Science & Technical Advisory Committee
TEAMS Online Meeting
November 22, 2024 – Meeting Summary

In Attendance:
STAC Members: Jim Ammerman, Vince Breslin, Sylvain De Guise, Kristin DeRosia-Banick, Melissa Duvall, Michele Golden, Dianne Greenfield, Jim Hagy, David Hudson, Shauna Kamath, Jason Krumholz, Kamazima Lwiza (New York Co-chair), Robin Miller, Paul Stacey, Kelly Streich, Mark Tedesco, Maria Tzortziou, Jamie Vaudrey, Penny Vlahos (Connecticut Co-chair), Nils Volkenborn, Laura Wehrmann, Emily Wilson (UConn)

CAC Liaisons to STAC: Sarah Crosby (The Maritime Aquarium)

Others: Cassie Bauer (NYSDEC), Robert Burg (LISS/NEIWPCC), Finnian Cashel (EPA), Emma Cross (SCSU), Chris Eagler (NYSDEC), Alex DuMont (NEIWPCC), Syma Ebbin (CTSG), Marisa Fajardo (The Maritime Aquarium), Alexa Fournier (NYSDEC), Richard Friesner (NEIWPCC), Lillit Genovesi (NYSG), Luis Gonzalez-Miranda (CTDEEP), Anya Grondalski (LISS/NEIWPCC), Elizabeth Hornstein (NYSG), Kathleen Knight (CTDEEP), Alison Kocek (USFWS), Peter Linderoth (STS), Bill Lucey (STS), Cara Manning (UConn), Giovanna McClenachan (SBU), Jon Morrison (USGS), Esther Nelson (EPA), Katie O'Brien-Clayton (CTDEEP), Jimena Beatriz Perez-Viscasillas (NYSG), Matthew Pruden (Cornell), Leonel Romero (UConn), Luciana Santoferrara (Hofstra), Judith Sarkodee-Adoo (NYCDEP), Nancy Seligson (CAC), Rebecca Shuford (NYSG), Youngmi Shin (EPA ORISE), Lane Smith (NYSG), Cayla Sullivan (EPA), Nikki Tachiki (EPA), Samantha Wilder (IEC), Gregory Wilkerson (NYCDEP)

Introductions, Updates:

Penny welcomed attendees and said that there had been numerous activities since the last STAC meeting, such as the joint STAC-CAC meeting in September to review the new CCMP. There have been additional discussions with the CAC on improving communication with the STAC and addressing important environmental issues that CAC members face. Penny mentioned that input from the CAC has been forwarded to STAC members. There was also the Management Committee meeting in October which provided additional discussion and input to the CCMP. Penny noted that later in the meeting the STAC co-chairs will be discussing ways to make the STAC more influential, including more outreach to the states and elected officials. Kamazima added we have a tight meeting agenda with some interesting, invited talks by some new scientists, and asked everyone to stay on schedule.

Mark Tedesco thanked the STAC for the input to the new CCMP that was included with the letter from the CAC and the STAC which resulted from the joint meeting. All the comments will be entered into the official record and responded to. He showed the 2024 schedule for the CCMP, the draft was released in September and the 60-day public comment period ends today. The team will be working through December to respond to all the comments by the end of the year.

Following that EPA will work with an editor identified by NEIWPCC and then presented to the Management Committee on January 16th to focus on the substance not the words or the layout. Several different communication products, a PDF, a two-page spread, and a story map will be developed, and EPA and the states will hopefully approve the full plan by late spring. Ideally a public event could be held at that time, ideally on Long Island Sound Day, the Friday before Memorial Day. Depending on schedules, state governors and the EPA administrator will potentially attend.

