Note: Since I was out of the country at the time of the meeting, I need to thank all the presenters for their participation in person or by webinar. This is especially true given the weather challenges that day, and I also need to thank them for providing copies of their presentations to me. I also want to thank Jim O'Donnell and Mark Tedesco for providing me with copies of their meeting notes. Jim Ammerman

In Attendance:

STAC Members: Paul Anderson, Chester Arnold, Sylvain DeGuise, Diane Greenfield, Darcy Lonsdale (NY Co-chair), John Mullaney, James O'Donnell (CT Co-chair), Paul Stacey, Kelly Streich, Mark Tedesco, Craig Tobias, Jamie Vaudrey, Penny Vlahos, Howard Weiss

Others: Cassie Bauer (NYSDEC/LISS), Holly Drinkuth (CAC), David Hudson (Norwalk Aquarium), David Kozak (CTDEEP), Kristin Kraseski (NYSDEC/NEIWPCC), Beth Lamoureux (Anchor QEA), Mark Parker (CTDEEP), Kyle Rabin (Long Island Regional Planning Council/LINAP), Ron Rozsa (CTDEEP-retired), Nancy Seligson (CAC), Lane Smith (NYSG), Phil Trowbridge (CTDEEP), Anna Weshner-Dunning (NYSG/LISS), Harry Yamalis (CTDEEP)

On the webinar: John Connolly (STAC Member), Anthony Dvarskas (STAC Member), David Lipsky (STAC Member), Kamazima Lwiza (STAC Member), Robin Landeck Miller (STAC Member), Julie Rose (STAC Member), Charles Yarish (STAC Member)

Jim O'Donnell (CT) Co-Chair, opened the meeting at 9:25 AM: He noted that the weather has delayed the arrival of some participants and that the presentation order will be adjusted accordingly.

Emily Wilson and Chester Arnold, UCONN/CLEAR: *"New habitat-related imagery, elevation, and land cover data"*. Emily presented information on a series of informational products supported by the Center for Land Use Education and Research. [Connecticut's Changing Landscape](#) has been updated using the 2015 satellite imagery. Emily walked through the available mapping layers, demonstrating how change and the rate of change can be viewed. She noted that the Long Island Sound Watershed Changing Landscape (http://clear.uconn.edu/projects/landscapeLIS/index.htm) is being updated with 2015 imagery and can present changes by selected watersheds. Emily highlighted that the *NOAA Coastal Analysis Change Program* is making available land cover in six categories with one-meter resolution; the data will be available by license, but CT is one of the states selected to make the high-resolution map available. A 10-meter resolution version is expected to be available nationally by February 2019. [CT ECO](#) has both 2016 imagery and lidar elevation data statewide, 3-inch, 4 band orthoimagery and statewide Quality Level 2 lidar (which translates to a 1-meter digital elevation model) were collected in the spring of 2016 marking the first time that Connecticut has captured imagery and elevation at such a high level of detail. Imagery has also been collected in 2018 and will be added. There was some discussion about the accuracy of the elevations for marsh areas. Emily also reviewed the [Connecticut Coastal Hazards Viewer](#), on the CT ECO site, which is designed to allow users access to several pertinent suites of data for coastal Connecticut, including data representing sea level rise, high-resolution coastal elevation, hurricane storm surge, coastal erosion, and environmental observations such as tides, water

quality, waves and currents. CLEAR plans to add CT Blue Plan data layers to the CT ECO site as well. Emily closed by mentioned work with Kevin O'Brien, CTDEEP, to make available the SLAMM (Sea Level Affecting Marshes Model) tool that can be used to project how salt marshes may respond to sea level rise. SLAMM predicts long term shoreline and habitat class changes as a function of land elevation, tide range, sea level rise, and other environmental factors.

Ron Rozsa (CTDEEP-Retired): *"Barn Island salt marshes (natural, grid-ditched and reverting types) and marsh migration".* Ron presented his view, based on long term observations at Barn Island, that ditches are the primary driver to marsh loss and not sea level rise because of the effect of ditches on marsh hydrology. Based on historical data, unditched marshes appear to be stable, while ditched marshes are changing. He forecasts an increase in pannes in ditched marshes that might reverse as ditches plug. Ron also discussed *Juncus* diebacks associated with high tide changes due to the Metonic cycle (the 19-year cycle after which the new and full moons return to the same days of the year). The STAC discussed the relative merits of thin layer deposition of sediments to marshes versus adding sediment to ditches. Ron recommended that pilot studies could elucidate the consequences and long-term effectiveness of different marsh restoration techniques.

