

## Continuous Monitoring Subcommittee

### IEC Shared Waters Workgroup and HEP Water Quality Work Group

August 27, 2020

Location: Remote Meeting

### Minutes

**Attendees:** Amanda Levy (NYCDOH), Aimee Boucher (EPA), Beau Ranheim (NYCDEP), Carrie Ferraro (Rutgers), Chris Girgenti (RIPA), Chris Schubert (USGS), Deb Kratzer (NJDEP), Emily Nering (EPA), Esther Nelson (EPA), Evelyn Powers (IEC), Greg Alber (NJHDG/PVSC), Helen Polanco (HRPT), Jason Fagel (NYSDEC), Jim Ammerman (NEIWPCC-LISS), Jim Hagy (EPA), Leah Ettema (EPA), Melissa Sinisgalli (PVSC), Mike Flood (EPA), Neel Patel (NYCDOHMH), Nicole Petersen (BBP), Roop Guha (NJDEP), Rick Lathrop (Rutgers), Riley Behrens (USGS), Rosana Da Silva (HEP), Sara Malone (Rutgers), Siddhartha Hayes (HRPT), Zach Smith (NYSDEC)

**Next Meeting:** November 19, 2020 (remote only)

#### Introductions and Agenda Overview

Rosana Da Silva welcomed the group and reviewed the agenda.

#### Program Overview: Raritan River Observatory & Ongoing Monitoring

The program works to connect students to the river through research and connections with the community. A mooring was set up by the Rutgers boathouse at the head of the tide. The Raritan River flows through 83 municipalities over 11 square miles from rural to urban communities. Over the last ten years, seven dams have been removed and significant increase in fish migration has been observed. The [RTHO](#) pulls the data into a portal that Rutgers manages and also pulls data from other sources such as USGS. In addition, transects are taken by boat from the boathouse to the mouth of the river at Perth Amboy. Data is downloadable and can also be uploaded to the system (manually).

Rick Lathrop discussed the data as part of a study on phragmite marshes for vertical accretion, which includes TSS. In addition, pathogen data is also collected on a weekly basis and uploaded to the portal; the graphs interpolate from point to point to predict flow. Sara Malone shared that the pathogen data is designed to provide the public with access to water quality data so they can make informed choices about whether to fish, kayak, swim or otherwise recreate around the water. It's part of the effort that the IEC is working to help collect. The data is also available on the local watershed association website. A QAPP is developed for pathogens, but not for the continuous monitoring station. Annually cleaning and calibration of the YSIs occur; limits due to access (middle of the channel and at the bottom) and biofouling has not been a major concern here. The continuous monitoring sonde has been active for two to three years (equipment used: <http://raritan.rutgers.edu/equipment/>).

#### Biofouling Tips and Tricks – Lightening Presentations

Evelyn Powers, IEC: As part of the Unified Water Study, the videos and trainings via Save the Sound have been very helpful to work with the HoBos. IEC goes out close to 7 days and have a biofouling guard for the DO tip, though this year biofouling has been an issue; DO tip was corroded and saw this when the data was being shuttled. Once this tip was replaced, the other logger was also corroded and needed to be completely replaced. This requires chartering a boat and loss of data for a period of time. IEC has started to bring a laptop and extra supplies on the boat to shuttle the data in real time for any glaring issues to calibrate/relaunch the loggers as needed.

Riley Behrens, USGS: Through the work in Long Island, USGS has learned a lot regarding marine biofouling. Using various monitors, deployment includes summer, fall, and winter and methods are published here: <https://pubs.usgs.gov/tm/2006/tm1D3/>. To reduce biofouling, brass stand pipes have helped and are typically placed at a structure. Wrapping sensors in cooper tape, including the probe wippers. Cooper mesh is also helpful and quicker than spray painting. When possible, replacing plastic guards with cooper or brass reduce biofouling. For the exos, wrapping individual sensors in cooper tape do help but things will eventually grow where DO and turbidity readings will be the first to be effected by biofouling. For the nitrate analyzer, USGS found that external wipers worked the best where the sensors are wiped before the reading.

Leah Ettema, EPA Region 3: West Virginia does not experience the level of biofouling that has been shared thus far, but are using a number of Hobos to ensure conductivity amongst loggers. One key take away is to record the battery life of the logger; this is helpful when assessing the data for accuracy. Failures or drift can be associated to a dead battery and this would be missed if battery life is not recorded.

Nicole Peterson, Barnegat Bay Partnership: There are three stations in the Barnegat Bay with YSIs exo2 with a deployment between June and October (2x) and November through May (4-5x). Paint and lots of tape are used to reduce biofouling. Nicole noted than taping the wiper impacts the data and began to layer tapes starting with packing tape, duct tape, and ending with copper tape. Wipers always seem to fall out, no matter how tight it is placed. Copper mesh around the entire guard has been helpful to prevent little critters from living in the guard. To deal with coastal acidification, BBP created a PVC frame and decking material to cradle sondes between piles to move with the tides. PO2 pumps do get clogged, but the copper mesh and tape around the pump, including the head, do help to reduce biofouling.

Siddartha Hayes and Helen Polanco, Hudson River Park Trust: There are two sites that HRPT monitors and works closely with USGS. With solar panels to charge the sondes, building shadows need to be considered. YSI also provides tips that have been very helpful to deal with biofouling - <https://www.ysi.com/File%20Library/Documents/Tips/E108-Antifouling-Tips-Book.pdf>. Typically go out every 4-6 weeks to calibrate sondes, 4 in the summer, but always bring scrubs, toothbrushes, qtips, and silicone gel to clean sondes when calibrating.

James Hagy suggested that he may provide photos of the tape/saran wrap approach to protecting in addition to an ePaint. It is an antifouling paint that does not include copper and presents less of a workplace hazard. James also suggested reaching out to Joe Meiman from the National Park Service who created an impressive anti-fouling system. Success has also been see with electrical tape, plastic wrap, electrical tape again, and followed by anti-fouling paint helps to reduce biofouling and reduces the cleanup (just need a razer). Making a paste with Vaseline and cayenne pepper can also be added to areas where you are seeing fouling and seems to help.

Rosana Da Silva discussed whether the group felt a need to pulling these recommendations into one guide. Esther Nelson agreed that this would be helpful with photographs along with capturing length of time in the water, salinity, and biofouling.

**Group Priorities and Next Meeting agenda topics**

Rosana Da Silva shared that the survey has been updated with additional responses provided since the last meeting. The updated survey presentation will be shared via email and everything in red is indicative of newly added items. The map has also been updated to include new stations (LIS) and is available by [clicking here](#).