Science & Technical Advisory Committee
TEAMS Online Meeting
November 19, 2021 – Meeting Summary

In Attendance:
STAC Members: Jim Ammerman, Cassie Bauer, Vincent Breslin, Chris Conroy, Sylvain De Guise, Dianne Greenfield, Jim Hagy, David Hudson, Beth Lamoureux, David Lipsky, Darcy Lonsdale (New York Co-chair), Kamazima Lwiza, Robin Landeck Miller, John Mullaney, Jim O'Donnell, Suzanne Paton, Paul Stacey, Kelly Streich, Mark Tedesco, Craig Tobias, Maria Tzortziou, Jim Turek, Jamie Vaudrey, Penny Vlahos (Connecticut Co-chair), Nils Volkenborn, Laura Wehrmann, Mike Whitney, Chester Zarnoch

CAC Liaisons to STAC: Sarah Crosby (Harbor Watch), Mickey Weiss (Project Oceanology)

Others: Jessica Aiello (Marstel-Day), Mary Arnold (NYSDEC/NEIWPCC), Lauren Barrett (U Conn), Zofia Baumann (U Conn), Jordan Bishop (NEIWPCC), Robert Burg (LISS/NEIWPCC), Finnian Cashel (EPA), Cary Chadwick (U Conn), Mel Cote (EPA), Holly Drinkuth (TNC/CAC), Syma Ebbin (CTSG), Richard Engel, Lillit Genovesi (NYSG), Joaquim Goes (Columbia U), Michele Golden (NYSDEC), Elizabeth Hornstein (NYSG), Alex Huddell (ORISE/EPA), Rob Johnston (Clark U), Sharon Kahara (U New Haven), Chris Knightes (EPA), Kristin Kraseski (NYSDEC/NEIWPCC), Minsun Lee, Bill Lucey (STS), Jon Morrison (USGS), Annalisa Mudahy (U Conn), Esther Nelson (EPA), Victoria O'Neill (NYSDEC/NEIWPCC), David Allen Newburn (U MD), Jimena Beatriz Perez-Viscasillas (NYSG), Casey Personius (NYSDEC), Sara Powell (NYSG), Sarah Schaefer-Brown (NYSG), Nancy Seligson (CAC), Jonathan Sherman, Lane Smith (NYSG), Cayla Sullivan (EPA), Nicole Tachiki (EPA), Emily Van Gulick (CT Bureau of Aquaculture), Ryan Wallace (Adelphi U), Jordan Welnetz (Columbia U.), Samantha Wilder (IEC), Emily Wilson (U Conn CLEAR), Kimarie Yap (IEC)

Introductions, Updates: Jim Ammerman asked Jim O'Donnell to provide a few comments about the COP26 Climate Meeting in Glasgow, Scotland, from which Jim had just returned. Jim attended the second week of the conference to participate in discussions of climate resilience and adaptation. He made, three points: 1. Every country has challenges, they are different everywhere, they need to be addressed at the small local scale which varies with different communities. 2. A just transition is needed, some groups are impacted more than others, such as coal mining communities in the European Union, how should these communities be helped to transition? 3. There were 28,000 people at COP26, with a great diversity in origin, outlook, and education. Two large groups included those who got a lot of media coverage complaining that progress was too slow and another large group of technocrats arguing over the details of the wording of the agreements.

Discussion: Lane Smith said that he had read that fossil fuel industry lobbyists were the largest group at COP26. Jim said that may have been true though they were a diverse group from

different organizations, and he also noted that the nuclear power industry was also well represented. Penny Vlahos and others then discussed the pros and cons of nuclear power.

Thanks to Cayla Sullivan for polling STAC members and separately other attendees about whether they wanted to meet in person annually and if so, was Bridgeport, CT, a convenient location. Despite technical challenges, both members and non-members voted overwhelmingly for an annual in person meeting with Bridgeport as the location.

Jim Ammerman announced that Emily Wilson of U Conn CLEAR is replacing Chet Arnold as a STAC member. Chet is retiring from U Conn CLEAR.

LISS FY 2021 Work Plan and Budget: Mark Tedesco, EPA LISS

Mark provided a quick a quick update on the FY2022 budget and process. The new 2022 Infrastructure Investment and Jobs Act which was just signed provides $106M for the LISS over five years with additional funds to other geographic programs and the National Estuary Programs. Additionally, the act specifies that the EPA Administrator can reduce or eliminate the matching funds requirement which is likely to happen and will open additional options for the use of the funds. The LISS is awaiting additional instructions but in addition to infrastructure, EPA is emphasizing climate change and equity.