Vicky O'Neill, NYSDEC/NEIWPCC and Harry Yamalis, CTDEEP: *"Long Island Sound Habitat Restoration: Goals, Successes, and Lessons Learned in NY and CT".* Vicky O'Neill (via WEBEX) and Harry Yamalis presented a comprehensive overview of the habitat restoration programs in New York and Connecticut beginning with the Habitat Restoration Initiative established in 1996. They detailed the 12 important habitat types that are the target of restoration as well as the purpose, leadership, and products of the Habitat Restoration & Stewardship Work Group. Vicky and Harry reviewed progress towards the Ecosystem Targets listed under Theme 2: Thriving Habitats and Abundant Wildlife of the 2015 CCMP. They reported that the programs are well integrated and also share tools for tracking and prioritization. A range of restoration projects from a variety of habitat in both NY and CT were summarized with an emphasis on the current status and challenges encountered.

Beth Lawrence, UCONN: *"How will sea level rise-driven shifts in wetland vegetation alter ecosystem services?"* Beth (via WEBEX) presented preliminary results of her research funded under the LIS Research Grant Program with matching funds from CIRCA. The study compares carbon sequestration and denitrification in different vegetation zones from 10 wetlands with restored hydrological connections to 10 wetlands without restricted flow. Field surveys were conducted in 2017 and experiments conducted in 2018 to evaluate how sea level rise (SLR) might change the C and N ecosystem services. In general, carbon mineralization (microbial respiration) was greatest in low marsh zones, increasing from *Phragmites* (upland edge) to *Spartina patens* (high marsh) to *Spartina alterniflora* (low marsh). Potential denitrification was the opposite, greatest at the upland edge and decreasing from *Phragmites* to *Spartina patens* to *Spartina alterniflora*. There was not much difference between restored flow and unrestored flow wetlands. As a result, SLR-induced shifts increasing *S. alterniflora* may decrease C storage and N removal. But this result does not consider that marshes may accrete to keep up with SLR. Paul Stacey noted that annual cycles of microbial processes outside of the summer season may modify these results and that increases in temperature associated with climate change will also interact with SLR to affect marsh processes. David Kozak emphasized that marshes provide a variety of other ecosystem

services (e.g. as wildlife habitat) that would also need to be considered in evaluating the impacts of shifts due to SLR.

Mark Tedesco, EPA: Mark give an update of the LISS FY 2019 budget and work plan process, emphasizing that congress has not yet finalized EPA's 2019 budget. The FY 18 funding level was $12.6 million and may continue. He asked whether existing funding mechanisms such as the LIS Futures Fund, Research Grant Program, Core Programs, and Land Acquisition are sufficient for meeting program needs or are new funding vehicles needed? For example, he noted that longer term comparative restoration pilots of the type suggested by Ron Rozsa are not easily accommodated under the restrictions of existing funding mechanisms. The Futures Fund emphasizes fixed (1-1.5 year projects) but some restoration projects require longer term monitoring to assess successes. Jim O'Donnell recommended that the Research Grant Program increase in proportion to total program funding and was supported by others. The need to support some smaller research projects that involve students was also proposed. Dave Kozak emphasized that the research results should demonstrate direct application to management. Jamie Vaudrey emphasized that we still need to monitor nearshore areas to assess the response to nutrient reductions. Peter Linderoth noted that the Unified Waters Study by Save the Sound with LISS funding is conducted for that purpose.

Discussion: The three recommendations below came out of the general discussion.

1. Consider expanding the LIS Futures Fund category for planning projects to support more general (not site-specific) proposals for stewardship and habitat. This would allow planning work to advance implementation for multiple projects that would benefit from the assessments.
2. Evaluate the adequacy of the current resilience category in the LIS Futures Fund to support the LISS ecosystem targets for municipal resiliency and sustainability work.
3. For the LIS Research Grant Program consider adding a logic model for how the research results can specifically support management applications.

Due to the limited time remaining, Mark Parker agreed to provide a presentation on the updated Sentinel Monitoring for Climate Change report at a subsequent STAC meeting.

The meeting was adjourned at 2:30 PM