

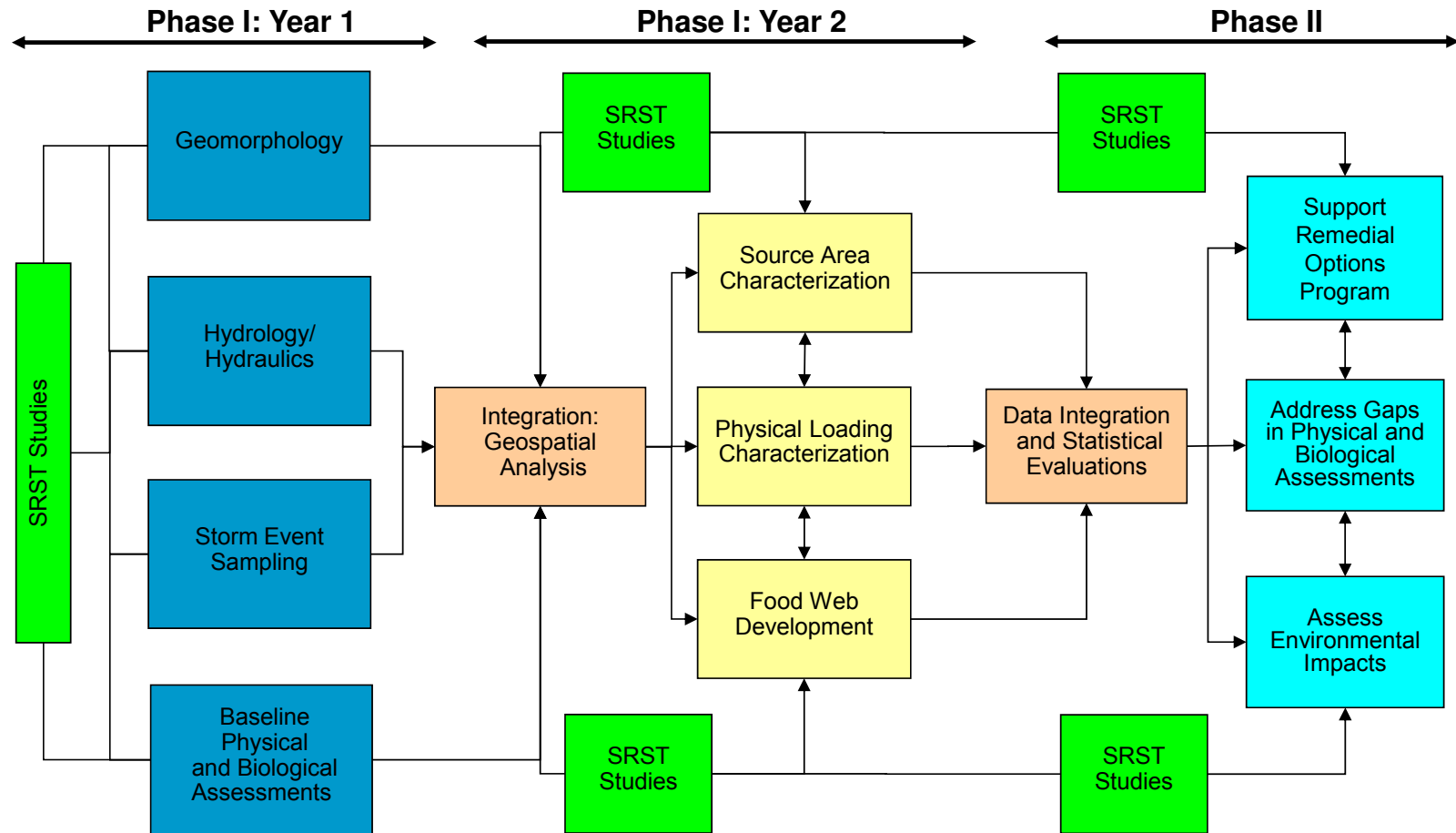
2011 Study Plans

Phase II Ecological Study



South River Science Team
April 26, 2011
Harrisonburg, VA

Study Overview



2011 Study Objectives

1. Further assess potential impacts to benthic macroinvertebrate communities
2. Further develop baseline physical and biological monitoring data sets for potential future remedial options testing

