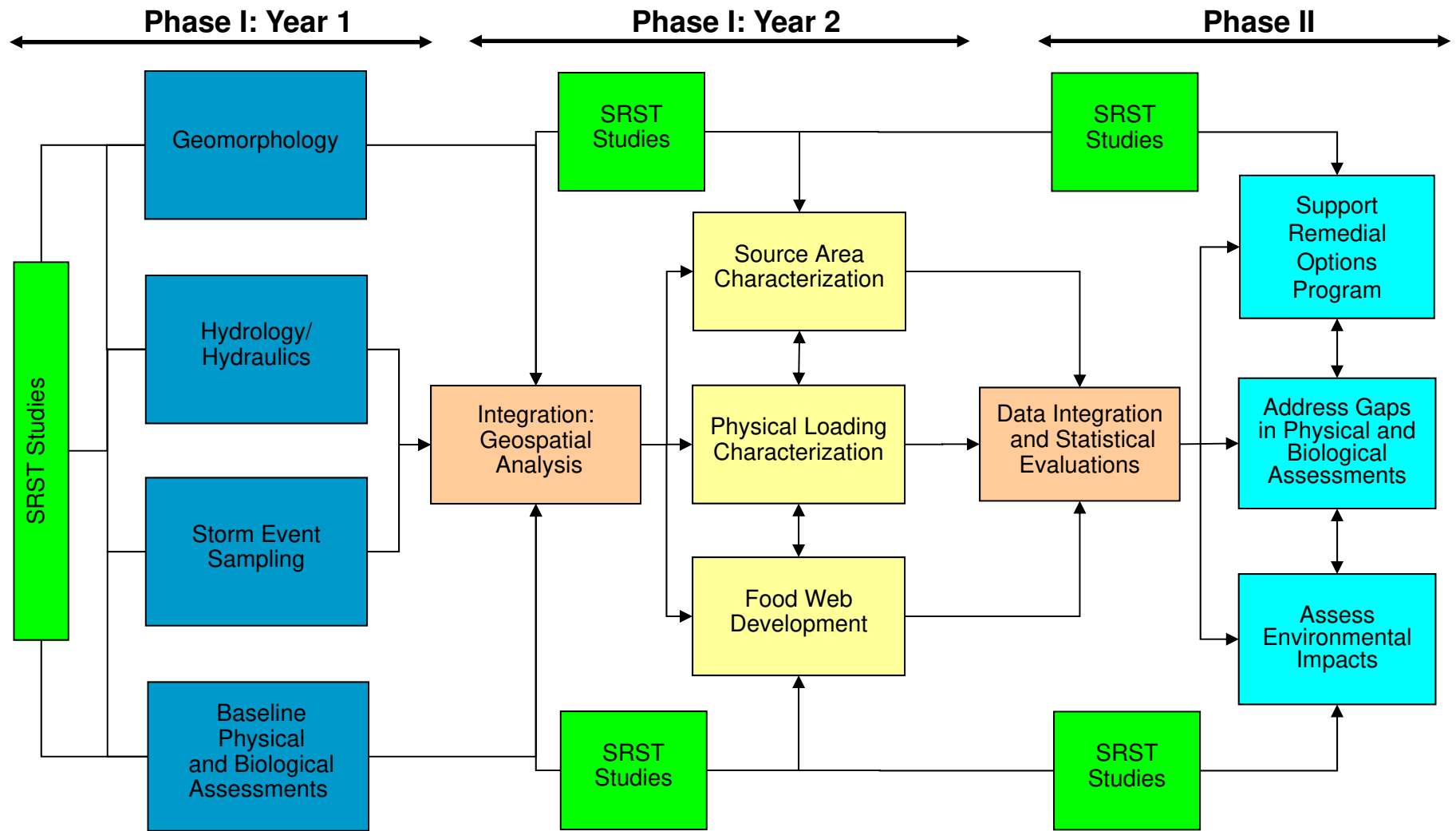
SRST Meeting: April 21, 2009



Presentation Outline

- Phase II Site Selection Process
- Study Plans for 2009
- Scheduled Activities

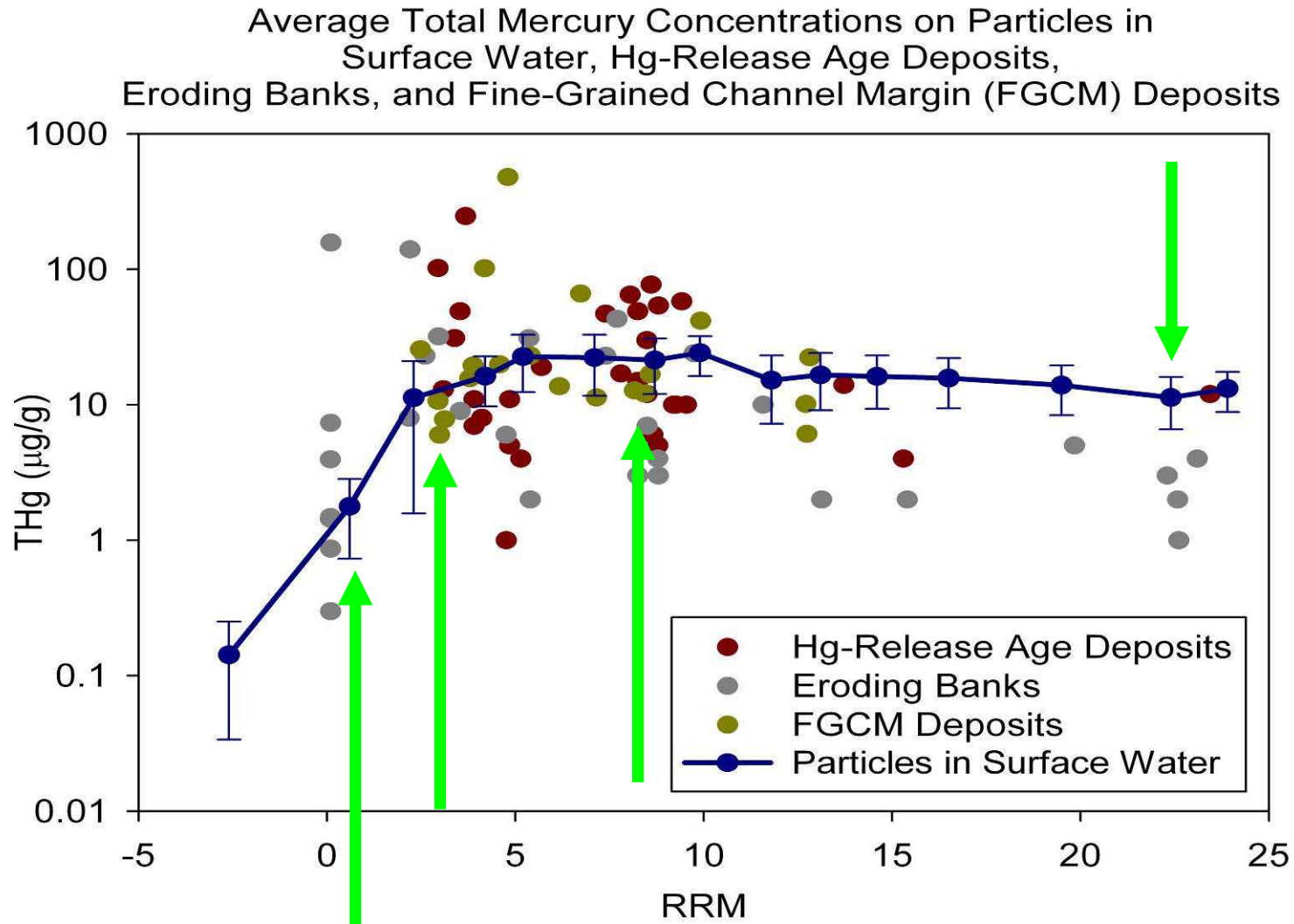
Overview: Ecological Study



Phase II Study Site Selection Process

- Safe work access to the river
- Proximity to river bank floodplain features (HRADs and LiDAR bank erosion stations) and FGCM deposits
- Areas with defined zones of surface water hydraulic storage and transport
- Areas conducive to remedial option testing (e.g., pilot river bank stabilization site)

