

**Water Quality Monitoring Work Group
TEAMS Online Meeting
September 15, 2022 – Meeting Summary**



Attendance

Casey Abel—EPA
Jim Ammerman (Chair)—Long Island Sound Study (LISS)/NEIWPCC
Robert Burg—LISS/NEIWPCC
Melissa Duvall—EPA
Michele Golden—New York State Department of Environmental Conservation (NYSDEC)
Jim Hagy—EPA ORD
Ben Lawton—EPA ORISE
Peter Linderoth—Save The Sound
David Lipsky—New York City Department of Environmental Protection
Michelle Lapinel McAllister-- Coalition to Save Hempstead Harbor
Jon Morrison—United States Geological Survey (USGS)
Katie O’Brien-Clayton—CT DEEP
Elizabeth Hornstein—NY Sea Grant
Jim O’Donnell—UConn
Beau Ranheim—NYCDEP
Sarah Schaefer-Brown—New York Sea Grant
Paul Stacey—Footprints in the Water
Kelly Streich—CT DEEP
Cayla Sullivan-- EPA, LIS Office
Jamie Vaudrey—U Conn

Jim Ammerman started the meeting with a few announcements.

1. The abstract submission deadline for the National Water Quality Monitoring Council Conference, to be held next April in Virginia Beach, VA, has been extended to September 30th. I have session on management success in estuaries to be convened along with Jim O’Donnell and Katie O’Brien-Clayton. Marcus Beck from the Tampa Bay NEP has said that he will submit an abstract.
2. The Coastal and Estuarine Research Foundation (CERF) Session Proposal submission deadline, originally September 19th, has now been extended to September 26th. The meeting will be in Portland, OR, in November of 2023.
3. Jim also mentioned two recent articles in the New York Times about Robert Bullard, the father of environmental justice, and a recommendation by the organization Seafood Watch that lobster be avoided because the lines used in harvesting them can entangle the critically endangered North Atlantic right whales.

Review of WQMWG Priorities: Jim Ammerman began with a PowerPoint of work group (WG) priorities that he had distributed earlier. He briefly reviewed several introductory boilerplate slides and then reviewed the WG-related projects funded last year which will need to be monitored going forward. These include: 1. data management including the USGS data clearinghouse, 2. acidification monitoring in collaboration with the Watersheds and Embayments WG (WEWG), 3. developing a monitoring strategy for the upper basin states, 4. improving LISISCOS telemetry, 5. the replacement of the R/V Dempsey, and 6. an initial year of pathogen monitoring.

Jim O'Donnell asked about future funding for glider surveys, as the currently underway glider deployment was funded previously as a demonstration project. Jim Ammerman guessed that there would be some further funding but could not remember for sure.

Jim Ammerman continued quickly with a list of Implementation Actions (IAs), including four always important to the WG about continuously updating science needs and improving the ability of monitoring and modeling data to manage LIS. He then reviewed IAs related to the projects listed above including improving data management, monitoring coastal acidification, developing an upper basin monitoring strategy, improving LISISCOS telemetry, replacing the R/V Dempsey, and beginning pathogen monitoring.

The WG then began to review the priorities for next year, starting with data access. Melissa Duvall talked about the challenges of getting LIS data from EPA's Water Quality Portal (WQP). She found it hard to know what is available and, in some cases, had to reach out to individual data collectors to get access. When retrieving data from the WQP you often get either too much or too little data and when data is missing it is not clear that is because it is no longer collected or just not available. The new USGS data clearinghouse may help with these problems it will require buy-in from LISS partners as LISS does not collect or store any data itself. Additional efforts to improve access will clearly be needed. Jim Ammerman mentioned that data management will be a major topic at the upcoming management committee meeting and data access is also a related issue. Jim asked Melissa to elaborate on her prior suggestion that data collectors post a second copy of their data on another public website, many such databases are now available. She replied that this would improve long-term data storage and access and eliminate the need to request the data for individual collectors.

Peter Linderoth mentioned that their Quick Drops data platform is far along, and they have successfully ported data over to EPA's Water Quality Exchange (WQX), a major part of that platform's goal. It will help diverse community groups to get their data into WQX, a challenge for many of them, and should be ready for full release in late fall or early winter. He mentioned that it has storage, visualization, and retrieval capabilities and he can report on it in more detail at future meetings. Groups can also incorporate widgets on their website which link to the database. In response to a question from Melissa, Peter added that he has also talked to CT DEEP, IEC, and LINAP about potential use by regulators as well as community science groups. Separate training programs are also being planned for the two different groups. Melissa

mentioned that even EPA does not recommend WQP for coastal acidification data, particularly continuous data, and Peter agreed about continuous data, but said that Quick Drops was being developed to work correctly with time series data.