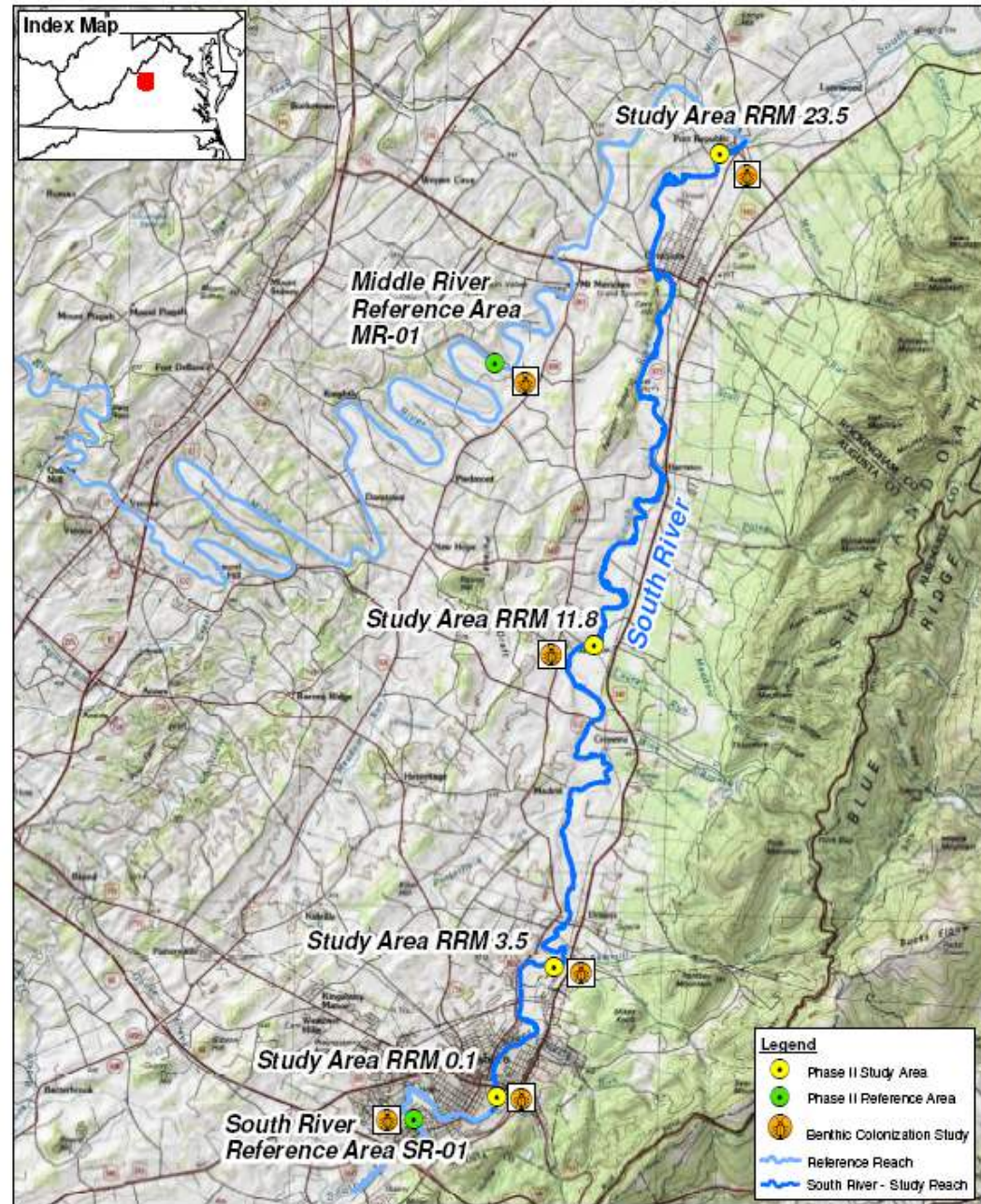
Benthic Colonization Study

Objectives:

- Assess benthic macroinvertebrate community structure and colonization dynamics along mercury gradient