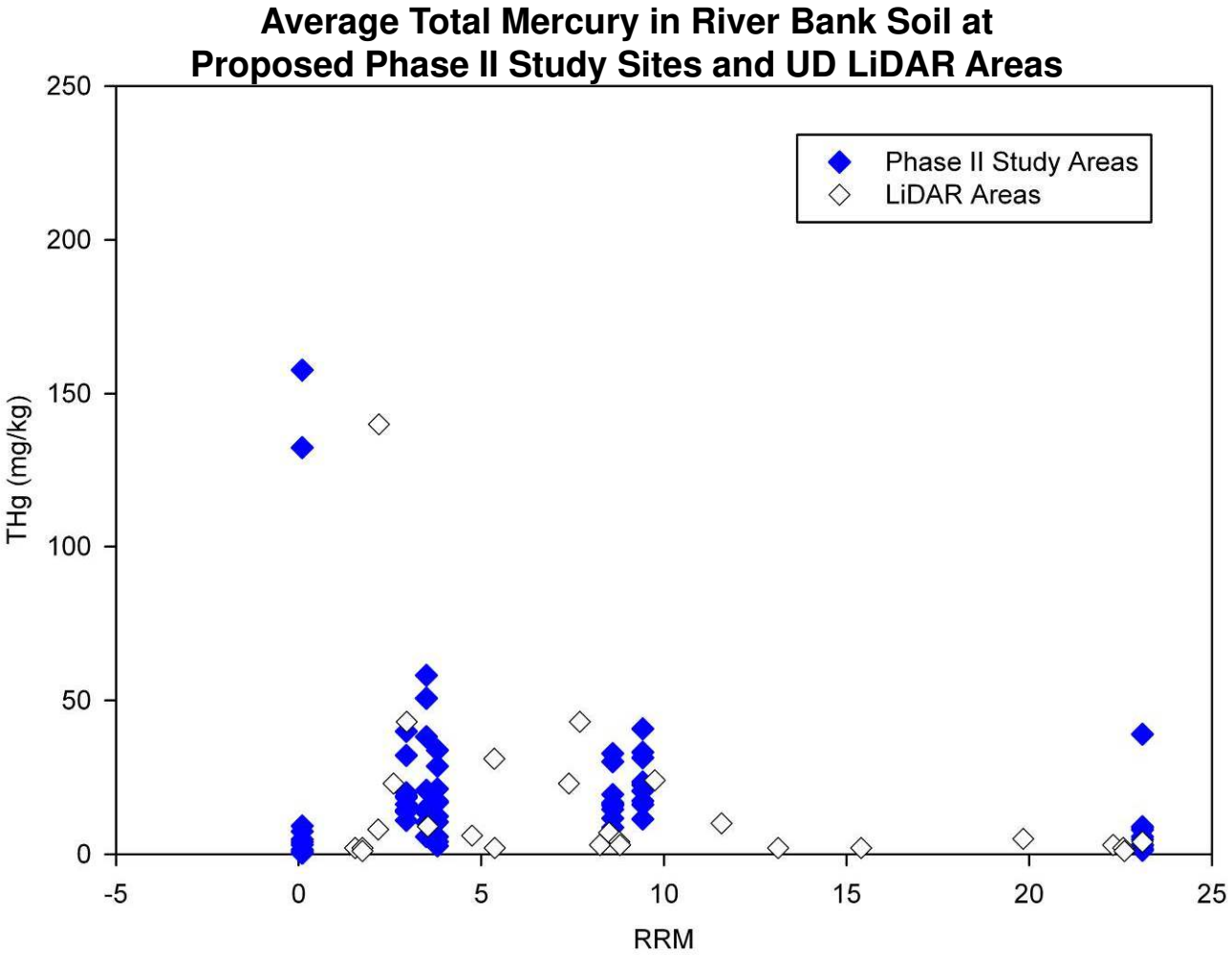
Eight Locations Identified as Preliminary Study Areas



