

**Water Quality Monitoring Work Group
TEAMS Online Meeting
June 7, 2021 – Meeting Summary**



Attendance

Jim Ammerman (Chair)—Long Island Sound Study (LISS)/ NEIWPCC
Carol DiPaolo—Coalition to Save Hempstead Harbor
Richard Friesner—NEIWPCC
Alex Huddell—ORISE/EPA
Peter Linderoth—Save the Sound (Congratulations on your new family member!)
David Lipsky—New York City Department of Environmental Protection (NYCDEP)
Matt Lyman—CT DEEP
Jon Morrison—United States Geological Survey (USGS)
Esther Nelson—EPA
Katie O’Brien-Clayton—CT DEEP
Jim O’Donnell—U. Conn.
Leah O’Neill—EPA
Evelyn Powers—Interstate Environmental Commission (IEC)
Beau Ranheim—NYCDEP
Paul Stacey—Footprints in the Water
Kelly Streich—CT DEEP
Cayla Sullivan-- EPA, LIS Office
Mark Tedesco—EPA, LIS Office

Agenda

1. 2021 Monitoring Update
2. Presentation by Cayla Sullivan on Proposed Microplastics Monitoring
3. Potential additional discussion of LIS Chlorophyll *a* discontinuity

2021 Monitoring Update

Matt Lyman stated that CT DEEP’s normal monitoring was underway with two seasonal employees hired and five total staff on the boat. Due to COVID protocols no collaborators are presently allowed onboard though that may change later in the summer. CT DEEP is also conducting its regular fish trawl surveys which were not done last year. The National Coastal Condition Assessment (NCCA) surveys at 60 embayment sites are also continuing.

Beau Ranheim said that NYCDEP had no COVID restrictions but their main boat was currently under repair and they were using smaller boats for monitoring, at least until next week.

Jim O’Donnell provided an update on the LISICOS buoys, and said that the ARTG, Western Sound and Central Sound buoys were currently deployed. The Execution Rocks buoy is being

deployed as we speak. LISICOS is also changing the cell phone modems on the buoys to satellite modems to improve data transmission. Some of the instrument availability for the buoys has been delayed by manufacturers repair backlogs, a common problem during the pandemic. Dissolved oxygen instrumentation is available, but the pH and pCO₂ sensors could be a problem.

Evelyn Powers said that IEC regular monitoring was going well, currently on the monthly schedule for 22 stations, and shifting to weekly monitoring the last week in June. They hired five people in the last month to support their monitoring effort. Evelyn said that she had noticed large amounts of macroalgae due to the heat and lack of rain prior to the Memorial Day weekend.

Peter Linderoth stated that the Unified Water Study (UWS) had started in May with 41 Tier 1 embayments monitored by 24 groups, and 13 Tier 2 embayments monitored by 7 groups. The Guardians of Flushing Bay is a new group this year. Trainings were done online as were field audits. He also noticed instrument delays at YSI as did IEC. Other life science suppliers also had shipping delays.

Carol DiPaolo from the Coalition to Save Hempstead Harbor (CSHH) said they started UWS and core program monitoring in May. She saw unusual water clarity throughout most of the harbor, with 3.5 m Secchi depths, after the recent 3.5 inches of rain. Dissolved oxygen was also high. They also saw many jellyfish in the harbor in early May, likely young Lion's Mane jellyfish, as well as large comb jellies (ctenophores) for the first time in a few years. Carol wondered if the jellyfish were related to the bunker die-off last year. She also mentioned the monitoring around the floating upweller systems (FLUPSYs) containing seed clams that are deployed at the Tappen Beach Park Marina as part of an effort to monitor and improve water quality using shellfish aquaculture.

Matt Lyman of CT DEEP also mentioned seeing a lot of jellyfish including Lion's Mane in May in the central and western Sound. More recently in zooplankton tows in the eastern Sound they saw the ctenophore *Pleurobrachia*, a genus typically found in the winter.

Jon Morrison of USGS said that their statewide monitoring effort in Connecticut was ongoing. They are conducting extensive monitoring in the Connecticut River, including continuous monitoring with four continuous nitrate sensors. Tributary and embayment monitoring is ongoing with CT DEEP and discrete samples are being collected in the Mystic and Norwalk Rivers. Kelly Streich from CT DEEP said later in the meeting that USGS was conducting monitoring for them and that they were talking with EPA about additional sampling in eastern LIS.

Presentation by Cayla Sullivan (EPA/LISS) on Proposed Microplastics Monitoring

Cayla gave a presentation on microplastics monitoring which was prompted the recent Save Our Seas 2.0 Act which will provide EPA with \$55 M per year for five years for Trash Free Waters work. The LISS may be able to support new efforts to monitor microplastics in LIS through this program. Cayla started with a brief background on microplastics, their negative impacts on ecosystem services, and current and future projections for their input to the oceans. She listed three identified strategies to address the problem: 1. Plastic waste reduction (which is probably the most important), 2. Increase waste management, and 3. Plastic pollution cleanup. However, before implementing any strategy locally, we need a better understanding of microplastics in LIS. Thus, the effort to develop a monitoring program for LIS.