Mark also commented on the Management Conference organization which was discussed in detail at the October Management Committee meeting. The recommendation is to structure the program and work groups around the four plan goals. Those goals will be reflected in the four main work groups and a new modeling work group will be created to make sure that the systemwide and other modeling efforts are integrated into the program. There will also continue to be an Indicators and a Federal Partners team, as well as an Environmental Justice work group. The STAC and CAC will continue to be integral parts of the program and several cross-cutting issues like Climate Change and others will continue to be important and addressed through the Implementation Team meetings and other mechanisms. Mark concluded with the announcement that he will be retiring from EPA in the spring of 2025 and EPA Regions 1 and 2 are planning an announcement about the filling of his position, which may be a long process. Details of the scope of the announcement are still under discussion, but it should hopefully be released within a few weeks. Penny asked whether Mark has any advice for the STAC during this period of leadership transition. Mark replied that he hopes the process would be smooth and that the STAC should just continue to provide the support that it has in the past and that EPA's responsibility is to keep the STAC up to date on the process and alert them to any "bumps in the road". Nancy Seligson noted that the schematic that Mark showed did not include the CAC and STAC and Mark replied that it was just a work group schematic. Mark noted that there have been favorable internal and Management Committee discussions about additional support for the STAC to help it develop a more active role in the program, which will be further discussed later in this meeting. The Chesapeake Bay Program may serve as a model for this increased role. An additional question was asked about the new name for the LISS, Mark said that the program will become the Long Island Sound Partnership.

New Investigator Presentation: Microbial Communities and Interactions with Hypoxia in Western Long Island Sound: Luciana Santoferrara, Hofstra

Dr. Santoferrara noted that she has been in the area for a while, first as a postdoc at UConn Marine Sciences and then as a faculty member at UConn Stamford. She has been an Associate Professor at Hofstra since 2021. Her previous research has been on ciliate biodiversity, using both morphology from microscopic analysis, as well as DNA sequencing and bioinformatics. Today, however, she is going to address microbial communities and ocean deoxygenation. Ocean deoxygenation comprises both oxygen minimum zones which are increasing in size due to increasing temperatures from climate change and seasonal coastal hypoxic zones which result

from nutrient pollution but can also be enlarged by climate change induced temperature and stratification increases. Her focus will be on the annual summer hypoxia in western Long Island Sound. Though the hypoxic area has been reduced because of the reductions in nitrogen inputs, it still occurs annually and is likely increased by increases in temperature. The causes and impacts of coastal hypoxia are well understood, nitrogen loading leads to algal blooms which die and sink and are degraded by microbes, depleting the oxygen in the bottom waters. However, microbial processes are more extensive than that and are the subject of her talk.

The microbial community is anything that requires a microscope to visualize, including bacteria and archaea as well as many phytoplankton and micro-zooplankton. Her lab is interested in other activities of bacteria and archaea besides just degradation of organic matter, such as the generation of greenhouse gases like nitrous oxide. They are also interested in the role of microzooplankton, the wide variety of micro-consumers and recyclers which may exert top-down control over the populations of bacteria and archaea. Their primary research question is therefore: How do the key players of the microbial community interact with hypoxia? Unlike macro-organisms, not all the impacts of hypoxia on microbes will be negative, certain types of microbes will probably be stimulated.

They conducted a pilot study in western LIS in 2019 before hypoxia in July and during the minimum oxygen concentration or greatest hypoxia in August, see [Santoferrara, L. F., et al. (2022). "Microbial communities (bacteria, archaea and eukaryotes) in a temperate estuary during seasonal hypoxia." Aquatic Microbial Ecology **88**: 61-79.] The methods used included both microscopy and 16S and 18S metabarcoding for prokaryotes and eukaryotes, respectively. It was clear that the greatest change in both the prokaryotic and micro-eukaryotic microbial communities was from the pre-hypoxic to the hypoxic periods. The microbial groups which increased during hypoxia included two groups of nitrifiers, those which oxidize ammonia to nitrite and those which oxidize nitrite to nitrate, suggesting that nitrification was enhanced during hypoxia. Nitrite and nitrate also increased in the same samples. Two groups of nano-flagellate bacterivores also increased, perhaps due to an increase in bacteria and archaea, and may be responsible for top-down control of prokaryotic populations. Copepod nauplii also increased in the hypoxic waters and may have contributed to ammonia in the water either through excretion if alive, or lysis, if dead. In summary, nitrifiers, nitrite and nitrate, and bacterivore flagellates all increased, as did copepod nauplii. The accumulation of nitrite and nitrate plus the release of organic matter by copepods may contribute to hypoxia.