Jon Morrison mentioned that this is a big topic which has previously been discussed at length. He suggested that one overall database would not work. Data storage and a plan for making that data publicly available should be the obligation of each group collecting data and a data management plan should be part of their initial proposal. The first step of the USGS data clearinghouse project will be developing an inventory of what is available, understanding the different types of data, and continuing discussions of the best way to serve that data. Peter said he would supply Jon with the survey results from community groups which should help USGS develop their plans. Jon mentioned that USGS was currently completely restructuring their database effort and that he was heavily involved.

Jim O'Donnell said that he proposed a database when he was on the management committee four years ago that went nowhere due to lack of funding and opposition from those who did not see the need. With more projects currently funded he is now getting numerous requests for his data, and he build a system for data sharing in the past from NOAA funding before the creation of ERDDAP. EPA funding has supported deployment of the buoys but not data access. The previous data access system was abandoned because it was no longer supported, and the system was moved to ERDDAP. ERDDAP is a good system but requires detailed metadata and with multiple buoys each with many instruments deployed for 20 years, it has been more of a challenge than expected. NOAA has provided funding to put the most recent data in ERDDAP which is powerful but not simple. Jim plans to continue with ERDDAP and will provide others with his data as he can but will not take staff off another project just to do that. He stated that somewhat should be supported at UConn for a year or two get all the older data in ERDDAP. Jim briefly showed recent bottom dissolved oxygen data from the Execution Rocks and ARTG buoys, graphed quickly on ERDDAP, as well as the track and data from glider Bill in the western Sound. WQX does not work for continuous high-volume data and even ERDDAP does not work for well with ADCP and HF radar data, where Jim uses THREDDS. He plans to continue with these systems for the next 3-5 years and incorporate legacy data when possible. During his recent hypoxic volume project, he also recovered important hypoxia data from the late 1980s, which was before any nitrogen removal from treatment plants.

Paul Stacey said that he thought this meeting was preparing for the Management Committee meeting which will focus on how we connect science to management and where we are going in the future, but he did not see this here. He also saw nothing about better connecting and integrating the various work groups, including Climate Change and Sentinel Monitoring. Beau Ranheim mentioned that data management was a recurring problem, you need a dedicated data manager and 20 years of funding. His data manager recently left and though he has a long time-series of data that is publicly available, he is not happy with how it is presented. Jim O'Donnell said he was at least glad to see that others are concerned about this issue which he has focused on for a long time.

In a related issue, the recent additions of Dr. Melissa Duvall and Ben Lawton to the EPA LISS (Ben as an ORISE Fellow), provide new opportunities for data analysis projects, making the data availability issue discussed earlier even more important. Katie O'Brien-Clayton previously had suggested more focus on biology, for instance the phytoplankton and zooplankton data collected by UConn should be further analyzed. Jim Ammerman asked Melissa what she was focused on, and she replied that she was trying to synthesize across data sets but was still getting access to them. Cayla Sullivan mentioned that the phytoplankton and chlorophyll data was mentioned at the Climate Change and Sentinel Monitoring Workshop in June but there was no trend analysis of the data and that could be a good collaborative project among work groups. Melissa added that this analysis could be relevant to the HDR and their parameterization of the water quality model.

Cayla briefly described the water quality management tool, funded by EPA, and currently focused on using LIS water quality data and satellite imagery to better manage eelgrass along with EPA Region 1 and ORD. Ben Lawton is bringing that data together and determining embayment-specific eelgrass drivers to help us determine next steps. It does not necessarily involve restoration but may result in a water quality improvement project in a specific embayment. Ben mentioned that he was excited to be part of this project and responded to Paul by stating that he hoped to apply some new analysis methods to this data to provide additional insights. Paul repeated his concern about connecting the data analysis to management goals and ecosystem targets and Jim O'Donnell responded that this monitoring data was fundamental to showing that the management actions were working, such as reducing nitrogen loading to reduce hypoxia. Paul replied that we are not using the monitoring data to develop new ecosystem targets, which he said had not changed since the TMDL of 20 years ago, though lots of things had changed due to climate change and we have not adjusted our direction at all. Jim O'Donnell responded that perhaps additional issues need to be addressed but the monitoring data was vital to demonstrating the past management efforts were worth the expense.

Jim Ammerman then turned to Environmental Justice (EJ), which was the focus of most of our June meeting. EJ will be further discussed at the Management Committee meeting and the EJ RFA deadline was this week, and it is time for this WG to move forward with concrete steps to implement some of ideas previously discussed. The question for this meeting is whether there are specific funding needs that we must go forward. Hearing no additional comments, Jim invited Robert Burg to discuss communications issues.