Cayla then discussed the NOAA Marine Debris Program and the Mid-Atlantic Marine Debris Action Plan (as well as other regional plans) which includes a goal to understand, prevent and mitigate the impacts of microplastics and microfibers and a detailed research and monitoring strategy. She then focused in on LIS, noting that CT and NY Sea Grants are developing a local action plan to be completed in 2022. Other current LIS activities include a U. Conn. project (Dr. Evan Ward) recently funded through the LIS Research Program entitled “Establishing Robust Bioindicators of Microplastics in Long Island Sound: Implications for Reliable Estimates of Concentration, Distribution and Impacts”. Cayla also mentioned a project funded by the LIS Futures Fund titled “Addressing the Problem of Microplastics in Long Island Sound Harbors” as well as additional related education and clean-up projects.

The EPA National Coastal Condition Assessment (NCCA), a nationwide survey conducted every five years, piloted a microplastics indicator in New Hampshire and Maine in 2020. They collected about 50 sediment samples, then extracted and isolated microplastics using density separation and vacuum filtration. Regional groups that monitor marine debris and microplastics include the New York-New Jersey Harbor Estuary Program, the NY/NJ Baykeeper, and the Bronx River Alliance.

Cayla described the Save Our Seas 2.0 Act, which is intended “To improve efforts to combat marine debris, and for other purposes”. Starting in FY2022 it will provide EPA with \$55M per year for Trash Free Waters work. She then detailed a proposed microplastics monitoring program for the LISS, focused on: 1. Source tracking, 2. Characterization, and 3. Implementation. Her proposed monitoring program would use NCCA protocols for sediments, NY/NJ Baykeeper protocols for water, and shellfish methods used by Dr. Evan Ward of U. Conn. She would also couple this proposed monitoring plan with a behavior change campaign, incorporate citizen science to increase public education, and enhance collaboration with other regional efforts. Finally, this monitoring effort would be incorporated into the LISS workplan in order to secure additional EPA funding. It addresses the Marine Debris Ecosystem Target and related strategies and implementation actions and could also incorporate Environmental Justice.

Questions and Comments:

1. Peter Linderoth (STS) said that the Unified Water Study would be interested in such an effort and wondered about the frequency of sampling. He also mentioned that Manta Trawls which are often used to sample microplastics in surface waters can be a challenge to deploy.
2. Jim O'Donnell (U. Conn.) stated that the sampling frequency question was critical. He suggested a workshop with experts in both microplastics and sampling strategies to develop a sampling plan before actual monitoring and to start with a pilot project before going further.
3. Paul Stacey (Footprints in the Water) noted that microfibers from clothing and other products are probably a larger source of microplastics than those that we have been discussing and they should not be ignored.
4. Jon Morrison (USGS) mentioned that virtually all these plastics come from upland sources. He provided the following USGS Microplastics link:
<https://labs.waterdata.usgs.gov/visualizations/microplastics/index.html>
5. Richard Friesner (NEIWPC) said that NEIWPC had done some work on microplastic sources around New York City and that he would provide the information.
6. Jim Ammerman mentioned that only about 10% of plastic is ever recycled and reduction in plastic use is the only long-term solution. He referred to the recent PBS program "Plastic Wars" at: <https://www.pbs.org/video/plastic-wars-8wxame/>
7. Mark Tedesco (EPA) noted that it is easy to get overwhelmed by the scope and challenge of the plastics issue. He asked whether there were certain activities that would help more broadly with local and regional education and advocacy. Mark cited the Bronx River Alliance which installed netting in several locations in the Bronx River and found that New York City was not the source of all the plastic pollution, Westchester County was a big contributor as well. Such information can lead to specific remediation measures. He agreed that a workshop could help identify important areas for monitoring and practical next steps and that the work groups needed to develop work plans and determine where resources are needed. This may lead to a new research areas or other new program areas.
8. Cayla was asked what are her next steps and she listed the following:
 - a. Interest potential partners.
 - b. Talk to the EPA Region 2 Trash Free Waters Program coordinator about the logistics of applying for funding. This would occur after official incorporation of microplastics monitoring in the LISS work plan in order to be eligible for additional funding.
 - c. Assemble a workshop or work group and develop monitoring plans.
 - d. Jim O'Donnell asked about and any currently funded projects, he got a request from Stony Brook to place samplers on buoys. (Subsequent information identified this as Dr. Gordon Taylor's project.) Cayla mentioned the Evan Ward research project and the Futures Fund project. There is also an EPA ORD pilot project in New Hampshire and Maine that she will contact for insights.
 - e. Paul Stacey suggested going full force and to develop a logic model with objectives and outcomes. and said that atmospheric deposition could be an important source for microplastics that has not been considered.

- f. Mark Tedesco asked about the group developing the Marine Debris Action Plan, would they address these topics, or do they need additional people to do that. Cayla said that Evan Ward's lab can help with citizen science efforts and help identify key players for a working group. CT and NY Sea Grants are also important partners, especially for the education components.
- g. Dave Lipsky said that this was a major concern to NYCDEP including the trash from street sweepings, storm drains, and wastewater treatment plants. He said that he would get back to Cayla with more information. DEP has also evaluated the effectiveness of their educational campaign "Don't Trash Our Waters" in New York City, looking at what was recovered from waterways both before and after the campaign. He also noted that it is a hot topic with the Water Research Foundation and that similar studies are underway in the Hudson River and other regional waterways.

Potential additional discussion of LIS Chlorophyll *a* discontinuity

There was no time for additional discussion of LIS Chlorophyll *a* discontinuity.