Meanwhile, the regular LISS annual budget for FY2022 was proposed for an increase from $30M to $40M, however, the budget currently remains at $30M in a continuing resolution through February 18, 2022. Mark briefly showed a slide of the FY2021 budget allocations shown previously as a reminder of spending patterns. He then reviewed the new budgeting process which instead of reviewing many enhancement proposals (42 last year), relies on work group priorities, Federal partners, and science needs to address priorities consistent with the 2020-2024 CCMP Update. Approximately $21M is currently allocated as follows to the base program budget ($6M), the Futures Fund ($7M), the Research Program ($3M), proposed Environmental Justice (EJ) work ($2M), and Sustainable and Resilient Communities ($3M). This spring's research RFP will likely be the largest in LISS history and Mark is very interested in further improving the LISS connection between research and management and potentially utilizing some of the experience of the National Estuarine Research Reserve (NERR) Science Collaborative in this effort, as detailed in their recent papers.

For the FY2022 budget the LISS is looking at additional staffing needs and working with NY and CT on new infrastructure opportunities provided by the five-year infrastructure law. The new Federal Coordinating Group has helped to better align agency priorities and the work groups were also tasked with providing priority needs to be supported by any increased funding. Mark showed a summary slide with areas of current support and those for possible new investments. Finally, he concluded with a slide of the process, including upcoming I Team and Management Committee meetings in December and January, respectively, with final budget decisions to be made at the April 2022 Management Committee meeting.

Discussion:
--Dave Lipsky asked Mark about distributing his presentation and Mark said that could be done with the meeting notes.
--Penny Vlahos asked about what was envisioned in terms of staffing positions and Mark said that they would focus on technical and programmatic needs but first focused on financial and administrative support.

Research Project Updates—Respire Project: Lauren Barrett and Penny Vlahos, U Conn
Lauren gave the presentation, the project started in the summer of 2019 in collaboration with CT DEEP and completed 7 cruises pre-COVID with a complete suite of data and 10 cruises since where CT DEEP collected continuous inorganic carbon (IC) system data (total alkalinity, pH, pCO_2, and dissolved inorganic carbon). The motivation for this study is the seasonal eutrophication and bottom water hypoxia in the western Sound and the acidification occurring at the same time. Current inorganic carbon system parameters in LIS are limited to pH, which is not the best parameter for monitoring acidification, but does show a decrease to the west. This project will add many measurements of other IC parameters. Matt Lyman and Katie O'Brien-Clayton collected most of the samples (surface and bottom water at 10 stations) and were critical to the project.

Total alkalinity (TA) was highest at the mouth of the Sound due to the influx of high salinity seawater, and highest in the fall and spring consistent with phytoplankton nitrate uptake during blooms. Dissolved organic carbon (DIC) and dissolved oxygen (DO) are well-mixed in the spring and as the season progresses DIC decreases and DO increases at the surface with phytoplankton production and the opposite occurs in the bottom water from respiration. In the fall, both gases become well-mixed again, but DIC is higher and DO is lower than observed in the spring. Acidification (high DIC) persists longer than hypoxia (low DO) in the bottom water since the decreasing temperatures which facilitate increased DO solubility also favor increased DIC solubility. Aragonite Saturation State (Ω) is a measure of the saturation state of aragonite, a form of calcium carbonate, it is calculated from TA and DIC along with temperature and salinity data. A Ω value greater than 1 indicates aragonite precipitation and less than 1 indicates dissolution. Calcification thresholds vary among organisms, but they need Ω values greater than 1 to make shells. Ω tracks DIC is well mixed in the summer and fall but low values, sometimes less than 1, co-occur with hypoxia in western Sound bottom water in the summer. This could be a problem for benthic calcifying organisms.

