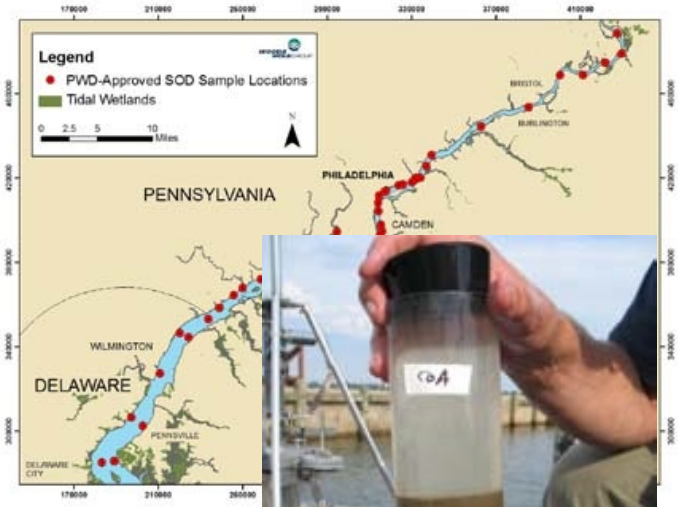
Philadelphia Water Department

Measurement of Current Profile and Water Quality Processes in Select Tidal Reaches

LOCATION: *Philadelphia, PA*
SERVICES: *Hydrodynamic Modeling & Analysis Support*



Since 2012, The Philadelphia Water Department (PWD) Office of Watersheds has begun to model water quality in the Delaware River between Trenton, NJ and Delaware City, and in the tidal Schuylkill River, in support of the Combined Sewer Overflow Long Term Control Plan Update reporting requirements. The model simulates the efficacy of CSO remediation measures on dissolved oxygen and pathogen indicator bacteria levels in the area of interest. In particular, deployment of Acoustic Doppler Current Profiler technology, measurements of key water quality processes such as sediment oxygen demand (SOD), and dye tracer study have been performed for the collection of information required for hydrodynamic and water quality modeling. To further improve the efficacy of the hydrodynamic and water quality models, the PWD contracted Woods Hole Group to collect data to calibrate and validate the PWD model. The project was split into two parts:

1. Collection of hydrodynamic and meteorological time-series
2. Seasonal and spatial characterization of SOD, and other important biogeochemical processes in the model domain.

Since 2015, Sci-Tek provided modeling support inclusive of measurements of current profile and water quality processes. Our scope of services included:

- ✓ Hydrodynamic and water quality modeling
- ✓ Analysis of observational estuarine physical oceanography
- ✓ Analysis of hydrodynamic analytical results for tides, currents, and other physical meteorological and oceanographic data
- ✓ Statistical and graphical analyses and analyses of time-series
- ✓ Assistance with biogeochemical analyses
- ✓ Extensive data analyses in MATLAB

PROJECT FEATURES

- ✓ Collection of hydrologic and meteorological time-services.
- ✓ Direct measurement of sediment and oxygen demand and nutrient flux.
- ✓ Real-time data.

Sci-Tek Consultants, Inc.