

Continuous Monitoring Subcommittee  
IEC Shared Waters Workgroup and HEP Water Quality Work Group  
November 13, 2019

Location: Hudson River Foundation

**Minutes**

**Attendees:** Amanda Levy (NYCDOH, remotely), Anand Kumaraswamy (NYCDEP), Brent Gaylord (EPA), Carrie Ferraro (Rutgers, remotely), Carrie Roble (HRPT), Charlie Dujardin (NJHDG, remotely), Cheryl Yao (MERI, remotely), Chris Girgenti (RIPA), Chris Schubert (USGS), Darvene Adams (EPA, remotely), Esther Nelson (EPA, remotely), Evelyn Powers (IEC), Helen Polanco (HRPT), Jackie Wu (RIPA), Jason Fagel (NYSDEC, remotely), Jessica Bonamusa (IEC), Jim Ammerman (NEWIPCC-LISS), Joe Grzyb (MERI, remotely), Katie O'Brien (CTDEEP, remotely), Matt Lyman (CTDEEP, remotely), Melissa Sinisgalli (PVSC), Mike Dulong (Riverkeeper), Paul Morton (NJDEP, remotely), Peter Linderth (Save the Sound, remotely), Phil DeGaetano (remotely), Rachael Graham (EPA, remotely), Bob Schuster (NJDEP, remotely), Roop Guha (NJDEP, remotely), Rosana Da Silva (HEP), Sara Malone (Rutgers, remotely), and Zach Smith (NYSDEC-HRECOS)

**Next Meeting:** TBD

**1. Introductions and Agenda Overview**

Evelyn Powers opened the meeting and reviewed the agenda.

**2. Goals of Continuous Monitoring and Discussion**

Rosana Da Silva provided an overview of the Environmental Monitoring Plan and the key recommendations and priorities that were identified in developing the plan with the technical work groups. The plan was found useful to Evelyn Powers in developing IEC's workplan for FFY 2018 and FFY 2019 to support regional water quality monitoring needs. Evelyn and Rosana opened the discussion to the group on how to frame the focus of this subcommittee. The following are key topics and questions that were discussed:

- Spatial extent of continuous monitoring – How do we expand monitoring? Where are existing gaps that have limited to no information? How do we pair gaps with water use? How do we fill in these gaps? How do we prioritize them and build upon programs?
  - Discussed gaps include East River, Kill van Kull, Arthur Kill, Upper New York Bay
- Methodology and Protocols – How are programs different and what are our method challenges? What are the differences or similarities in program goals? Where do our goals overlap? What equipment is being used? How could co-locating equipment help to cross calibrate the different sondes/probes being used?
  - Goals – Are we looking at water quality in general or water quality for recreational use? How will the data be used – public awareness? Support stewardship? TMDLs? Drive regulatory standards?
  - Parameters – What is everyone measuring? What we know and what do we want to understand?
  - Equipment – What are the pros and cons of using one system to the next? Tips or strategies in utilizing different equipment in the field or calibration?

- Maintenance – Hindrance to expanding programs, how can we establish partnerships to help with maintaining equipment once deployed? How to address calibration issues?
- Data Management – How is everyone managing their data (storage and sharing)? How do we create data sets that are accessible and credible? How are we displaying data and are their existing or new tools that will be available in the future? Is our data comparable to one another?
- Citizen Science – What is their role?

The group concluded the discussion on a need to conduct a survey to help identify overlaps and needs of the group. The survey will look at pulling information based on the discussion notes and any additional questions submitted by email from the group. There are efforts working on data management and how we could perhaps use existing programs to store continuous data. USGS is working on a continuous data portal for the country, though more information will be coming later as the team progresses.

