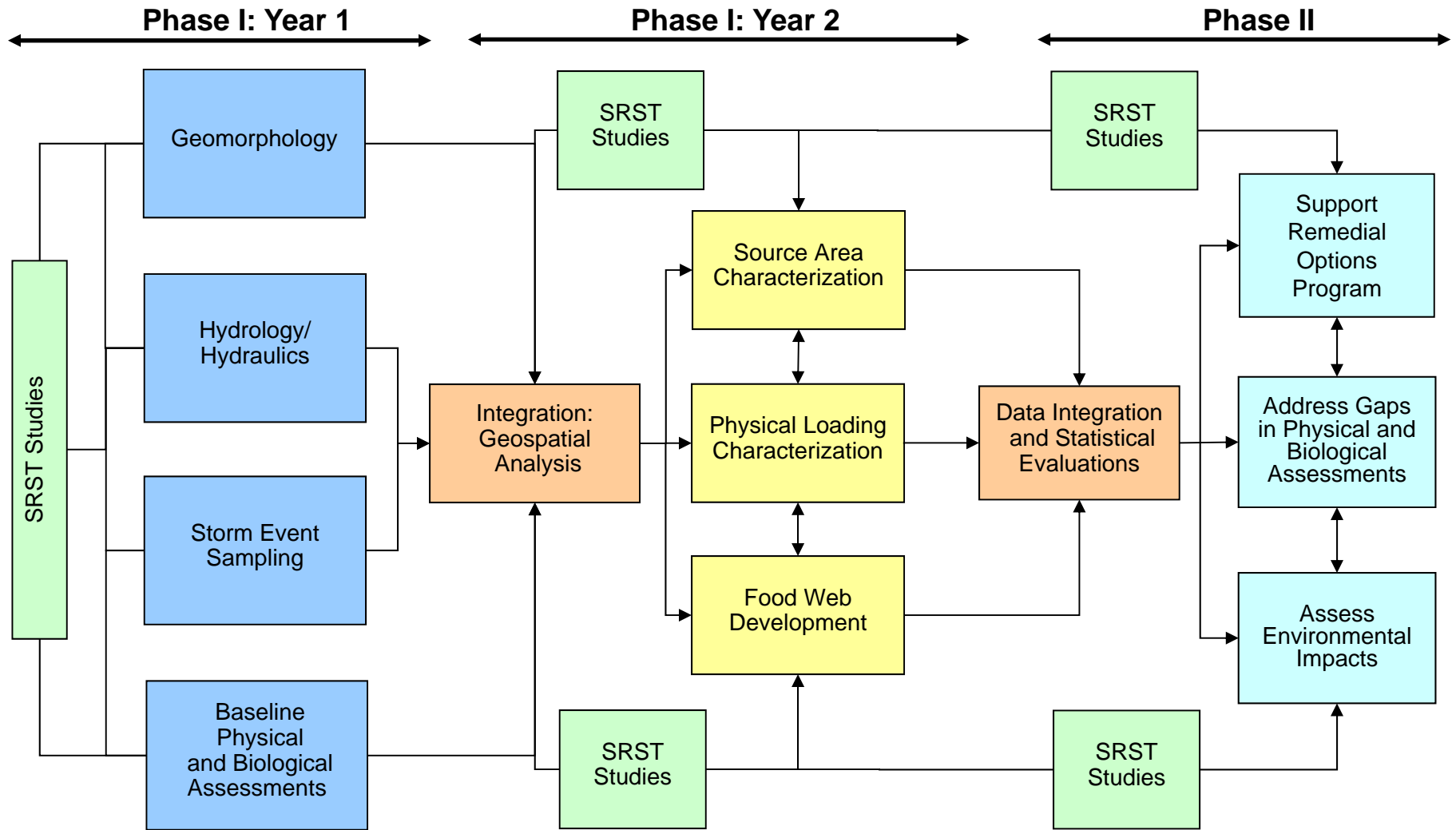


Ecological Study: Field Update

SRST Meeting: July 14, 2010



Overview: Ecological Study



2010 Work Efforts

- Support Remedial Options Program (ROPs)
- Assess potential impacts to benthic macroinvertebrate communities
- Collect and integrate various physical and biological data sets to evaluate the movement and disposition of MeHg in the aquatic environment
- Continue monitoring surface water and fish tissue