Apparent Oxygen Utilization (AOU) is the observed oxygen concentration subtracted from the saturating oxygen concentration at the same temperature and salinity, which is a measure of the biological uptake or production of oxygen. AOU also tracks DIC and while it was well mixed in the spring, a sharp gradient developed in the summer with high AOU in western Sound bottom water but limited DO production in surface waters. In the fall it was again well mixed but net heterotrophic with significant DO utilization throughout the water column. There was a strong correlation between DIC and AOU, with respiration being a major contributor and a slope near to that predicted by the Redfield ratio. In summary, western Sound bottom waters had low DO

and Ω and high DIC in the summer of 2020, and there was also a large AOU consistent with these parameters. Future studies will include improved spectrophotometric pH measurements, bottom water pCO_2, and filtered vs. unfiltered TA. Two papers are currently in preparation, one on the information detailed here and the other on 2019 respiration measurements.

Discussion:
-- Joaquim Goes asked about what is driving the western Sound hypoxia and acidification and Lauren replied that it was primarily from the nitrogen loading from wastewater treatment plants near New York City, though water stratification and other issues were also involved.
--Jim Hagy asked if the bottom water AOU really exceeded the DO increase in the surface waters when mass balanced over the width of the Sound rather than just a profile. Lauren said that she had not done that calculation but thought that it was a good idea and Penny added that their goal was a complete carbon balance which required inorganic carbon data. Penny added that such data could also be used to set new TMDLs.

Research Project Updates—LIS Water Column Respiration: Anna Mudahy and Craig Tobias, U Conn
Western Sound hypoxia is not news, but the relation of respiration to hypoxia and the uncertainty in respiration measurements is the focus of this project, which will provide important information for hypoxia modeling. Though significant biological oxygen demand (BOD) measurements do exist, this project provides in situ rates, temporal continuity, and a better estimate of uncertainty than anything currently available. The primary objective is to measure in situ respiration rates during summer hypoxia in western LIS. An additional object is to examine variation in rates by location, depth, and time. The final objective is to evaluate the influence of oxygen, temperature, and other important parameters on respiration rates. Only the first two objectives will be discussed here.

They designed and built Automated in situ Respiration Chambers (ARCs) which are filled with water, closed off, and monitored with DO sensors for 6 hours. These chambers, which are dark, are then flushed and refilled and another measurement series begins. There have been numerous deployments in the western Sound, starting in November 2019, and again from June to October in 2020 and 2021. The station locations were the Execution Rocks and Western Sound buoy stations and three additional stations in between. Up to five ARCs were deployed from 2 to 4-week intervals at surface, middle, or bottom depths. A series of QA/QC procedures were carried out after each deployment including temperature monitors in the chambers to check for leakage, battery voltage checks to ensure continuous pumping, and pre- and post-deployment calibration of DO sensors. If these were satisfactory, then respiration rates were calculated from the linear regression of the change in DO concentration over six hours, using a 3-point running average to reduce the noise.

Anna presented results from both 2020 and 2021, with 1700 measurements at mid-depths of three stations in 2020 and 1300 measurements at surface and bottom of two stations in 2021. Frequency distributions showed regular excursions to higher rates at all locations with increasing rates during the summer as temperatures increased. Average respiration rates in 2020 fell within the range of the limited previously published data. Rates also varied with month, year, and location and 2021 surface rates averaged roughly twice the deep rates. Finally, she measured fluorescence spectra in the lab of the organic matter before and after respiration measurements and saw that the likely phytoplankton-derived organic matter disappeared, but the "microbial humic" component did not. No change was seen in the slope of the oxygen decline in bottle incubations following re-aeration. Next steps include additional processing of 2021 data and further examination of the influence of oxygen, temperature, and other factors on respiration rates.

Discussion:
-- Penny Vlahos asked if Anna saw non-linear oxygen consumption at the beginning of the 6-hour incubation like they did, and Anna replied that the slope was usually linear. Penny also asked if the outlying respiration rates occurred during sunny days and Anna responded that further investigation was needed.

Research Project Updates—Remote Sensing of LIS Water Quality: Maria Tzortziou and Dianne Greenfield, CUNY; Joaquim Goes, Columbia U
Maria started with a 10-year SeaWiFS bio-optical series of the northeast US followed by a high-resolution Landsat image of the sediment plume of the Connecticut River following Hurricane Irene. These are examples of how remote sensing can be applied to water quality in LIS, the focus of their project is to combine remote sensing and existing water quality data, such as the STS Report Card, and to develop new satellite data products. The eventual goal is to integrate remote sensing into improved water quality monitoring and contribute to better management.

