NY/NJ HARBOR & ESTUARY PROGRAM

Water Quality Work Group Meeting

May 11, 2021

Location: Zoom (online only)

Minutes

Attendees: Marco Alebus (NJDEP), Brett Branco (Brooklyn College/SRIJB, STAC, co-chair), Rob Buchanan (NYC Water Trail Association/BOP, CAC), Lisa Congiu (NJDEP, co-chair), Rosana Da Silva (HEP), Phil DeGatano (IEC, HRWA), Mick DeGraeve (NJHDG/GLEC), Jason Fagel (NYSDEC), Siddhartha Hayes (HRPT), Clay Hiles (HRF), Wayne Jackson (EPA), Frank Klapinski (NJDEP), Lingard Knutson (EPA), Michele Langa (NY/NJ Baykeeper, Hackensack Riverkeeper), Amanda Levy (NYCDOHMH), Hildegaard Link (Rutgers, STAC), Jim Lodge (HRF), Keith Mahoney (NYCDEP), Neel Patel (NYCDOHMH), Rob Pirani (HEP), Susan Rosenwinkel (NJDEP), Andrea Silverman (NYU), Melissa Sinisgalli (PVSC/NJHDG), Isabelle Stinnette (HEP, RWG), Shino Tanikawa (NYCSWCD, CAC), Judy Weis (Rutgers, STAC)

Next Meeting: Tuesday, August 10, 2021

1) Overview of Agenda, Introductions, and Minutes Approval

Lisa Congiu opened the meeting and provided an overview of the agenda and introduced the February minutes. Minutes were motioned for approval by Jim Lodge and seconded by Shino Tanikawa.

2) FloodNet.nyc: Low cost sensors for longitudinal urban flood monitoring and their applications

Andrea Silverman shared a few projects that her lab has been working on. The first project shared was looking at modeling sunlight inactivation. Reflecting on that even with wastewater treatment, there are some viruses that will not fully break down and this is where you may find intact genes that enter the waterbody. Andrea's work shows that sunlight inactivation is an important mode of bacteria and virus disinfection in surface waters where the decay rate for viruses are reduced and is an effective method of disinfection. For example, sampling during morning vs afternoon hours, afternoon samples will always show lower FIB rates due to the length of sunlight exposure. Andrea briefly touched on several projects: (1) Experiments in the lab to calculate decay rates and create equations to understand the total sunlight deactivation that can inform on nature-based solutions for disinfecting water and address how long after a CSO does the water take to rebound back to safe swimming conditions; (2) Looking at engineered disinfection (chlorine, monochloramine, UV, and sunlight) and kinetics/mechanisms for Enterococcus species in terms of how these techniques affect the 33 different species' decay rates; (3) In partnership with NYCDEP, surveillance of SARS-CoV-2 in wastewater to illustrate trends and improving our ability to detect early emerging health threats in a sewershed.

Andrea then further discussed FloodNet.nyc, a consortium between NYU, CUNY, Brooklyn College, and NYC Mayor's office, and the Science and Resilience Institute at Jamaica Bay which is interested in understanding contaminants in flood waters. Taking the Gowanus as their sample site, they were interested in knowing what happens to the contaminants after flood waters recede. Her lab developed a swabbing method and extracted the DNA to figure out what DNA sequence of bacteria species would be

found. To generate a baseline data set, sampling occurred before flooding and a control up the hill, where it never floods, was also sampled. To address hyperlocal flood data gaps and the challenges of being able to predict when a flood would occur in the area, a sensor prototype was developed to transmit data wirelessly and an ultrasonic sensor was used to be able to collect water level as a flood occurs. The sensors run on a solar panel, each set up costs $240 each, and then data is sent to a gateway (requires electricity and Wi-Fi) that serves a large radius. Her lab is currently testing other housing techniques to deal with temperature corrections, debris, and other issues experienced in the field, but they have successfully captured a flood profile which includes the peak flood and the length of time it took to dissipate. The team is currently working on developing a data dashboard to make the data available and address the community needs in terms of hyperlocal flood data.

Rob Buchanan and Jim Lodge asked if the flood sensors could be adapted for use inside CSOs, to measure real-time discharge levels? Rob Pirani added whether this could also be able to correlate sewer backups vs. overland flow contribution on flooding? Andrea indicated her lab was beginning to think about this and whether there is a way to use the sensors where the discharge points are above the water surface to be able to measure depth. As the sensors can't get wet, we need to answer how deep does the water get at the discharge point and whether there are other sensors that may be helpful to better understand CSO discharges.

Judy Weis noted the bacterial communities at "S" and "C" were different, and Andrea's team assumed the differences were due to flooding at one site. She asked whether Andrea has looked at other dry and other wet sites to see if all the dry sites are basically similar and all the wet sites are basically similar? Andrea indicated that this work is still in the early stages, but that when they chose a second control site, they did find the data to be similar but still too early to make this assumption.