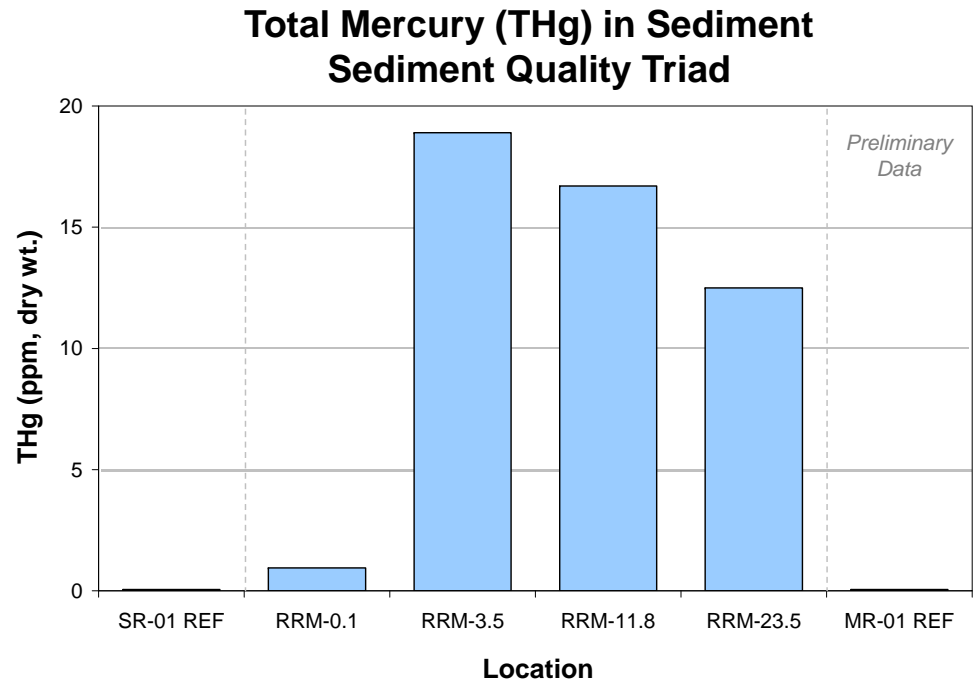
ROPs Support: Pilot Bank Post-Construction Study

- Physical data collections
 - Channel morphology, grain size, flow, and habitat
- Mercury characterization
 - Bank soil and near-bank sediment
 - Pore water
 - Seeded clam uptake



Assessing Potential Impacts to Benthic Macroinvertebrate Communities

- Reference location selection and habitat characterization
- Sediment Quality Triad
 - Sediment chemistry ✓
 - Sediment toxicity ✓
 - Benthic macroinvertebrate community structure (OCT)
- Field (*in situ*) microcosm study

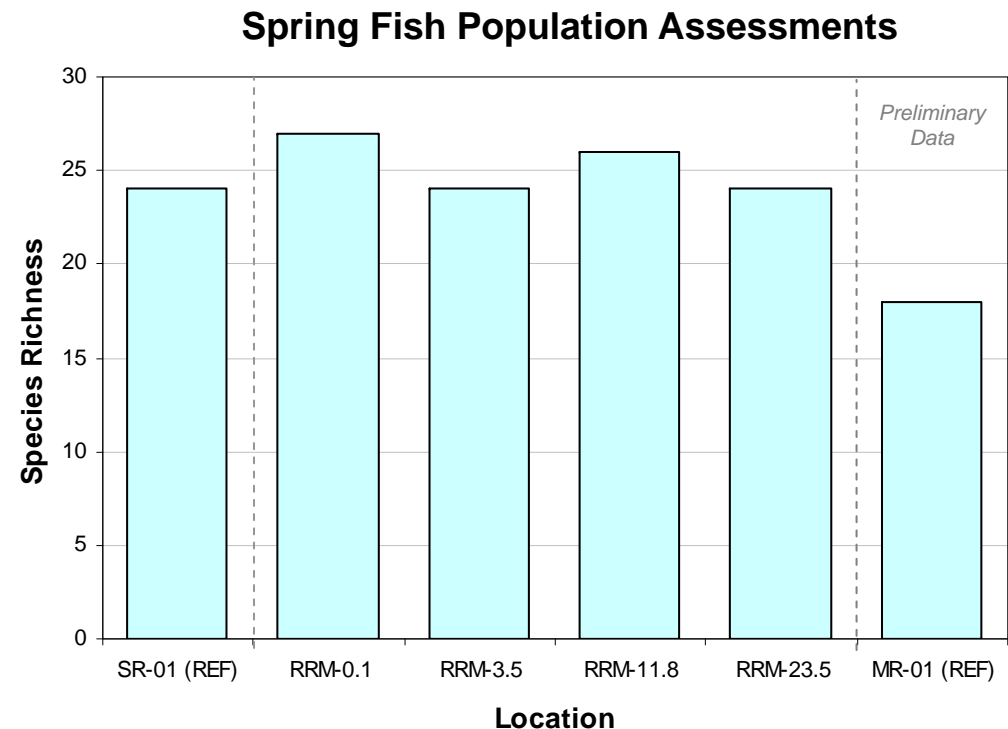


MeHg in Aquatic Environment: Fish Population, Tissue, and Diet



MeHg in Aquatic Environment: Fish Population, Tissue, and Diet

- Over 8,000 fish and 37 species collected
- 169 fish sampled for tissue
- 79 bass PIT tagged
- 213 fish sampled for diet analysis