These results were used to generate two hypotheses for a multi-year project recently funded by the National Science Foundation: 1. Prey availability drives changes in feeding interactions from the prevalence of algivory in normoxia to bacterivory in hypoxia, and 2. The genetic potential of bacteria and archaea shifts from aerobic to anaerobic nitrogen-cycling genes as summer advances. A method called shotgun metagenomics will help determine not only what microbial groups are there but what they are doing, such as various nitrogen cycling processes. These recent studies (2022-2024) have focused on Hempstead Harbor in collaboration with the

Coalition to Save Hempstead Harbor. In addition to DNA sequencing, microscopy is used for microzooplankton abundance, and flow cytometry is used for prokaryotes and nano-flagellates.

Using General Additive Models, results from 2022 and 2023 showed that prokaryotic biomass was driven by temperature and microzooplankton biomass was driven by chlorophyll, dissolved oxygen was not a strong influence on biomass. Most of the microzooplankton biomass was aloricate ciliates and heterotrophic dinoflagellates. Similar seasonal trends in prokaryotes and micro-eukaryotes were seen in 2022 and 2023, with temperature not dissolved oxygen as the main driver, even though there were statistical differences in communities between pre-hypoxic and hypoxic periods. Prokaryotic diversity, including nitrifiers, increased during hypoxia. The diversity of micro-eukaryotes also increased, though less than prokaryotes, and included decreases in phytoplankton but increases in parasites and microzooplankton. A diverse set of parasites was found, and the increase in parasites under hypoxic conditions may be due to increased stress on the hosts.

In conclusion, microbial communities and their roles in the ecosystem change significantly during hypoxia. She noted that several additional experiments were conducted or are planned with various collaborators and thanked her lab members for their assistance.

Discussion:
Paul Stacey said that she showed excellent indicators for hypoxia but wondered if there were more general indicators for a gradient of conditions such as is done in watersheds with macro-invertebrates. Luciana replied that she does not have enough years of data to choose indicators yet but does see significant changes due to overall conditions, though not directly driven by hypoxia. If she finds species that are highly or largely correlated with hypoxia, they might be useful indicators.

Evolving The STAC Mission and Operations to Increase Science Applications In 2025 CCMP: STAC Co-Chairs, Penny Vlahos and Kamazima Lwiza

Penny introduced the topic by noting that she and Kamazima have been meeting weekly to discuss ways to align the STAC with the new CCMP, potentially modify the Bylaws, and increase communication between the STAC and state legislators, perhaps eventually establishing regular meetings. She highlighted three STAC functions from the current Bylaws: 1. Provide guidance and support for subcommittees needed to address specific issues of importance to Long Island Sound, 2. Identify emerging issues facing the Sound, and 3. Assist in identifying opportunities for LIS research. She said that all STAC members are busy but suggested that with additional EPA support for a new staff person to assist the STAC, these additional advising and outreach efforts could be developed.
Kamazima followed with a series of suggestions for modifying the Bylaws. The first would be to modify the terms of the Co-Chairs from two years to four years, with the no officer serving consecutive terms to facilitate consideration of new ideas. Penny added that four-year terms

were important for Co-Chairs to be maximally effective, but that the elimination of consecutive terms would prevent stagnation. She noted that the length of terms and the prevention of consecutive terms were separate issues and invited comments and questions. She noted that any vote to change the Bylaws requires a 30-day-notice and asked whether the STAC would like to vote by email or at a meeting.

Discussion:
Cara Manning asked about new STAC members and Penny replied that they were nominated by current members and voted on in the spring.
Paul Stacey mentioned the need for continuity to maintain focus in such a sprawling enterprise as the LISS and Penny responded that the term limits were for only the STAC Co-Chairs not the members. She also noted that the two Co-Chairs to not rotate off at the same time, there would be a two-year lag which would help to maintain continuity.
Jim Ammerman mentioned that the Bylaws require all votes to be at a meeting.

Penny continued with a discussion of attendance of STAC members at meetings, noting that the Bylaws require attendance at two meetings per year. If members must miss a meeting, they can appoint an alternate attendee. Kamazima showed attendance information from June 2021 through June 2024 showing that about a third of STAC members did not meet this requirement, with the allowance for several new members who were appointed during that period. Kamazima added that this was not displayed to shame anyone but to encourage attendance and participation in the STAC from all members. Penny added that if any STAC members believe that they can no longer participate because they are overcommitted then they should suggest that someone else from their office or agency. She added that with the new activities envisioned for the STAC, participation is needed by all members.