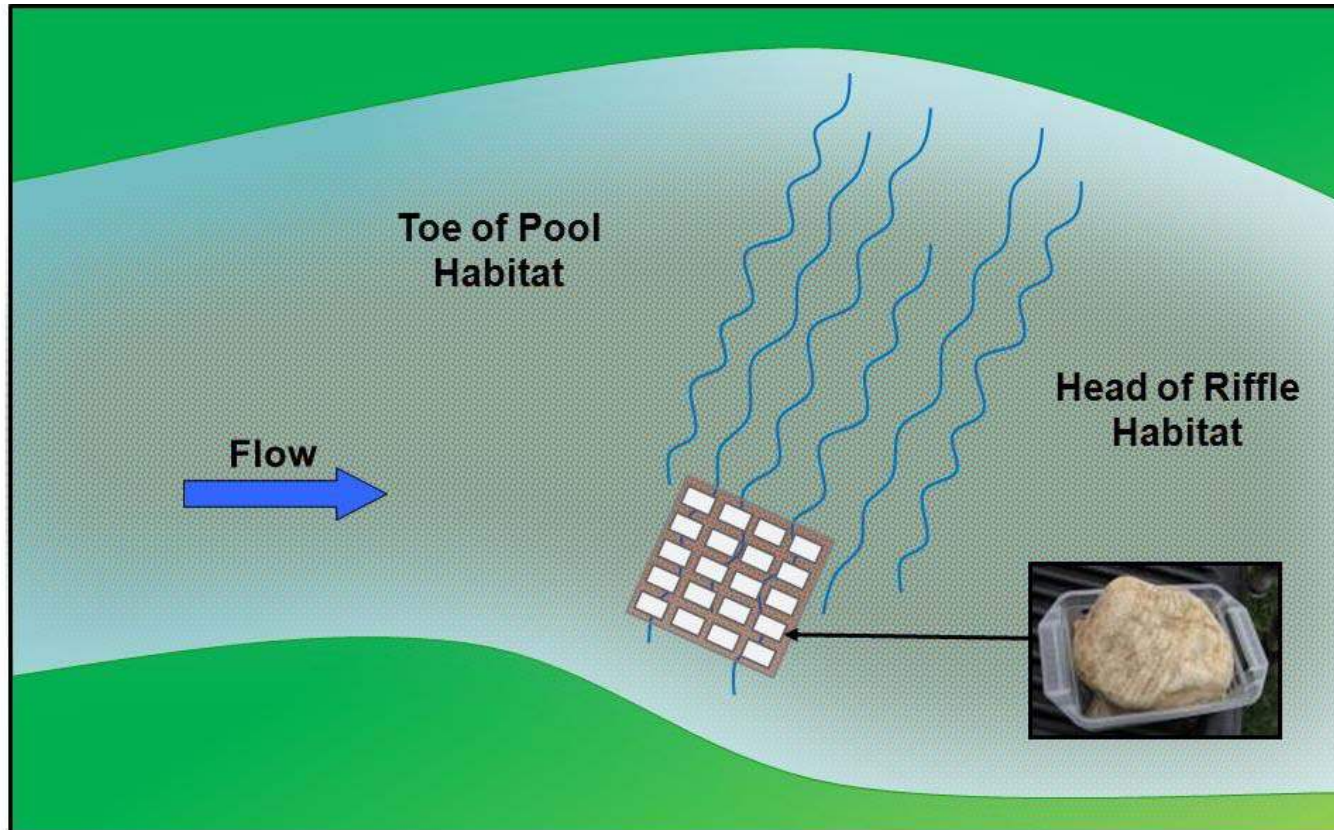
Benthic Colonization Study Locations






Benthic Colonization Study Design

- Deploy substrate trays in spring for 5 weeks
- Collect 6 trays per location at weeks 1, 3, and 5
- Sample co-located resident benthic communities and interstitial sediment at week 5
- Perform 500-organism sub-counts; ID to lowest taxa practical
- Evaluate using multi-metric and multivariate statistical approaches

Conceptual Design



LEGEND:

-  Benthic colonization tray sampling location
-  Co-located sampling area for fine-grained interstitial sediments and resident benthic community
-  Cobble / pebble / gravel substrate

