Long Island Sound Study

A Partnership to Restore and Protect the Sound

6/17/2016 Science & Technical Advisory Committee (STAC) Meeting Notes

In Attendance:

STAC Members: James Ammerman, Paul Anderson, John Connolly, Sarah Crosby, Sylvain DeGuise, Charles DeQuillfeldt, Jason Grear, Sheri Jewhurst, Darcy Lonsdale, James O'Donnell (Co-chair), Larry Swanson (Co-chair), Mark Tedesco, Robert Wilson, William Wise, Robin Jazxhi (for Evelyn Powers, IEC)

Others: Cassie Bauer (NYSDEC/LISS), Sandy Breslin (CAC Co-Chair, CT), Tracy Brown (STS), James P. Browne (Town of Huntington, NY), Soren Dahl (NYSDEC), Caroline Donovan (UMCES), Charles Flagg (SBU), Chris Gobler (SBU), Steven Haber (Town of Huntington, NY), Sultan Hameed (SBU), Theresa Hattenrath (SBU), Claudia Hinrichs (SBU), Peter Linderoth (STS), Kamazima Lwiza (SBU), Amy Mandelbaum (NYSG/LISS), Victoria O'Neill (NYSDEC/LISS), Dave Ralston (WHOI), Liana Simpson (SBU), Ken Zegel, SCDHS

Larry Swanson, New York (NY) Co-Chair, opened the meeting at 9:15 AM: Mark Tedesco introduced Sheri Jewhurst as the Acting Director of the Long Island Sound Study for four months during a period of transition at EPA Region 2.

Christopher Gobler, Claudia Hinrichs, and Robert Wilson; Stony Brook University: "*Long Island HAB Modeling, Overview and Biological Model (Gobler)"; "Modelling the Great South and Northport Bays with FVCOM - Investigating the Breach and HABs (Hinrichs)"; "Lagrangian simulations describing dispersal of Alexandrium cells emanating from Northport-Huntington Bay (Wilson)".* Chris Gobler and his two colleagues from Stony Brook University discussed a current project to model the harmful algal blooms and physical oceanography of selected embayments on the north and south shores of Long Island. Chris introduced the discussion with the effort to model *Alexandrium fundyense* in the Northport-Huntington Bay complex as well as some other locations around Long Island. *A. fundyense* produces the nitrogen-rich toxin molecule saxitoxin and has been present in some Long Island estuaries since at least the 1980s. It benefits from the increasing nitrogen concentrations in the groundwater which flows into Long Island embayments. This species has recently formed large blooms in Northport Bay during the spring which led to shellfish closures throughout the Bay. Last year there was also a significant turtle die-off due to saxitoxin ingestion from consuming shellfish. Stable isotope data has focused on wastewater as the nitrogen source fueling *A. fundyense* blooms but since the repairs and upgrades to the Northport sewage treatment plant the large blooms in Northport Bay have not returned. The purpose of this project is to develop a model physical-biological model to hindcast *A. fundyense* blooms and eventually predict them in the future. This project parallels the Long Island Nitrogen Action Plan and other nitrogen control efforts in the region.

Claudia Hinrichs described FVCOM model being used to evaluate the hydrodynamics of the Great South Bay. The Bay has four inlets plus the breach created by Superstorm Sandy, and the model was run with and without the breach in order to evaluate its impacts. Modeling dye or Lagrangian particle tracking showed a significant decrease in the residence time of the water near the breach, improving the water quality, but producing only a minimal increase the height of the storm surge, suggesting the breach would not increase flooding. A hydrodynamic model was also tested in Northport Bay and will be run for the period of algae blooms as soon as more data becomes available.
Robert Wilson described a model of the dispersal of *A. fundyense* cells from Northport-Huntington Bay. A Lagrangian particle tracking model was used to see if *A. fundyense* cells from Northport Bay could "seed" *A. fundyense* populations to Oyster Bay and the Norwalk Islands, two important shell-fishing areas. Significant "seeding" could lead to shellfish bed closures. Limited tests to date show some *A. fundyense* transport to Oyster Bay.

David Ralston, Woods Hole Oceanographic Institution: "Salinity fronts and sediment transport in the Connecticut River estuary: High resolution modeling and observations". David Ralston described an NSF-funded project to determine the control of sediment fluxes in an energetic, salt wedge estuary which exports significant sediment to Long Island Sound. High resolution spatial and temporal observations were made and compared with a 3D hydrodynamic and transport model, and simulations were run over a range of river discharges. Information was collected from a combination of intensive deployments of moored sensors and high resolution shipboard surveys. Hamburg Cove in the Connecticut River is an example of a high deposition area studied, with deposition rates > 4 cm per year, historically it is also a site of high sediment mercury concentrations. Measured and modeled sediment accumulation rates in Hamburg Cove were coherent over a range of river discharges, though modeling this system remains challenging. River discharge controls salinity intrusion and sediment trapping. Salinity fronts create stress asymmetries that retain sediment, flood tides enhance resuspension, ebb tides facilitate deposition.