Jim Lodge ask whether Andrea's lab was looking at the viability of SARS-CoV-2 in the treatment plant and surface water and whether we should be worried about WWTPs as a vector for the virus? Andrea indicated that the current state of the science is that there is no evidence of the virus being alive in wastewater. There could be issues with cell culture and methodology, but there was a recent paper where they took live virus and mixed it in intestinal fluid and found that the virus became inactive very quickly. At the end, it is not a risk and if it were, we would see a lot more positives in other areas of the world with less effective sanitation systems.

Rob Buchanan indicated interest in the discussion about settling ponds and constructed wetlands as natural treatment alternatives to straight discharge and asked whether Andrea has thought about places where this could work in NYC—especially connected to the biggest CSOs? Due to timing constraints, Brett Branco encouraged members to connect with Andrea directly at andrea.silverman@nyu.edu to further discuss ideas and questions. Brett reminded members, the point of these Frontiers to Monitoring, Modeling, and Management is to help make better connections with the research community.

3) Moving Forward on Water Quality

Rosana Da Silva highlighted the recent discussion held at the last Policy Committee meeting to address the challenge identified in the 2019 Program Evaluation letter as well as the Action Agenda's WQ-A-2 action that focuses on shared standards. The Policy Committee agreed that the way the action is written, it specifies a role for HEP that it lacks the regulatory authority to fill, and agreed the action should reflect HEP's ability as facilitators, conveners, and collaborators to the states and EPA. As the Policy Committee deliberates the revision of the WQ-A-2 language, members of the work group broke out into small groups

to discuss several activities that members felt were critical to help advance discussions about shared standards and what the group would like to work on.

Brett Branco's group focused on Activities 1, 2 and 3 and discussed the importance of FIB and the Raritan Bay being a good place to focus as both states have this waterbody classified for primary contact. In addition, the group discussed how to communicate to the public what are the risks. Lisa Congiu's group discussed all activities, with focus on Activities 4 and 3. The group suggested that HEP can assist with more discussion around timelines (such as NJ's LTCPs) and improve the cross-communication between NY, NJ, and the public, specifically in better understanding water quality standards. Rob Pirani's group echoed Brett's group and focused on activity 1. The group discussed FIB as the appropriate place to begin and how to inform work moving forward between CSOs, LTCPs, but also track downs and illicit detection. The group was interested in looking at the Passaic River near Paterson and the East River. Rosana Da Silva's group largely focused on activity 1 with a focus on FIB and DO. The group discussed reviewing current monitoring protocols and whether there is a need for a comparison study to improve data collection to provide a fuller picture of the waterbody.

> **Action:** Rosana Da Silva will collect the facilitators' notes from the group discussion to develop a draft outline that the work group will review and further discuss at the next meeting.

4) CAC's Pathogens in the Water Series

Elizabeth Balladares shared that the CAC had conducted a survey to understand the needs of citizen scientists which included volunteer recruitment and retention, QCing data, and how to make data more useful and usable. Through this survey, it was clear that a significant number of groups are interested in conducting water quality monitoring programs. The CAC planned a workshop for March 2020 to help address the challenges by these groups, but due to COVID-19, it had to be cancelled. Elizabeth shared that the CAC has adjusted the workshop for an online webinar series, the first session on May 20th will be on Getting Started and Tapping into Resources for your Program is meant for new or interested groups looking to start monitoring or grow their program. Elizabeth shared the following four topics of the series, and highlighted the Let's Talk About Pathogen Monitoring Protocols and Putting Data into Action where members of this work group would be helpful to collaborate on the challenges and opportunities to improve the usability of water quality data. Any questions on the series, please email Elizabeth at eballadares@hudsonriver.org.

> **Action:** The Work Group is encouraged to participate in the Pathogens in the Water series that will occur through June. To join the first session on May 20th, please click here.

5) Partner Updates

Jason Fagel shared that the Proposed Amendments to 6 NYCRR 703.4 for Site-Specific Enterococcus Water Quality Standards for Class I/SD Waters comment period closed on April 28th. The proposed standards and updates to this proposed rule will be available by visiting https://www.dec.ny.gov/regulations/121933.html.

Amanda Levy shared that they have received confirmation that city beaches will be opening for Memorial Day. NYCDOHMH has begun their baseline sampling and will continue to sample the beaches per the BEACH Act guidelines. The department has updated the map and pending on the direction from the state, they may be adding Statistical Threshold Value.

Rob Buchanan shared that the CWQT will be restarting the program on May 20th and will continue monitoring for 20 weeks. New programs that have partnered with the NYCWTA, including Fresh Kills. Rob indicated he is expecting something between 60-70 sites to be posting data every Friday. Brett Branco added that Andrea Silverman's lab may be another source in addition to IEC's relocated site closer to Brooklyn College.

Rosana Da Silva shared that she received last minute comments on the Harbor-Wide Water Quality Report which is the reason for the delay in releasing the report. She does not anticipate another required review of the report, but is hopeful to publish the report in June.

Rob Pirani updated the group that EPA and NEIWPCC have selected a contractor, ICF and Robert Johnson from Clark University, to conduct a study on the economic benefits of clean water. As they work through the initial tasks, HEP will look to bring this work back to a future WQWG meeting for input.