Discussion:
Sylvain De Guise asked how the alternative attendees would be identified and Penny replied that the alternates would have to identify themselves and who they were standing in for and be identified in the minutes. Jim Ammerman mentioned that Jason Krumholz should also be listed among the recent additions to the STAC. Laura Wehrmann noted that she teaches on Thursdays and that Fridays are better. Penny and others agreed, and Penny added members could appoint an alternate for semester if it STAC meetings and teaching conflicted. She suggested that at future meetings, alternates should be asked to identify themselves.

Kamazima continued that the STAC is supposed to be an advisory committee but has only been done halfway. He suggested that the STAC could be more effective in this role through task forces or subcommittees. Examples would include subcommittees on grants, CCMP, or modeling for example. Additional examples include water quality and science needs, as Paul Stacey has advocated for. The current Science Needs listing dates from 2022 and needs to be looked at by all and updated. Penny and Kamazima are suggesting that the new STAC subcommittees align with new CCMP themes and work groups that Mark Tedesco presented earlier in the meeting.

Penny added that the co-chairs would ask for a STAC vote on three alternatives: 1. Subcommittees aligned with each new work group, 2. A STAC members are appointed to join each work group, or 3. Ad hoc committees are formed as needed. Sylvain commented that replicating the work groups as STAC subcommittees would be redundant and Penny agreed but said that there should be a vote of the membership. She would personally recommend a STAC member participate in each work group and the ad hoc committees as needed.

Others agreed and Paul Stacey also suggested STAC technical review of communications products and other public documents. Kamazima suggested that many of these work groups likely already included STAC members and several were identified covering most of the work groups. Environmental Justice and Informed and Engaged Public were the only two work groups without known STAC members and need to be covered. Sylvain suggested listing the current STAC members on the work groups before voting. Rob Burg noted that An Informed and Engaged Public was a new CCMP goal and would welcome scientific input as one of its objectives is to increase scientific understanding. Penny suggested that the STAC members on the various work groups could provide regular brief reports at the STAC meetings. The rule that proposed Bylaw amendments be provided to the members 30 days prior to the meeting where they will be voted on was again mentioned. Also, all amendments must be approved by a two-thirds majority.

Sylvain De Guise said the more clarity was needed on who is a STAC member. Penny said that new STAC members are nominated by current members and voted on at the May meeting. She suggested that people provide names at or before the next (February) meeting and a slate of nominations will be prepared. She noted that there were at least 10 spots open and added that a broad perspective of fields, institutions, etc., was desired. She added in response to a question from Sylvain that there were no current term limits for members in the Bylaws but asked for input on this issue. Sylvain replied that he did not have a strong opinion but that too many old members could limit the opportunities for new ones, though Penny mentioned that was currently not a problem. Jim Ammerman added previously that members who were not regularly attending were asked if they wanted to continue as members and many decided not to. In addition, nominees for new STAC members were usually asked to provide short CVs which were reviewed by the STAC co-chairs and the LISS Director and Science Coordinator but were not voted on by the members.

Paul Stacey asked if there was a quorum requirement for votes. Jim Ammerman replied that amendments must be approved by 2/3 of members. He also posted a poll about STAC work group connections for a response from members only. The poll was only partially successful as some participants were flagged as bots and others were unable to participate but the preliminary results suggested the most support for having STAC members participate in the current work groups and secondarily for ad hoc committees. This issue will be further discussed at the next meeting.

LISS Research Program Update: Sylvain De Guise, CT Sea Grant

Sylvain De Guise reviewed this year's LISS Research Grant Competition stating that 37 pre-proposals were submitted, and 22 full proposals were submitted based on the results of the pre-proposal review panel. Twenty full proposals were received for an average request of $516k or over $10M total, each full proposal received at least three peer reviews by topical experts and was also evaluated by the full proposal review panel which had access to the reviews. Thirteen proposals were selected for funding with average awards of $476k for a total of $6.66M, ranging from $243 to $839k. This is the largest total amount awarded to date under this program and the panel believed that all the funded proposals were of very high quality. Weaker proposals were not funded. Five of the funded proposals addressed water quality and hypoxia, five more will study salt marshes and salt marsh restoration, and the final three focused on fish and shellfish. Funding decisions strictly followed the panel rankings, and the leftover funding not spent during the last round was added to this round of funding and almost completely allocated. Becky Shuford added that the review process included many proposals and was a heavy lift for the reviewers and panelists. She thanked all the reviewers and panelists and especially Syma Ebbin, and Lane Smith for organizing the process and finding the reviewers and panelists. Sylvain also mentioned that the Sea Grant Communicators are working on a press release to announce the awards.