Notes:

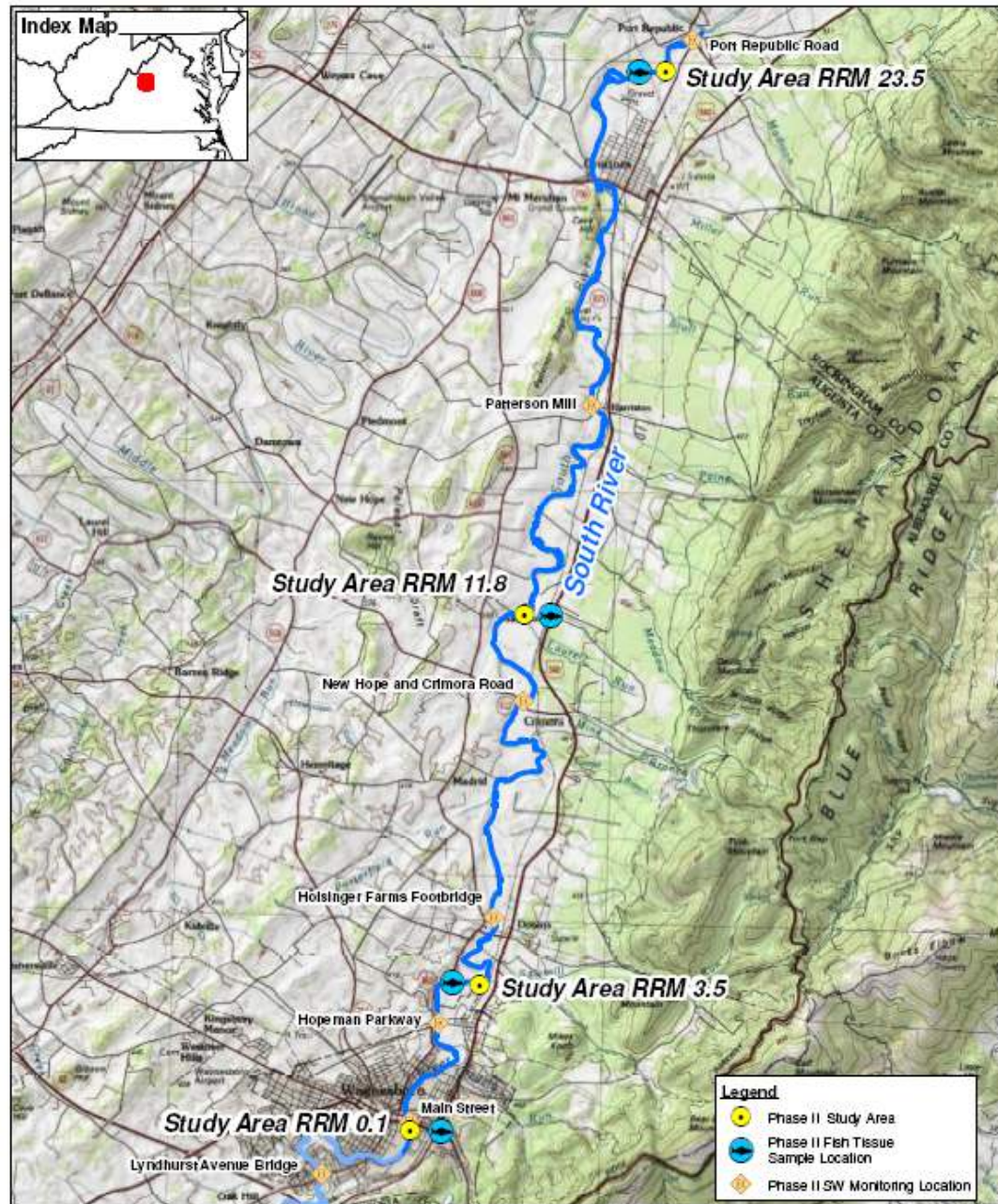
To the extent practical, all benthic colonization study sampling will take place at approximately one-quarter of the total stream width from the nearest stream bank.

