SRST October 22, 2015

Hg Measurements

Biochar

Angler Survey

Hg Measurements – Proof of Concept

The optically-based techniques were originally developed by the U.S. Geological Survey (USGS), who successfully applied the technique to quantify mercury and methyl mercury in the San Francisco Estuary and the Florida Everglades. Integral has adapted the technique and successfully employed it to provide high temporal resolution monitoring of mercury, methyl mercury, and PCBs in surface water at the Berry's Creek Superfund site in New Jersey. Although the technique has been highly successful at these sites, pilot testing is recommended to demonstrate the potential effectiveness of the technique for monitoring mercury and methyl mercury concentrations in the South River. If successful, the pilot test potentially will provide a basis for developing an optically-based monitoring program to support ongoing characterization and remedy evaluation for the South River.

Hg Measurements - 2

The technique involves the deployment of multiple optically-based sensors, along with ancillary water quality sensors, to collect synchronous data that are associated with chemicals in surface water (e.g., organic carbon, suspended solids). The comprehensive optical and water quality measurements are correlated to analytically derived chemical data to calibrate a statistical model to reliably predict chemical concentrations over time – providing a tool to cost-effectively collect a large volume of data (e.g., high frequency data collection over an extended period of time) to support detailed characterization of system dynamics.

Hg Measurements - 3

- The instrumentation package will include the following instruments:
  - Fluorometer tuned to measure colored dissolved organic matter
  - Fluorometer tuned to measure chlorophyll
  - Backscatter sensor for measuring the backscattering coefficient (relates to suspended solids)
  - ADV[1] for measuring stream velocity
  - ac-s or SUNA to measure spectral absorption.[2]

Biochar Redeaux

- New source of biochar
- “Tailored”, Just in Time Lots
  - Binding capacity
  - Agricultural applications vs other
  - Feedstock base (manure, spent grain, hardwood)
  - Initial Studies Underway

Angler Survey

- Spring / Summer 2016
- Requirement under CD with NRDC
- Work collaboratively with DGIF (Paul)
- Conducted every 3-5 years, or less frequently if needed (previously in 2011)