They are combining over 40 years of existing data sets with a variety of satellite measurements as well as a series of new field measurements. An array of platforms, including small boats, have been used to collect data but the predominate mode has been in collaboration with the water quality monitoring program of CT DEEP and a map with 2017-2019 and 2020-2021 (25 cruises) sampling sites was shown along with some chlorophyll data. To fill in the gaps, they used a laser fluorometer coupled with the flow-through seawater system of the R/V Dempsey, to measure the gradients and seasonal cycle of chlorophyll *a* in LIS in 2021. Using a variety of methods, these data set were used to develop new satellite algorithms for LIS because conventional ones work poorly in such an optically complex system. The goal is to apply these algorithms to a range of different satellite sensors including new more capable ones under development.

Maria then showed series of combined satellite and ship-measured chlorophyll *a* maps from LIS, demonstrating good agreement between the two methods but different

seasonal patterns in 2020 and 2021. Detailed investigation showed that dinoflagellates, including summer *Prorocentrum* blooms, enhanced chlorophyll *a* at 0.5 m, while diatoms enhanced the sub-chlorophyll maximum chlorophyll *a* concentration. This was also consistent with the satellite and underway chlorophyll *a* data. FlowCAM data showed different phytoplankton groups dominating the various blooms in 2020 and 2021 and two of the *Prorocentrum* blooms also registered in the Red Tide Index of MODIS satellite images.

More detailed species patterns were shown at Station A4 at the same two depths mentioned above. This data was combined with physical and chemical data from CT DEEP and showed that the onset of the 2020 hypoxia followed the July *Prorocentrum* bloom. Bacterial numbers and nitrogenous nutrients also showed patterns indicating biogeochemical coupling with the bloom and development of hypoxia. Finally, Maria addressed Colored Dissolved Organic Matter (CDOM) and Dissolved Organic Carbon (DOC), two parameters which can be measured from space which show strong gradients in LIS. Seasonal satellite maps of CDOM and DOC agreed well with measured values and with the general water quality trends shown by the STS Report Card. She concluded by noting that such satellite imagery is useful for capturing the export of CDOM and DOC by intense weather events and by thanking her team of investigators and CT DEEP.

Research Project Updates—Residential Lawn and Landscape Practices: Dave Newburn, U Maryland; Rob Johnston, Clark U

Dave Newburn started by showing the research team and then said he would discuss just one component of the project, the household survey sent to Connecticut (CT) and New York (NY) homeowners to analyze demographic and other factors affecting lawn fertilizer decisions and to predict residential lawn fertilizer use across CT and NY portions of the LIS watershed. Several other components of the project were not discussed here.

They mailed an invitation to a survey to 30,000 geo-located households in the coastal counties of the CT and NY watershed. It included a link to an online survey by Qualtrics which was linked to their location. About 2,000 households responded, including 1,200 in CT and 800 in NY. About 40% of respondents did not fertilize at all, about 20% fertilized once or twice, and decreasing numbers more than that. They used two different regression models to predict the probability of lawn fertilizing based on demographics and housing characteristics as well as another model based on the same characteristics to predict the number of lawn fertilizer applications. The driving factors in the use of fertilizer were lot size, house age and size, and household income, with newer and larger homes on less than 5 acre lots in affluent communities fertilizing the most.

Using geo-located tax assessor data to map half a million households in CT they predicted a greater probability of fertilizing and a larger number of fertilizer applications in the western counties closest to New York City. Fertilizer use was driven by newer, larger homes in areas that were largely unsewered. Across all counties, the 1-to-5-acre lot sizes

accounted for two-thirds of the predicted fertilizer application and impacts. Similar trends were seen in the NY data, though they have not yet produced maps. In conclusion, the newer, larger homes on 1-to-5 acre lots in exurban developments accounted for a quarter or less of the households but half or more of the cumulative fertilizer impact.

Discussion about all the research talks:

-- Kamazima Lwiza asked if there was a way that this fertilizer data could be translated into nitrogen loading in LIS. Dave stated that most users have little idea of the amount of fertilizer they have applied so the project is working with biogeochemical colleagues to develop estimates.

--Penny Vlahos asked further about loading and whether they information about fertilizer sales and comparing that to wastewater treatment plant effluents. Dave and then Rob Johnston replied that loading was beyond the scope of the project which focused on behavioral aspects but that getting that information would be an important next step. Average fertilizer application rates by individuals could be used to estimate total loads.

--Syma Ebbin said that a smaller previous study that she conducted with students found smaller lots near the coast and using lawn services were the most likely to fertilize. Dave agreed with the smaller lots and use of lawn services but said distance to the coast was not an important factor in their study.

