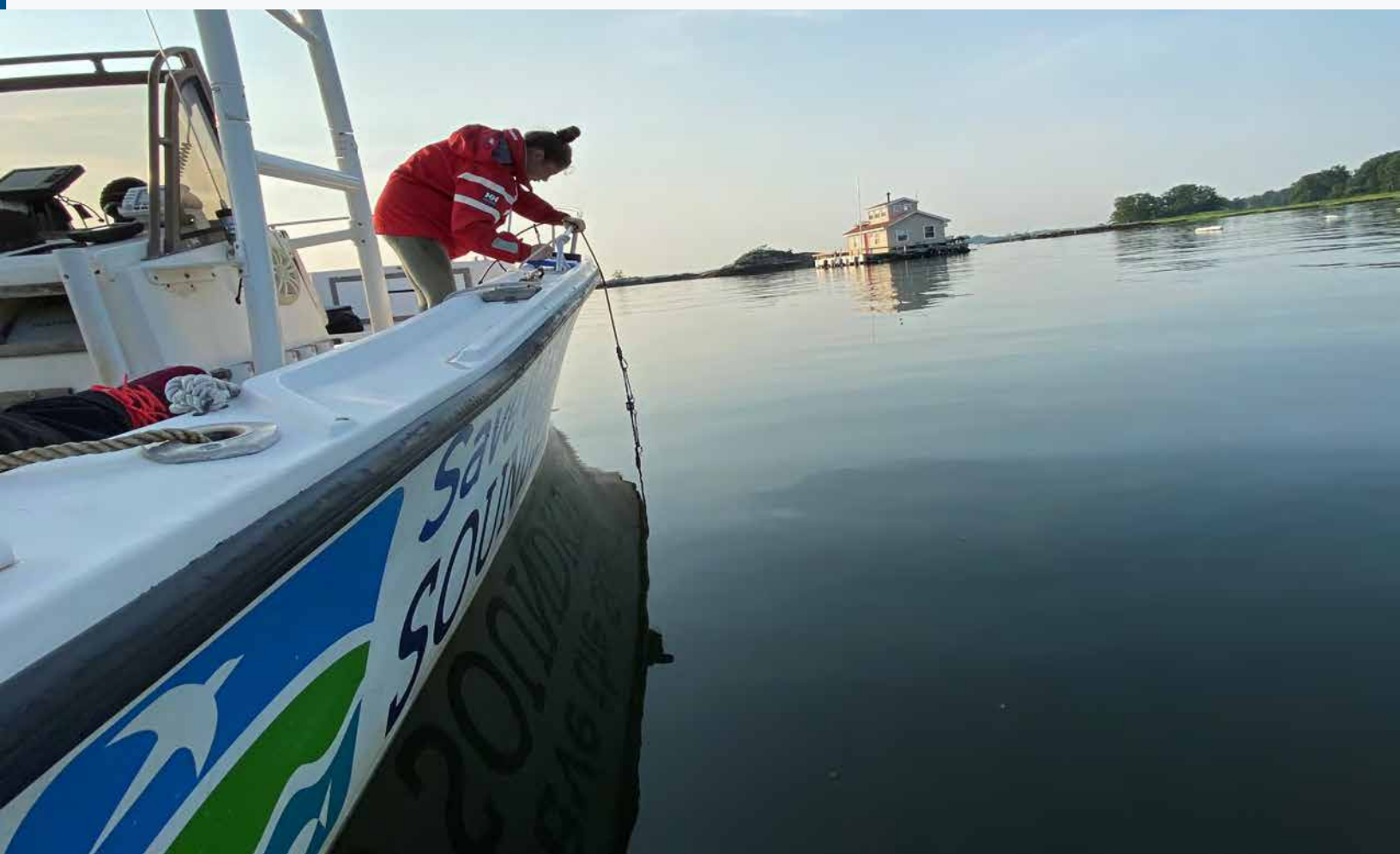


Participatory Science Data Management Case Studies

Save The Sound United Water Study



Save the Sound Unified Water Study

Improving Data Management for Participatory Science

UWS brought states, municipalities, other non-government groups, and academics together early on to establish Standard Operating Procedures (SOP) and QAPP details to make it easier to aggregate data and produce a Report Card on the health of Long Island's bays and inlets.