Preliminary Study Areas Surveyed

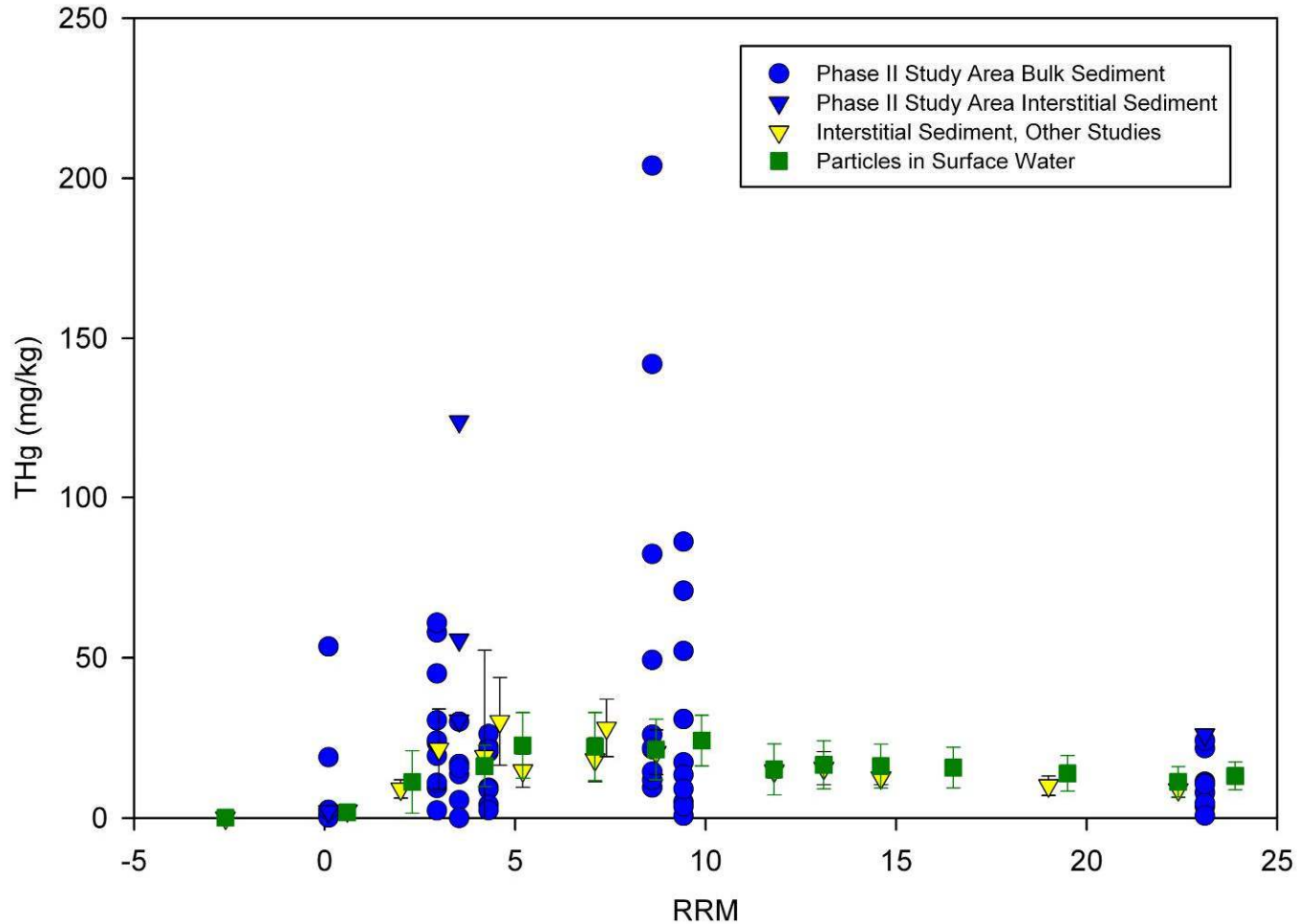
- Five cross sectional transects at each site spaced approximately 25 meters apart; measurements include:
 - Mercury samples at both banks and near-bank sediment
 - Channel bathymetry
 - Predominant grain size
 - Water velocity
 - Hydraulic head to detect advection potential
- Study Areas 5 and 6 merged into one area