Climate Change Impacts on *Spartina Alterniflora* In Restored and Natural Salt Marshes: Sarah Crosby, Maritime Aquarium

Sarah started by acknowledging her collaborators at Harbor Watch, Sacred Heart University, and Northeastern University. She began with a primer about salt marshes and how they respond to climate change. Salt marshes are highly productive, store large amounts of carbon, provide nurseries for fish and crustaceans and help to protect the coast from storm impacts. They are biogenic plant-based ecosystems and how they respond to climate change will determine how they persist into the future. Salt marshes are found in a particular elevation band along the coast and are especially vulnerable to sea level rise. To persist with rising sea levels, they must increase their elevation by increasing below ground biomass and building up the surface and/or by accreting suspended sediment with their above ground biomass. The combination of these either allows salt marshes to keep up with sea level rise or not.

Sarah said that her previous work in Long Island Sound focused on the significant differences between natural and restored salt marshes in the amount of elevation gain resulting from increased biomass and sediment capture. Natural mashes had more belowground biomass, more ribbed mussels, and greater elevation. The restored marshes, however, have more genotypic diversity, which gives them more adaptive potential. The restored sites also had larger stems and more flowers. These morphological differences result in differing resilience to sea level rise. A recent paper was published about these results, see Crosby, S. C., et al. (2024). "Structure and Function of Restored and Natural Salt Marshes: Implications for Ecosystem Resilience and Adaptive Potential." Estuaries and Coasts **47**(6): 1561-1578. Now that the researchers are aware

of the differences in response to sea level rise between natural and restored marshes, they are interested in exploring other climate change stressors like increasing temperatures.

Many different parameters such as total productivity, above and below ground biomass, and others may respond differently to temperature increases in natural and restored marshes. New studies will evaluate *Spartina alterniflora* growth responses and phenology in response to warming to help improve restoration strategies and make them most effective and efficient. These include 1. Sourcing plant for future restoration, 2. The frequency and type of management interventions, and 3. Expectations, such as how long the restored and natural salt marshes will persist given the predicted rates of sea level rise. Sarah noted that this research aligns with the current CCMP, including the ecosystem target of restoring 515 additional acres of tidal marsh, implementation action HW-27 to assess tidal marsh loss and parameters impacting marshes, and several components of the 2022 Science Needs document relating to climate impacts on salt marsh acreage and restoration efforts.

Everything discussed today focuses on the low marsh dominant plant along the Atlantic coast of the US, *Spartina alterniflora,* which is best able to tolerate prolonged submergence and high stress. Other marsh plant species also respond to climate change but *Spartina alterniflora* is likely most impacted. This research is very much still underway and does not end until next spring. Sample collection ended less than a month ago and all data is preliminary with more to come. The study has three components led by different components of the research team though all were involved in all aspects: 1. Restored and natural marshes with *in situ* warming (The Maritime Aquarium and Harbor Warch), 2. A field common garden study of planted Spartina with *in situ* warming (Sacred Heart University), and 3. A greenhouse study of planted *Spartina* with soil warming (Northeastern University). Sarah then turned to Marisa Fajardo to review the methods and preliminary results.

Marisa noted that the study was performed in four natural marshes and four restored marshes all along the Connecticut coastline and listed all of them by name. The team constructed one-meter experimental greenhouse cubes from PVC and greenhouse sheeting to simulate warming. Control cubes with greenhouse sheeting on two sides to correct for shading and control plots at each site were also evaluated. Common garden *Spartina* plugs were sourced from northern nurseries from New Jersey to Massachusetts and southern nurseries from Florida to the Carolinas. Plugs were planted in the warming cubes described above and growth was monitored throughout the season. Additional plugs from the same sources were planted in pots in a greenhouse and subjected to soil warming as opposed to air warming. The following parameters were measured for each experiment: 1. Stem diameter, height, and density; 2. Flowering stem density, flowering phenology; 3. Above and belowground biomass; 4. Belowground biomass decomposition rate; 5. Genotypic diversity; 6. Flooding frequency; and 7. Air temperature. Field sample collection just ended in October and much sample analysis is currently underway. Flowering phenology or time is of particular interest because it relates to other aspects of *Spartina* growth that may contribute to resilience and affect reproductive potential and seed

viability. In both 2023 and 2024, warming treatments delayed the first week of flowering and natural marshes also flowered later than restored marshes. Warming treatments also reduced the flower size.

