2/19/2016 Science & Technical Advisory Committee (STAC) Meeting Notes

In Attendance:

STAC Members: James Ammerman, Paul Anderson (new), Chester Arnold, Brett Branco, Vincent Breslin, John Connolly, Carmela Cuomo, Hans Dam, Anthony Dvarskas, Stuart Findlay, Ashley Helton, Penny Howell, Milan Keser, Christine Kirchoff, Darcy Lonsdale, Anne McElroy, John Mullaney, James O'Donnell, Julie Rose, Kelly Streich, Larry Swanson (Co-chair), Mark Tedesco, Johan Varekamp, Jamie Vaudrey, Penny Vlahos, Robert Wilson, Roman Zajac

Others: Syma Ebbin (Connecticut Sea Grant), Kamazima Lwiza (Stony Brook), George McManus (U Connecticut)

Jim O'Donnell, Connecticut (CT) Co-Chair, opened the meeting at 9:15 AM: Paul Anderson from the Mystic Aquarium was introduced as a new member of the STAC. Either he or a colleague from the Aquarium will serve as the STAC Member with the other as an Alternate. Paul introduced himself and stated that his research focused on animal behavior and he was interested in greater emphasis on the animals of Long Island Sound.

Larry Swanson, New York (NY) Co-Chair, conducted the CT Co-Chair Election: The Bylaws require election of each Co-Chair for two year terms in alternate years. Larry introduced Bob Wilson, Chair of the Nominating Committee, who stated that there were four nominees, but three of them declined to serve. The fourth, current Co-Chair Jim O'Donnell, was then re-elected by acclimation.

Syma Ebbin, Research Coordinator, CT Sea Grant, 2016 Long Island Sound Study (LISS) Research RFP: Substituting for the CT and NY Sea Grant Directors, who were unable to attend, Syma led a lively discussion about the upcoming research RFP. She distributed three handouts: 1. A copy of the past 2015-2016 RFP, 2. A brief discussion of the currently funded projects, and 3. A description of the proposed 2017-2019 research topic areas, based on the same general categories as the previous RFP.

The first question discussed was whether or not there should be a limit on the annual grant amount, considering that the total funding available is about $800,000. It was noted that supporting one graduate student on a project required a total grant of about $100,000 per year. Some saw the need for small grants to individual PIs, suggesting a cap on individual projects to facilitate several small projects. Others thought that larger multi-PI projects could be more significant, but they were costly and should therefore have no cap. It was noted that if there was no cap, and proposals of any size (within the total amount of funding) could be submitted, then smaller proposals might have difficulty competing with larger ones. There was a plea to allow more pre-proposals to progress to the full proposal stage, to allow more PIs to make the case for their proposals. This was considered especially important because pre-proposals are difficult to review and their review may therefore be more arbitrary. Clearly no consensus was going to be reached so Syma said that she would distribute a survey on the issue of a funding cap and this has been done.

A second issue discussed was the possibility of requiring PIs to provide matching funds for LISS research grants. This was quickly dismissed with little or no support.

The final subject discussed was the major topic areas to be included in the RFP. It was noted that the four major areas in the previous RFP, which were based on the synthesis volume, were still compelling. The draft RFP included new sub-topics which were taken directly out of the 2015 Comprehensive Conservation and Management Plan (CCMP), though not all were phrased as research questions. It was mentioned that an RFP with focused topic could be valuable, and that synthesis projects could also be significant. It was suggested that current and related projects underway, including research activities in Suffolk County, should be taken into account. It was also noted that there was no explicit call for social science projects, though it was mentioned that social science methods could contribute to addressing some of the questions listed. Finally, some STAC members expressed concern with the timing of the RFP process and the limited window for input.

Nickitas Georgas, Stevens Institute of Technology, 2012 LISS Research Project Presentation: *"Analyzing History to Project and Manage the Future: The Effect of Climate on Long Island Sound's Physical Environment and Living Marine Resources".* Nickitas Georgas and colleagues presented the results of a modelling project funded by the 2012 LISS RFP. Using the New York Harbor Observing and Prediction System (NYHOPS) model at Stevens, he showed a 34 year hindcast and summarized the model validation for 3D temperature, salinity, and stratification by comparison with survey data from CT DEEP (1991-2012) and NYC DEP. In brief, his results showed an increase in stratification due to salinity changes from increased river discharge. Collaborator Justin Schulte showed statistically significant correlation coefficients between the Pacific Decadal Oscillation (PDO) index and air temperature anomalies of Long Island Sound, with simultaneous correlation coefficients being strongest in the fall. The PDO index was also correlated with water temperature anomalies but with a lag of 3 to 5 months. Another collaborator, Penny Howell, showed that habitat suitability indices (HSIs) for cold and warm water fish guilds and lobster can be quantified based on the high resolution NYHOPS hindcast of water temperatures. Overall fish diversity in the Sound is increasing as increased temperatures favor the warm water fish guild and historic catch data may no longer be a valid basis for regulation. The lobster die-off in 1999 was also stands out for a period of high temperature that has was not repeated until 2010-2012. (This information was supplemented by two 2015 abstracts by the same authors.)