Preliminary Study Area - River Bank Characterization



Preliminary Study Area - Near-bank Sediment Characterization

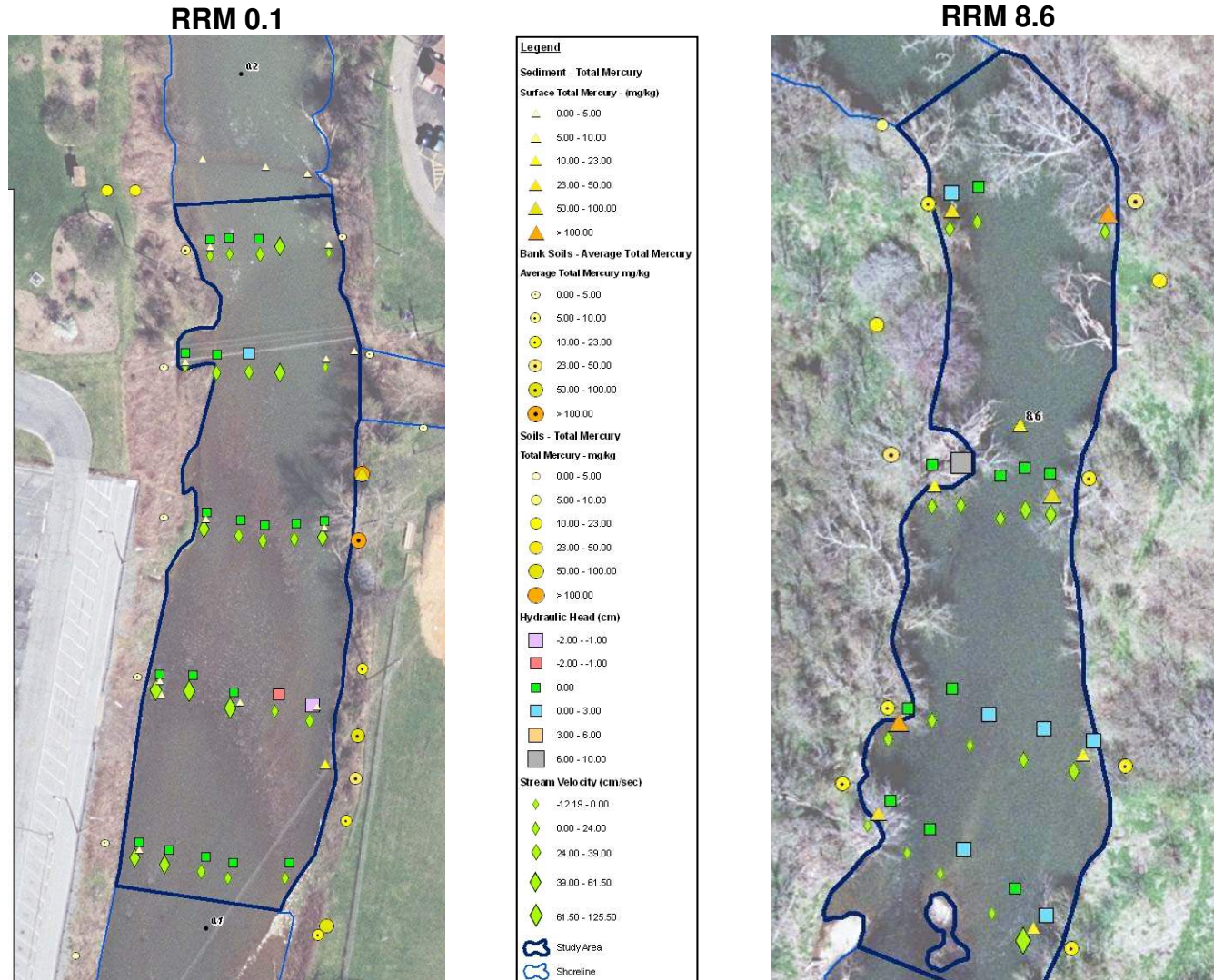
Average Total Mercury in Near-bank Sediment at Proposed Phase II Study Sites and Phase I Mid-channel Sediment and Surface Water Particle Data



Proposed Phase II Study Areas

- Study Area 1 at RRM 0.1 – Pilot Bank Stabilization Area
- Study Area 3 at RRM 3.5
- Study Area 6 at RRM 8.6
- Study Area 8 at RRM 23.5