--Jim Hagy asked Anna if fouling to increase the apparent respiration rates in their chambers. Craig Tobias replied that fouling was a concern and may have occurred in 2020 but not more recently. They are also investigating the use of UV light to further control fouling and to enable longer deployments.

--Jim O'Donnell asked about the time offsets of in situ vs. satellite data and how to address the large variability of some of the in situ biogeochemical measurements. Maria replied that they usually restrict the time window of the satellite data to +/- 3 hours of other measurements but near the coast with marshes and tidal cycles they may need to be further restricted to +/- 1 hour. She said it depended on the area sampled as well as the satellite used. Sometimes they also used weekly composites of satellite data to provide a broader perspective.

-- Joaquim Goes complemented Anna on her presentation and asked about whether she used any transparent chambers to look at the effect of light on respiration. Anna said they had done some measurements with clear chambers and Craig said they had some net primary productivity measurement with clear chambers but had not show them here. He said they were constantly modifying the chambers and adding new sensors. Joaquim said that they had electron transport activity measurements which they would like to compare with Anna's data.

--Paul Stacey said he was impressed with the sophistication of the research but still wondered how it addressed management issues and noted that much of it was done in the open Sound far from the sources of nitrogen and other things in the watershed and embayments which may impact the Sound. Penny Vlahos replied that their new project was focused on the same acidification parameters as presented but now in the embayments.

LIS Environmental Justice (EJ) Mapping: Jordan Welnetz, Columbia U
Jordan was an EPA summer intern and reprised a previous talk on her own time. Penny Vlahos noted that it would point out some important coastal areas for future research. The project started with five goals: 1. Explore existing EJ mapping tools. 2. Identify "EJ Hotspots" in the LISS area. 3. Map current partners and areas they support and compare these areas with the hotspots. 4. Compile a map of LIS Futures Fund (LISFF) projects and compare with the hotspots. 5. Identify names of municipalities, community groups, NGOs, and others in or serving in the EJ hotspots.

A lot of time was spent evaluating current EJ mapping tools and EPA's EJ Screen was selected because it allowed input from both NY and CT and incorporated environmental as well as demographic data. It is also a recent tool that has been frequently updated and its EPA documentation was readily available. Additionally, important data layers could be easily added. Jordan showed demographic maps from EJ Screen and then focused on potential EJ targets for further investigation, mostly in the larger cities. These areas were selected by combining the areas impacted by many of EJ Screen's 11 environmental indices with the demographic indices above.

These target areas with then overlain with a map of all the LISS partners, using the office location of all the members of LISS work groups. Three maps showed the location of CAC, Management Committee, and STAC partners, with the NGOs and university partners generally located in the EJ target areas more than the government agencies. An additional map illustrated the central areas of LISFF projects from 2015-2021 but does not indicate engagement with the local communities. Jordan noted that visualizations are helpful but imperfect tools and EJ mapping tools are meant to be "first-pass assessments", not to define boundaries of EJ communities. They also need to be maintained and updated with current data, and future expectations for their use refined. Next steps include identifying the names of the groups in or serving EJ hotspots, identifying areas where LISS does not have a presence, a needs assessment and setting project priorities, and finally adding other important layers to the maps, such as flood risk and public access points.

Discussion:
-- Kamazima Lwiza said that Jordan sounded defensive but had no need to be and was doing important ground-breaking work which the rest of need to follow up on.

LISS Strategic Communications Outreach and Engagement (COE) Plan: Jessica Aiello, Marstel-Day
Robert Burg, the LISS Communications Coordinator, introduced Jessica Aiello, the project leader for development of the new five-year communications plan for the LISS, the first to be developed since the early 2000s. Jessica started by stating that the main purpose of her presentation is to get the feedback of the STAC on communications needs, especially given that much of what the LISS communicates is science. She listed the following items to be developed: 1. A vision statement with associated goals and objectives. 2. Selection of target audiences. 3.

Prioritizing communications tools. 4. Suggested on-the ground and outreach initiatives to achieve community engagement. 5. Key messages and priority communications and outreach channels. 6. Estimated staff, finances, and timeline for plan implementation. 6. Progress metrics and measurable outcomes to be achieved over the five years of the plan.