**Next Steps: (1)** All participants to provide specific questions or comments they would like in the survey. Rosana and Evelyn will develop a survey and release to the group. The survey results to be used to develop future meeting agendas. **(2)** EPA will look into WQX portal update to allow the upload of continuous data (not a new database, but one that links within WQX)

### 3. Network of Existing Station Locations

Rosana Da Silva shared the Environmental Monitoring Plan's Monitoring Inventory and Interactive Map that can be used as a tool to capture existing stations and where data is being hosted. This tool can be used as an intermediate step while we wait to hear about improve data management tools. The tool can be accessed here: <https://www.hudsonriver.org/hep-emp/>

### 4. Program Overview: HRECOS, Zachary Smith, HRECOS Coordinator, Hudson River Estuary Program

Zachary Smith provided an overview of the HRECOS program and displayed the new USGS-developed dashboard. The features allows data exploration spatially, with multiple parameters, and query the data in real time. There are also educational dashboards at some of the stations. HRECOS has transition to using EXO2 that allows for smart censoring though it is costly – beyond equipment, costs increase for replacements, sensors (lifespan 1 year), modem, data logger, and labor. An extra EXO2 is required for calibrating. For QA, USGS costs are \$10,000 per station which does limit the ability for partners to obtain long-term funding outside of applying for equipment costs. Cost fatigue is an issue, especially in marine environments. There is a greater need to be thoughtful on how resources are used to upgrade systems and on-site calibration (labor intensive). USGS's QA process applies corrections to address any bias, and what is displayed on the dashboard are corrected values (these are not flagged on the dashboard). Key questions: What questions can these probes address? Do we need to measure all year long or what are the key months?

### 5. Program Overview: USGS Continuous Monitoring Network, Chris Schubert, Program Development Specialist, USGS New York Water Science Center

Chris Schubert spoke about efforts in New York for which USGS is interested in understanding short-term effects of stormwater. A tide gauge map was shared which includes the number of gauges that are collecting water quality data and/or weather data in 6 minute intervals (near bottom, as possible). Partnering with USGS, costs need to be considered at station design. Per USGS's guidelines, stations need to withstand the 20-year flood and ideally, would like to collect data all year round and as close

to mid-channel as possible. USGS's goal is for the data being collected meets a publication level of confidence and is outlined in the TM D1-03. Continuous monitoring allows for seasonality in the data, when assessing the data the Mann-Kendall trend test is needed to correct the seasonality, but not as simple as analyzing discrete sampling. USGS is interested in moving towards collecting different algae levels to understand water column dynamics. Jim Ammerman pointed out chronic hypoxia in the west end of the LIS and the East River exists, and a need for nitrate sensors and ADCPs to explore what is happening in the waters. Evelyn Powers indicated that IEC does weekly discrete sampling weekly in the area during the summer and that NYCDEP does have a monitoring station in the Harlem River near a constructed tidal wetland. Peter Linderoth discussed the flat lines found in Eastchester Bay which they found the waters to be fine but unsure of the cause (could be CSO-related). The group discussed the HOBOS which are cheaper, but Peter has found he has been needing to check and calibrate them weekly.

## **6. Reflections**

Rosana Da Silva refocused the group and asked if the subcommittee meeting was helpful and how this group can be best used to support existing programs. All agreed that meeting was beneficial and would like to have more time for questions/discussions on key issues. Quarterly meetings, two face-to-face and two remotely, were preferred and should be aligned with field season. Esther Nelson suggested hosting from two locations may be helpful for in-person meetings while rotating with WebEx. Participants enjoyed learning about the different programs and would have preferred them in the beginning of the meeting. Peter Linderoth, Bob Schuster, and Anand Kumaraswamy indicated they would be interested in providing updates on their programs.

Jim Ammerman indicated that LIS's Science and Technical Advisory Committee will be meeting this Friday at Stony Brook to continue discussions on the continuous monitoring efforts happening in the LIS. Anyone from the group is welcome to join, in person or remotely.

All were supportive of sending out a survey to compile the needs, goals, databases, and ongoing efforts. Potential topics for future meetings will be explored from #2, though any recommendations are welcomed at any time.