Baseline Monitoring Program

Objectives:

1. Monitor surface water Hg concentrations along with VDEQ parameters
2. Monitor Hg concentrations in the muscle tissue of bass using non-lethal sampling approach

2011 Baseline Monitoring Locations



Surface Water Monitoring

- Coordinate with VDEQ efforts
- Sample quarterly at 7 bridge locations
- Parameters include TOC, DOC, TSS, cations and anions, nitrogen, phosphorous, FTHg, FMeHg, THg, and MeHg

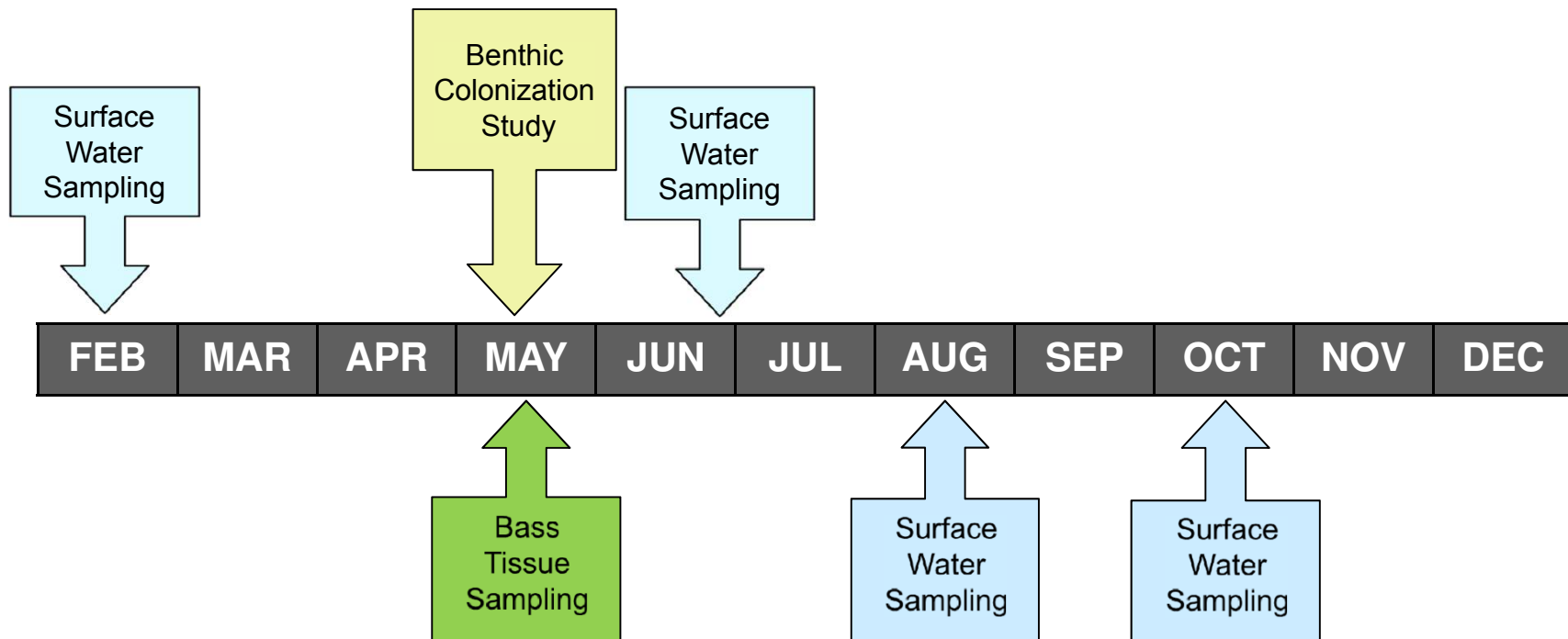


Biological Monitoring

- Assess THg in muscle tissue of black basses
 - Evaluate growth and Δ THg;
Validate BASS model
- Sample in May
- Collect tissue samples (n=30 / location) using non-lethal biopsy punch



Field Schedule



Notes:

Schedule subject to change due to weather

Next Steps

- Conduct field sampling
- Meet with NRDC on May 24
- Integrate 2011 data and continue statistical evaluations
- Draft ecological report