Warming also increased the Fall canopy height in both years at restored marshes but not at natural ones, and restored marshes generally had greater Fall canopy height than natural ones like previous research. Canopy height is important for contributing to ecosystem services like storm buffering as well as to sediment capture. There should be a lot more information coming soon as the samples and data are analyzed. Sarah added that translation to management is an important aspect of this research potentially including: 1. Assisted migration of favorable genotypes, 2. The possible need for sediment additions and the required frequency, 3. Assessing the longevity of sites under increasing rates of sea level rise, and others. Additionally, a new 2025-2026 project which builds on this one was just funded by the LISS and adds Audubon as a partner addressing the impacts of adaptive management and assisted migration on salt marsh health and resilience. Stony Brook University will also be a partner on this new project focusing on quantifying patterns and drivers of salt marsh elevation change across LIS.

Sarah concluded with a description of the new LIS Salt Marsh Monitoring Network which resulted from discussions in the Habitat and Sentinel Monitoring Work Groups. It includes 15 different organizations initially led by the University of Connecticut, the Connecticut National Estuarine Research Reserve, and the US Fish and Wildlife Service. It is a collaboration of scientists and managers focused on salt marshes to share data, develop standard protocols, and avoid duplication, with the intention of improving LIS marsh management. Others interested in participating should contact her. Sarah also acknowledged her funding sources and well as the various managers of the eight marsh sites studied, including the Connecticut Department of Transportation for access to the sites.

Discussion:
Paul Stacey asked how much sea level rise has impacted LIS salt marshes and how much potential there is for managing them before reaching human infrastructure. Sarah noted that her study does not really address either question but that the opportunity for marsh migration in LIS is generally very limited due to human infrastructure. Therefore, addressing issues like the benefits of sediment additions or adaptations to temperature increases may help the current marshes increase sediment accumulations and persist for longer periods of time.

New Investigator Presentation: Tracking Drivers of Coastal Change and Resilience: Giovanna McClenachan, Stony Brook

Giovanna noted that Sarah provided the background on salt marshes so she would not have to. She has been at Stony Brook since just last spring so is very new and will give an overview of her research arc and future projects in the LIS area. She is currently calling herself an Interdisciplinary Coastal Disturbance Ecologist but is still considering the best way to describe

her research interests on the synergistic impacts of multiple disturbances. Most disturbances are studied as one-time events, but she is interested in how the legacies of past disturbances are impacting present coastal stressors. Her three overarching research questions are as follows: 1. Can we identify how legacies of disturbance in coastal systems trigger change? 2. How can we use the understanding of disturbance legacies to evaluate the impact of stressors on coastal communities? 3. How can that information be used to inform local adaptations and solutions by focusing on local drivers of change?

The drivers of change from one environmental state to another include broadscale climate variables like sea level rise, warming temperatures, increased storm frequency, and change in the disturbance regime. However, local factors such as elevation, biotic interactions, nutrient/pollution input, and restoration can also interact with these climate factors. How can we affect these local factors to stop or slow these changes? Her three areas of research emphasis have been ecosystem shifts, coupled natural-human systems, and habitat degradation and restoration, the last one will be focused on here. Giovanna's research approach includes both spatial and statistical analyses, and she also works with a wide variety of different researchers and community organizations to address these changes. She combines broad scale data collection including satellite and aerial imagery, LIDAR, and historical imagery with local data like plot-level fieldwork especially in salt marshes. She showed an example of marsh loss in Louisiana and recently published a paper on how the long-term loss of soil strength in a coastal marsh due to the Deep-Water Horizon oil spill led to increased erosion with storm events. Over a longer period, the dredging of canals (~10k miles) for oil and gas extraction on the Louisiana coast over the past 70 years has resulted in interrupted water exchange, increased flooding, increased subsidence, soil weakening, and root and plant dieback. Louisiana coastal land loss tracks the number of canal permits from 1900 to 2017 with a lag time of about six years. Backfilling canals with sediment from the spoil banks has been shown to reduce land loss but has been contested by some of the oil and gas companies.