Sylvain DeGuise, CT Sea Grant: "*2016 Long Island Sound Research Conference Update"***.** Sylvain provided information about the May 13th LIS Research Conference in Bridgeport, as well as the survey results from attendees. The conference featured 26 talks, opening and lunch time plenaries, and was attended by 130 people. Surveys returned by a third of the attendees showed that 66% said that the conference met their expectations. They were pleased with the networking opportunities and the lunch plenary. Some wanted more talks and more diverse talks, though others disliked the concurrent sessions, an inevitable problem at large meetings. There were suggestions for specific speakers, more emphasis on management implications of research, potential student awards, and non-academic presentations; however, the focus of the conference should remain on research. It was noted that participation from New York, where the next conference will be held in two years, was limited.

Bill Wise, NY Sea Grant: "*2016 LISS Research RFP Update".* Bill Wise reported that the LISS RFP for 2017-2019 research projects which was released in March had received 35 pre-proposals in response to the four major advertised research priorities. There is about $700,000 available for 2-year projects at a maximum budget of $200,000 per year. The next steps include an early August pre-proposal review panel involving the Sea Grant Programs, LISS, state agencies, and outside peer reviewers. Successful PIs will be notified by mid-August, with a full proposal deadline of October 3.

Jim Ammerman, NEIWPCC/LISS: "*Update on proposals to NOAA Coastal Hypoxia Research Program and NSF LTER".* Jim Ammerman briefly noted that the NOAA Coastal Hypoxia Research Program or NOAA CHRP proposal submitted by a collaboration of the University of Connecticut, Stony Brook University, LISS, NYSDEC, and CT DEEP in February was still awaiting funding approval. Projects start in September so a decision is expected before then. A pre-proposal submitted by the University of Connecticut to the NSF Long Term Ecological Research program for new marine sites was declined, likely due to very stiff competition.

Peter Linderoth, Water Quality Program Manager, Save the Sound: "*Plans for upcoming 2016 Long Island Sound Report Card".* Peter Linderoth presented the preliminary information for the 2016 Long Island Sound Report Card, which Save the Sound is developing with the collaboration of the University of Maryland. He also described the current effort to increase embayment monitoring by citizens' groups including the progress to date, the Unified Water Study (UWS). The preliminary report card for LIS shows that nitrogen levels are good except for the Western Narrows. Phosphorus concentrations are poor, but the criteria used to evaluate them (mid-Atlantic Total Phosphorus criteria) will be re-evaluated next year. The 2016 Long Island Sound Report Card map gives the adjacent embayments the same color rating as the nearby main sound, this will be changed for the 2017 Report Card. The 2016 Report Card will be released in the fall and the 2017 Report Card early next summer, the focus of this effort is public engagement. Peter also presented the Tier 1 and 2 embayment monitoring criteria and sampling schedule for the UWS and noted that Standard Operating Procedures (SOPs) and a QAPP are available. 2016 is a pilot season with planned wider adoption in 2017. There was considerable discussion and some disagreement about details of both the Report Card and the UWS sampling.

Ken Zegel, Associate Public Health Engineer, SCDHS: "*Suffolk County Subwatersheds Wastewater Plan".* Ken Zegel provided an overview of the Suffolk County subwatersheds wastewater plan. The purpose of the plan is to help guide Suffolk County wastewater policy and will be coordinated with the Long Island Nitrogen Action Plan (LINAP). It uses an adaptive management process which can be revised as more information becomes available. It will mainly use already available data for non-point source nitrogen loading and load modeling. The major objectives include: 1. Establishing uniform and consistent subwatershed boundaries. 2. Developing nitrogen loading rates. 3. Determining the receiving water residence time. 4. Establishing tiered priority areas for nitrogen reductions. 5. Determining the first order nitrogen reduction loads. 6. Establishing the onsite wastewater upgrades for each priority tier. Suffolk County is working with the engineering firm CDM on the details of these plans and hopes to have a draft plan in April of 2017.

Mark Tedesco, EPA: "EPA LIS Nitrogen Strategy Update". Mark Tedesco provided a brief update on the EPA LIS Nitrogen Strategy. There have been a series of well-attended public meetings about the nitrogen strategy, in both New York and Connecticut as well as in LIS watershed areas of New England. While 42 million pounds per year of nitrogen to the Sound have been removed from the WWTP load as a result of the TMDL; and the area, duration, and severity of hypoxia in LIS is decreasing; further work remains. These nitrogen reduction efforts will focus on coastal embayments, tributary watersheds, and further reductions from WWTPs. The implementation efforts for these additional nitrogen reductions are beginning.

Larry Swanson, New York (NY) Co-Chair: Larry mentioned that the next meeting will occur between September and November (currently scheduled for November 18 in Connecticut), and may be a joint meeting with the CAC focusing on the communication of science. The meeting was adjourned about 2:30 PM.