Phase II Study Areas RRM 0.1 and 8.6



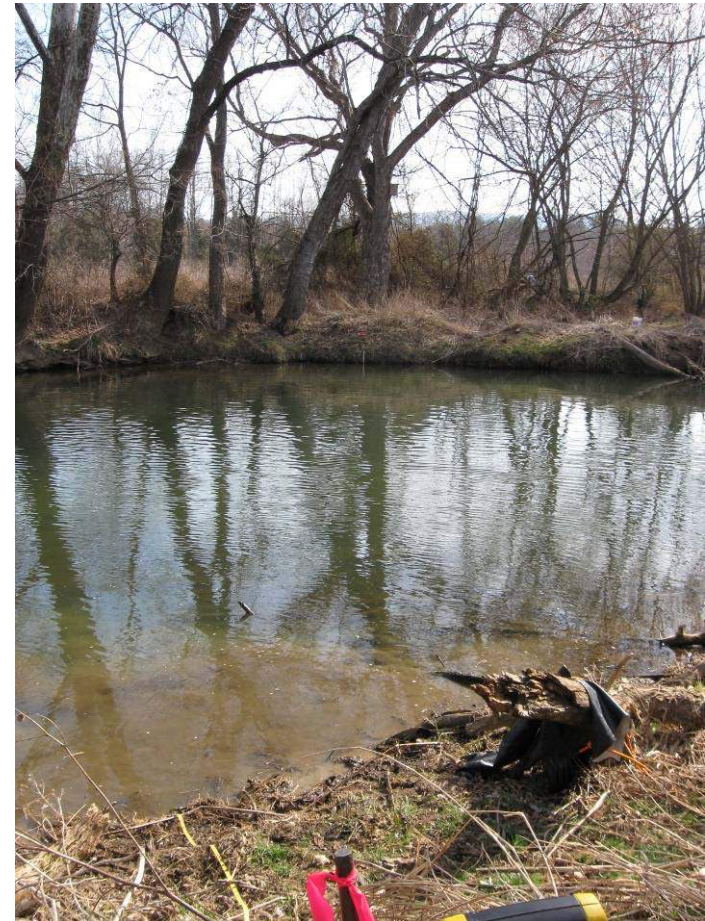
Phase II Study Plan Elements for 2009

1. Physical loading study

- Sampling will focus on collecting close-interval near-surface pore water along river transects to evaluate IHg and MeHg mass transfer from substrates

2. Biological loading study

- Evaluate caged clams and seeded clams to determine biological loading rates for two feeding guilds (filter feeding and filter feeding / sediment gathering) in areas of hydraulic storage and transport



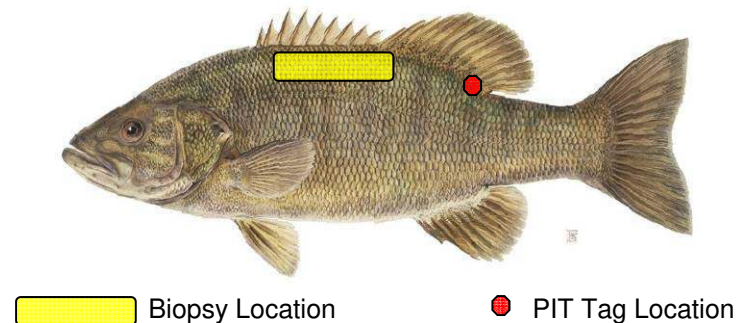
Phase II Study Plan Elements for 2009

3. Focused assessment for aquatic insects

- Evaluate larvae and emerging adult aquatic insects for select taxonomic groups of collector-filterers and collector-gatherers in targeted river environments

4. Baseline monitoring for surface water and fish tissue

- Track and evaluate seasonal and inter-annual changes in THg concentrations in the muscle tissue of smallmouth and largemouth bass



Schedule Activities for 2009

- Submitted Phase II Work Plan to NRDC in Feb.
- Submit field memo to NRDC outlining Phase II study locations end of April
- Field work to start mid-May
- Meeting with NRDC in July 2009 in Waynesboro, VA