Project Overview & Goals

The Unified Water Study (UWS) is a program of Save the Sound (STS), a non-government organization that acts as the host for this water project. UWS, which began in 2017, monitors the environmental health of the Long Island Sound (LIS), particularly its many bays and inlets and other areas that local, state and federal governments don't always have the resources to monitor. The UWS aggregates water quality data from over two dozen groups using standardized Standard Operating Procedures (SOPs) integrated into one Quality Assurance Project Plan (QAPP). Data are aggregated by STS and shared with regulatory agencies, released to the public, and used to generate the bay grades for the biennial LIS Report Card. In addition, STS directly manages participatory science project participants as part of its Fecal Bacteria Monitoring Program. UWS receives funding from EPA.

Role of Project Participants

The UWS involves groups selected through an application process rather than individual project participants. UWS provides all equipment and supplies using the EPA Loan Program as a model. Training is provided annually followed by an audit. STS provides the first line of technical support for all equipment and procedural inquiries.

Data Management

Data collection is identified by tiers, which are defined by the measurements being collected and not the data quality. Tier 1 (baseline) measures dissolved oxygen, water clarity, temperature, salinity, Chlorophyll A, and qualitative macrophytes. The optional Tier 2 measures include continuous dissolved oxygen, nitrogen, phosphorous, and quantitative macrophytes. Tier 1 data are collected in all waterbodies and Tier 2 data are collected in a subset of the Tier 1 waterbodies. All data collected are at the same high-level quality.

A series of data sheets are used depending on the parameters being monitored. Within a week of collection, field data sheets are transferred by the participant to SharePoint. Final data is entered into project Excel templates and must be reviewed twice and signed off on before submission to STS. Following the field data sheet submission, UWS staff review scanned data sheets to catch issues as soon as possible. At the end of the season, UWS staff aggregate data from all templates and conduct a detailed quality review.

Issue:

Water Quality

Location:

Connecticut &
New York

Tools:

Measurement,
Photography &
Sample
Collection

Contact:

[Peter Linderoth](#)

Data Use

The data are used for the biennial LIS Report Card, shared with the states of Connecticut and New York for management implications, and shared with all contacts on the QAPP distribution list. The states use them for decision-making about listing and de-listing on the list of impaired and threatened waters and for reporting, including Clean Water Act assessments. The data are made available for download by year and tier on the STS website. Data are also used locally by the participating groups. STS provides UWS data to the Water Quality Exchange (WQX) annually. This open data has been used by researchers, academics and students.

Issues & Lesson's Learned

Technical issues revolve around equipment, but STS has a budget for replacement, has trained the participants to identify potential issues, and provides a high-level of direct technical support. Non-technical issues include ensuring that groups and their participants maintain the monitoring schedules that they agreed to and follow SOPs.

Outcomes & Success Factors

The work done by UWS has resulted in standardized procedures, a single QAPP and associated SOPs. UWS provides central technical support to the groups and has open lines of communication for all groups participating in the UWS. This ensures a connected network of like-minded groups around LIS.

UWS is the largest participatory science water quality data project in the Sound. UWS data are heavily used, especially by Connecticut, to produce Clean Water Act assessments. Connecticut plans to expand the use of UWS data to include Tier 2 for macrophyte coverage.

The keys to UWS success include:

- Involving a variety of stakeholders from the very beginning
- Developing the SOPs and QAPP jointly with all stakeholders
- Standardizing equipment, SOPs, QAPP and the parameters and data formats
- Communicating regularly with participating groups and individual participants
- Providing extensive technical support
- Developing two-way trust with participating groups

Opportunities

- EPA could help by bringing states and participatory science groups together to discuss the requirements of state acceptance of participatory science data and how to meet them for the desired outcome.
- Other aggregators could use the structure and approach of the UWS to integrate data around a waterbody. For example, this approach might work within a different estuary somewhere in the United States.