Giovanna reviewed the project she is starting in the LIS area, including the recently LISS-funded research project with Sarah Crosby titled "Patterns and drivers of LIS salt marsh change" mentioned in the previous talk. The goal is to calculate the rate of elevation gain or loss at all available LIS SET (Surface Elevation Table) sites in New York and Connecticut. There is already a network of these sites around LIS and the project will quantify the various drivers of local elevation gain or loss at these sites and provide information for land managers to maximize marsh elevation gain. Anyone with SET data in NY or especially CT should reach out. She will also be involved in monitoring the Flax Pond tidal restoration to be conducted by NYS DEC in the next year, examining the changes in both the land and plant species. Methods will include drones for elevation measurements and vegetation identification as well as water level loggers for changed flow. An additional recent effort is a collaborative project on Nature-based Social Infrastructure in Narragansett Bay, working with community organizations to help develop sustainable site locations based on community input and hazard monitoring. Her research approach is evolving from understanding drivers and consequences to addressing local

solutions and adaptations, which clearly requires transdisciplinary collaborations with other practitioners and community groups.

Discussion:

Paul Stacey said we need to look closer at the drivers as we can't go back on climate change or development, there is only so much we can do. Giovanna suggested we can restore things to be locally more sustainable rather than trying to go back to a previous state.

SBU Alda Center Communication Training: Rob Burg, LISS/NEIWPCC

Rob Burg, LISS Communications Coordinator, presented information on the activities of the Alan Alda Center for Communicating Science located nearby at Stony Brook University and discussed how the STAC might be able to take advantage of some of their training opportunities. The Center's goal is to connect science and society through effective communication, and it has trained science communications techniques to over 20,000 scientists and health care professionals throughout the world. Training goals include: 1. More effective collaboration with colleagues; 2. Building mutual understanding across disciplines; 3. Engaging diverse audiences, including students, policymakers, and other stakeholders; 4. Advocating for their work, and 5. Inspiring work and joy in science. The LISS Communications team is particularly interested in Goals 3 and 5 as the new CCMP to begin next year includes a new goal of "An informed and engaged public".

The Alda Center uses improvisational techniques backed up by social science research to improve communications skills and Rob showed a short video produced by the Center about their process. There is recent neuroscience research showing that storytelling can help convey science by engaging people's imagination and emotions and government and funding agencies have recognized the need for scientists to increase their public engagement and disseminate research findings in an accessible fashion.

The Alda Center offers one or two-day in-person workshops. The first day is the same for both, the second offers a deeper dive into the techniques. There is also a third virtual option for training, though the Center staff says it is not as effective. Virtual to in-person one or two-day workshops range from $11,000 to $20,000 for 16 to 20 people with a range of schedules. Rob will send out a survey to judge interest later today which is due by December 9. If there is sufficient interest a proposal could be submitted to the LISS FY25 budget and if approved planning with the Alda Center to schedule training could be started in October 2025.

Discussion:

Jason Krumholz asked about the cost and Rob said that LISS would hope to cover all costs including transportation.

Paul Stacey said it looks like a good program but said it grates on him when people say we are reaching out to our audience, as public servants we are the audience and are not selling a product but a solution to a problem. He argued that LISS has persisted because people were concerned about syringes washing up on the beaches which started a national movement, and they are still concerned about clean water.

Penny Vlahos noted that the cost for the training was significant and wondered what would be deprived of funding. Rob replied that the LISS communications program has historically been underfunded and that this training would not necessarily displace anything else. Richard Friesner added that the Management Committee would consider this along with all the other budget requests and decide what is to be funded. Kamazima suggested that it was a good idea because we need to know how to better communicate with the public because that is an objective of the new CCMP. The price is steep but per person it is not so high compared to what businesses pay, though perhaps we should first try it with a smaller group and see how it works. Robin Miller asked if there was any opportunity to go back to the Center and suggest a counter proposal for a larger group or a shorter duration, etc. Rob replied that the relative costs were not that high, and he thought that a prior workshop 10 years ago for 40-50 people was not as effective. Sylvain posted information on a previous program presented by Compass that was free to attendees, and Penny suggested looking at other programs before making decisions. Jim Ammerman thanked all the speakers and attendees.