MeHg in Aquatic Environment: *In Situ* Uptake by Aquatic Invertebrates

- Crayfish and mayfly transplanted from Middle River
- 7-day aqueous and dietary treatments at study areas RRM 3.5, 11.8, and 23.5
- Data collections at day-0 and day-7
- 100% survival for crayfish; mayfly hatching observed

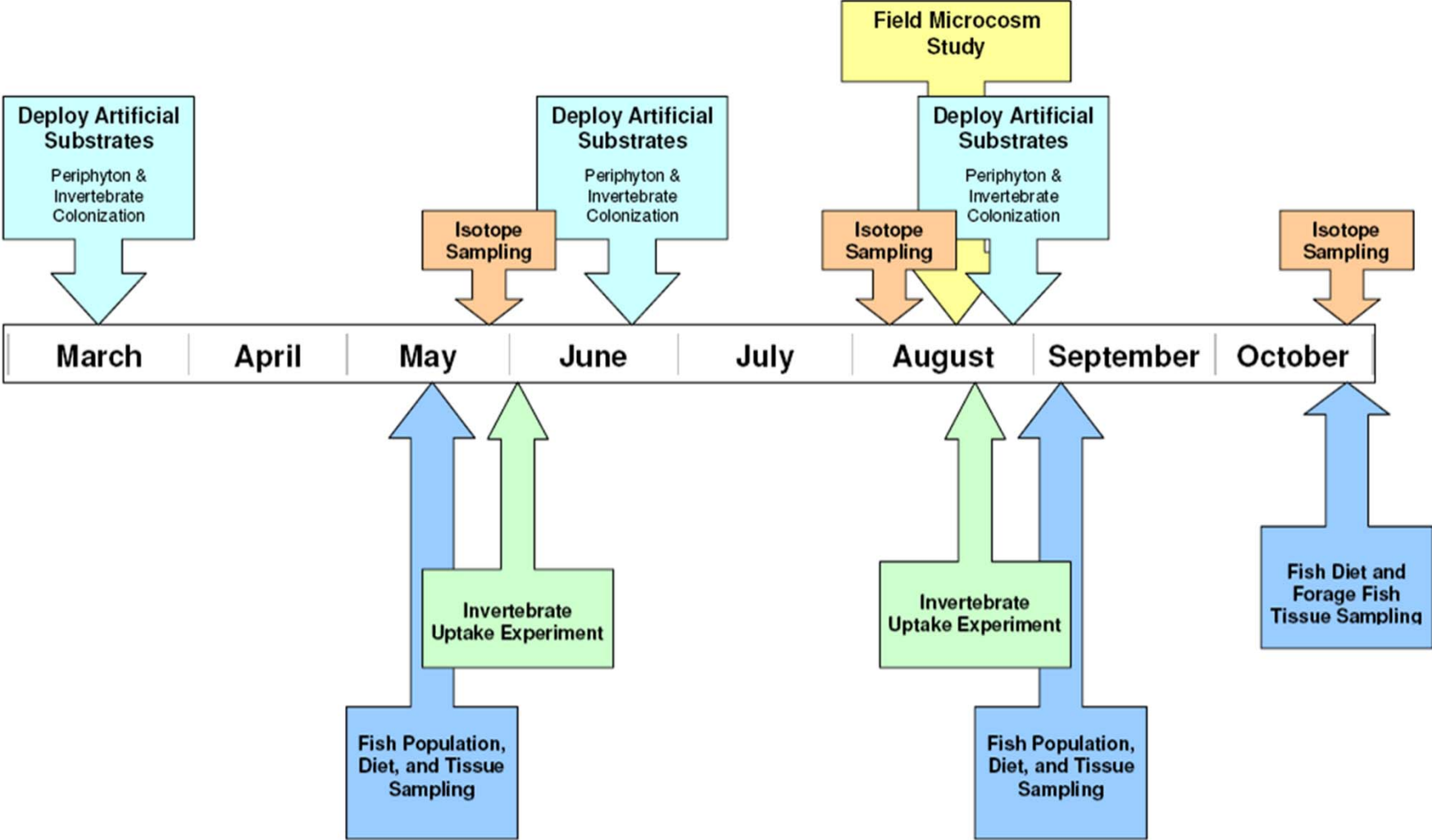


MeHg in Aquatic Environment: Basal Resource Utilization by Aquatic Consumers

- Data collections from colonized and adjacent substrates in target habitats at study areas RRM 0.1, 3.5, 11.8, and 23.5
- Collections included periphyton, SAV, leaf litter, seston, sediment/detritus, crayfish, aquatic insects, clams, and forage fish
- Data analyses and isotopic mixing models to be conducted by VIMS



Biological Studies Timing



Ecological Study Path Forward

- Data collections in late summer and early fall
- Phase II data evaluations
- Bioaccumulation and Aquatic System Simulator (BASS) Modeling
- NRDC meeting in December