Jennifer O'Donnell, Coastal Ocean Analytics, LLC; Results from Sentinel Monitoring Program: "Detecting Climate Change Impacts in Long Island Sound". Jennifer O'Donnell presented the results of a project which developed from the interests of the LISS Sentinel Monitoring Workgroup. Jim O'Donnell gave the second half of the presentation. The goal was to establish a long time-series of measurements of ecological drivers characteristic of Long Island Sound (LIS) and aggregate them into a regional climatology, with the ultimate objective of detecting climate change impacts. While there are many potential ecological drivers, several of these were unsuitable for detecting climate change. The reasons included small observed changes, decadal oscillations in the record, poor spacing of sample locations, changes in instrument design and performance, and few sample locations spanning a long period of time, among others. The ecological drivers which had suitable information included coastal water temperature, precipitation, coastal air temperature (including a remarkable set of data from Yale University between 1779 and 1865), river discharge, cloudiness, wind, and sea level. Notable observations included an increase in the growing season (the period between frosts) of 35 days in the past 100 years. Other observations demonstrated a correlation between the discharges of the Connecticut and Hudson Rivers, with an increasing annual flow and an earlier spring freshet. The novel result was that the increased overall flow was due to increased flow during the June – September period, the spring flow was stable. There was a wealth of information shown with many additional

analyses that could be done. (This information was supplemented by the original proposal and preliminary report for this project.)

Syma Ebbin, Research Coordinator, CT Sea Grant, 2016 LISS Research Conference: Syma gave a brief overview of the rapidly approaching Long Island Sound Research Conference, to be held on Friday, May 13 at a Bridgeport location accessible to the ferry. It will be a one-day conference organized by Connecticut Sea Grant and organized around the themes of the new CCMP. Abstracts will be posted online but there will be no published volume. Further information will be available very soon and this is the first of what is hoped to be at least a biennial event with different themes for future conferences.

James Ammerman, Science Coordinator, LISS/NEIWPCC: Jim presented a brief description of two recently submitted research proposals for Long Island Sound. These included a NOAA Coastal Hypoxia Research Program (CHRP) proposal submitted by the University of Connecticut Marine Science Department will the collaboration of the School of Marine and Atmospheric Sciences at Stony Brook University and the Long Island Sound Study (in a management role). If funded, it would provide almost $2M in research funding over five years. In addition, the University of Connecticut also submitted a Long Island Sound focused pre-proposal for the NSF Long-Term Ecological Research (LTER) competition for new ocean/coastal ecosystems. If a full proposal was ultimately requested and funded this could result in about $1M in annual research funding for many years.

Jim also briefly described the mission and current membership of the Long Island Sound Technical Workgroups which have been reorganized following the completion of the new CCMP. He suggested that some STAC members may want to participate in the activities of some of these workgroups. Finally, he mentioned that there is significant Long Island Sound data needing additional analysis, review, and publication. He invited STAC members to join him in these efforts.

Mark Tedesco, Director, LISO/EPA: Mark discussed EPA's proposed nitrogen strategy for Long Island Sound. He noted that the annual nitrogen discharge has decreased by 40 million pounds, 94% of the Long Island Sound TMDL waste load allocation. Full attainment of the nitrogen reduction goal is expected by 2017. The LIS area of hypoxia in 2015 was the second smallest since 1987 and is part of a downward trend over the last decade, with the exception of the very warm year of 2012. Nonetheless, there are additional concerns which will require further nitrogen reduction, including reducing embayment impairments like harmful algal blooms and benthic algae, as well as increasing eelgrass acreage. These will require additional nitrogen reductions for which EPA is proposing a strategy which will develop specific numeric nitrogen thresholds for each of three specific watershed types. In a recent letter to the five LIS watershed states, EPA detailed these three watershed types as: 1. Coastal watersheds draining to embayments or nearshore waters, 2. Tributary watersheds draining inland regions, and 3. West LIS coastal watersheds with discharging wastewater treatment plants. Discussions between the five states and EPA are beginning and the LISS is seeking to further develop the appropriate nitrogen thresholds. These nitrogen thresholds are a national concern and there are potential models from the Tampa Bay and Massachusetts Estuary programs. Long Island just introduced a Nitrogen Action Plan and Suffolk County on Long Island is actively pursuing nitrogen reduction efforts, primarily but not entirely targeted at septic systems. Such efforts will be important to coordinate with LIS nitrogen reduction efforts. On June 3, there will be a LIS Citizens Summit, focused on citizen science, to be held at Stony Brook University. (This information was supplemented by the EPA Nitrogen Reduction Strategy document.)

The next STAC meeting is June 17 in NY. The meeting adjourned at 2:30 PM.