

**Missisquoi Bay Basin Project:
Identifying Critical Source Areas of Pollution**

**First Interim Report on Modeling
IJC Deliverable for Task 4, Subtask 2: 30 November 2010
Executive Summary**

Stone Environmental, Inc. (Stone) is the project contractor for the phosphorus critical source area modeling project, and began work in early June 2010 after workplan approval. Modeling will be done via the Soil and Water Assessment Tool – Variable Source Area Model (SWAT-VSA). The project is proceeding on schedule, per the approved workplan with the contractor for this project.

Project Status

Stone has made significant progress on four tasks, described below:

1. Construction and testing of the SWAT-VSA Model
 2. Development of Quality Assurance Project Plan
 3. Data Collection and Evaluation
 4. Model Calibration
-
1. Different approaches to developing and parameterizing the SWAT-VSA model on a sub-watershed of the Missisquoi Bay Basin, Hungerford Brook, have been evaluated. GIS tools to aide in testing of the SWAT-VSA model were developed.
 2. On August 30, 2010, the EPA and NEIWPC approved Stone's Secondary Data QAPP, which provides a framework for data collection and analysis.
 3. Stone began compiling available datasets from many partners and agencies including: topographic, land use/land cover, soil, stream channel characteristic, climate, agronomic practice, and phosphorus point source data.
 4. Observed data on flow, sediment, and phosphorus were gathered for use in calibration and validation of the model.

Challenges Encountered

Challenges include the collection of agronomic data at a field to farm scale and determining the level of spatial resolution adequate for the model. Stone will use non-site specific data to make the best estimates possible for farms and fields in the watershed. Stone is currently determining an optimal model resolution that provides sufficient detail in data outputs and is also practical for conducting watershed-scale simulations and analyses. Thus far, challenges encountered by the contractor and reported to the LCBP will not compromise the integrity of the final product.