Ecological Study in 2008
Progress Update and Study Plans

Update for 2007 Ecological Studies

- Targeted tributary and floodplain loading study between RRM 0 to 10

  - One storm event sampled on 10/26/07

- Fine grain channel margin deposits sampled in October

- Reference Area Station along the Middle River

- Baseline characterization of MeHg in sediment for various river environments

  - Samples collected August, October, and December

- Baseline surface water monitoring at bridges

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Ecological Study Plans for 2008

- South River floodplain study with SRST

  - Study to begin in Feb.

- Finish tributary and floodplain loading study (RRM 0 to 10) – target a spring storm

- Conduct an integrated MeHg study for various river environments

  - Study to begin in April

- Baseline surface water monitoring at bridges

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Integrated MeHg Studies

- Benthic flux chambers

- Substrate bioavailabilty and potentials for methylation and demethylation (with Rutgers University)

- Additional supporting characterization
  - *In situ* data logging for near bottom surface water conditions in environments
  - Sediment MeHg baseline sampling at co-located stations

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Bimonthly Sediment Data Collections in 2008

Characterization of MeHg in sediments from five targeted river environments:

- Open substrate within the main channel pools

- Embedded substrates within the main channel pools

- Fine grained deposits along the edges of the main channel

- Fine grained deposits along side channels or mill race pools

- Wetland features on the 0.3-yr floodplain

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Benthic Flux Chamber Study

Study Components
- Measure flux from targeted river environments
  - Six locations will be selected from the 10 stations included in bimonthly monitoring of MeHg in sediment
  - Study area will extend from RRM 1.6 to 12.8

- Near-synoptic comparisons of habitat types within specific river reaches
  - Measure the major in channel habitat types within a specific reach to provide direct comparisons

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Benthic Flux Chamber Study

Study Plans

- Deploy paired clear and opaque chambers to simulate diurnal effects

- Measure filter-passing THg, MeHg, Fe and Mn flux at 0, 1, 2 and 3 hours

- Measure dissolved oxygen (DO) inside chambers

- Compare DO results to 24 hour DO cycle in ambient surface water

- Measure light intensity to control for shade effect on clear chambers

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Substrate Bioavailabilty and Potentials for Methylation and Demethylation