Jim Ammerman introduced the topic by noting that the WG could increase its communications role by posting recent monitoring data on the LISS website, which is not currently done, though it is distributed by email. Robert mentioned that a recent CAC meeting asked all the work groups work more closely with LISS communications to increase their outreach. He stated that he agreed with this and wanted to work with the WQM WG but that the communications staff was currently too small to reach out to all the work groups. Rob mentioned the communication

of the hypoxia summary and suggested that the hypoxia forecast being developed for LIS could be communicated before the summer, as are the hypoxia forecasts for the Chesapeake Bay and Gulf of Mexico. He also mentioned increased articles and blog posts for the website and newsletters, such as a recent article on the “Respire” project and highlighting the Unified Water Study. Reporting on our indicators could also be improved as well as keeping them current. Robert concluded by stating that the water quality monitoring webpage needs to be updated and that communications can work with the WG on any topics to be highlighted to the public, he invited questions and comments.

Jim Hagy responded that ORD has provided some support for the hypoxia forecasting project to be used principally as a communications tool and will consult with Rob. Peter Linderoth asked Rob if he had been in contact with David Seigerman, a new communications staff person in the Save the Sound New York office. Rob said he had not, though he knew the previous staffer, so Peter said he would connect them and encouraged collaboration. Rob said that LISS was introducing a new work group this year, called Communications, Outreach, and Engagement; and Peter thought that David would be a good fit for the group. Jim O’Donnell also suggested including Katie Lund, the CIRCA outreach person with a lot of experience with resilience issues in the new work group. Jim also added that CIRCA was having a Superstorm Sandy decadal anniversary on October 28th and Rob said he would be in contact as the LISS wanted to do some social media on Sandy.

Jim Ammerman then listed several projects which overlap with other work groups, including acidification monitoring with Watersheds & Embayments (WEWG), upper basin states monitoring with Nitrogen Coordination, etc. Jim asked Cayla if this WG needed to assist those working to increase LIS eelgrass with improving water quality in certain eelgrass-favorable habitats. She responded that the LISS is developing an eelgrass management plan and one potential action item would be updating the habitat suitability model with new parameters that are not presently included, such as temperature, nutrients, and climate change parameters, some of which have data gaps. Bathymetry information, for example, is limited, especially in shallow waters, though the National Resources Conservation Service (NRCS) is working on that in Connecticut. It is currently unclear whether enough data is available to update the habitat suitability model and it may require additional data collection and monitoring. A second possible action item would be to initiate continuous monitoring of certain parameters in selected eelgrass beds to better understand current conditions. The habitat WG included some eelgrass recommendations among their priorities and further discussion among work groups is warranted. Jim O’Donnell added that monitoring edge environments is important for seagrass and other things and asked about the NRCS activities mentioned. Cayla replied that they were mapping subaqueous sediments in shallow water and including side-scan sonar bathymetry measurements.

Jim Ammerman asked Jamie Vaudrey to speak about the new Connecticut National Estuarine Research Reserve (CT NEER) and whether it had activities that this work group could help with or collaborate on. Jamie replied that the short answer is yes, but not right now. They are

currently establishing the program and hiring staff, but in October and November they will be forming committees, including monitoring and research related ones. They are a much smaller program than the LISS and have specific monitoring projects that they must conduct with little flexibility. They have four monitoring stations that will be installed in the reserve and are coordinating the locations with USGS, LISICOS, and other programs. They will also be monitoring marshes and seagrass and are coordinating with the appropriate groups and may establish a SeagrassNet site. In response to a question, Jamie confirmed that that she is the Research Director and they have extended the reserve further east to Ram Island, so that it now includes most of Connecticut's seagrass as well as some additional embayments. It also includes both the lower Connecticut and lower Thames rivers.

Brief Review of Summer 2022 Monitoring: Jim Ammerman reviewed the PowerPoint presentation on summer 2022 monitoring that he presented to CAC the previous week. Katie O'Brien-Clayton confirmed that the peak in hypoxic area was the 87 square miles measured on the August 1-3 cruise. This was less than last year's hypoxic area but the 5-year running average was basically unchanged. The Execution Rocks buoy showed the frequent bimodal oxygen minimum near zero with a ventilation event in between. Jim Ammerman then showed recent glider data from Jim O'Donnell, who stated that "this was the first glider deployment in LIS funded by the LISS". Jim said the purpose of the glider deployments was to measure the variability in dissolved oxygen profiles, which was large over short glider tracks, for estimating the uncertainties in hypoxic area and volume calculations from ship surveys. Jim also said that this and past LIS glider deployments demonstrated that they can be effective in shallow waterways with rapid tidal currents and high ship traffic, though announcing their presence to mariners in advance is advisable.

Jon Morrison showed some continuous dissolved oxygen (DO) data from both upstream and downstream in the Norwalk River Estuary, from both surface and bottom. He concluded that the estuary was stressed as there were periods with zero DO alternating with values over 20 mg/l, or 300% saturation. Overall, it was a warm, dry, summer with sustained periods of DO below 5 mg/l. Peter Linderoth mentioned that the Unified Water Study (UWS) also monitored Norwalk Harbor and the Save the Sound (STS) 2020 report card gave the inner harbor an "F" grade. He suggested that USGS should show their data to the Norwalk mayor's water quality committee, as STS had done, based on its UWS data.

The meeting adjourned at 10:30 AM.