They are currently in Phase 1, the research phase of the project, reviewing existing plans and examining other estuary programs as well as analyzing stakeholder survey and conducting listening sessions and interviews. They have spoken with seven different estuary programs across the country and with all the LISS work groups. The next step from January to July 2022, is to write, revise, and finalize the communications plan for presentation to the Management Committee, CAC, and other groups during the summer. Jessica concluded with a list of her colleagues on the project and their areas of expertise, as well as a list of discussion questions which had been previously distributed. The key goal of the plan is to drive stakeholders to act for the Sound. The remainder of her talk was a STAC discussion of the questions below.

Discussion Questions:
1. What are the key priorities of the STAC that have involved communications, outreach, and engagement (COE) efforts and how do they motivate stakeholders to engage in their communities on behalf of advancing scientific goals in restoring and protecting the Sound?
2. How can COE initiatives across the LISS support your individual research and the STAC's efforts moving forward? What are your challenges and needs for COE?
3. How do you believe COE can be used to help support science initiatives/projects for the Long Island Sound and help fulfill the Implementation Actions and achieve the Objectives the committee has established for the CCMP?
4. How does the STAC focus specifically on any EJ / under-represented communities for its COE efforts? What is the level of coordination between the STAC and the EJWG?
5. If you were to communicate one piece of information / guidance about how individuals and organizations can help protect the LIS and its natural resources, what would it be and why?
6. Any other input or thoughts?

STAC Discussion:

1. What are the key priorities of the STAC that have involved communications? Jessica used the example of communications for individual research project and Penny Vlahos stated that the outreach resources vary greatly among STAC members. She mentioned that Jim O'Donnell had worked closely with the CAC in the past. Mickey Weiss, one of the CAC liaisons to the STAC, said that over the years STAC members had presented their science to the CAC which allowed CAC members to better communicate with lay audiences. While most of the STAC communication is among scientists, including most of the discussion at the LIS Research Conferences, the STAC presentations to the CAC allow the information to be more widely distributed. Sylvain De Guise added that beyond the CAC, there was not sufficient understanding of the importance of science to managing LIS. Mickey added that the CAC took the information provided by the CAC and used in discussions with members of Congress. This has contributed to the exponential

increase in the LISS budget in the last five years which has had bipartisan support. Syma Ebbin mentioned the upcoming LIS Research Conference on May 25, 2022, which could be a major communications opportunity for the CAC and others. Mark Tedesco added that we have an opportunity to better communicate science topics like coastal resilience and coastal acidification to individuals and all levels of government to inspire collective response. He added that the four projects presented at this meeting have important implications for LIS which could be communicated to different groups.

2. How can communications and outreach efforts across the LISS support individual research as well as the STAC's efforts? Jim Hagy said that he struggled with the questions posed. He said that from years of reviewing research he knew that most scientists want to have outreach to help people understand their research and understand the impacts. However, they face challenges and from his own perspective at EPA and ORD he cannot directly address the public but can comment on and edit communications documents provided by outreach specialists. Therefore, researchers need help in using outreach tools that appeal to broader audiences and not just scientists. Paul Stacey said he was not sure of our expectations, he thought that the LISS had gotten the word out to key partners at the lower level reasonably well. He said that you must address local events that are of interest to people, nitrogen in LIS does not do that where a local fish kill would. We need to package the information in a way that is important to people in their local environment, such as reducing fertilizer use will help to improve their local bay. Dave Lipsky said that the questions were too broad, you must decide whom you are communicating to. He noted that we communicate well with state regulators, but less effectively with people and governments in Nassau and Suffolk counties, for instance, who are also concerned with water quality issues in south shore estuaries, Jamaica Bay, and the Hudson River. Lillit Genovesi, the new New York City outreach coordinator, introduced herself and said her role was to help with public outreach and discussing the success and challenges of LIS. Jessica reiterated the importance of touting LIS successes as well as the ongoing challenges.

Jessica jumped ahead to Question 4. How has the STAC focused on EJ communities and what is the level of communication, if any, between the STAC and the relatively new EJ Work Group? Penny Vlahos, the CT STAC co-chair, replied that she had been involved in some of the early discussions about the formation of the EJ Work Group and the STAC would be working closely with them as well as with the CAC. Jessica asked if anyone had good examples of exemplary efforts in communicating science to minority, EJ, or other communities far from the shoreline. Penny Vlahos mentioned the past use of Sound Facts, available to tourists and the public. It highlighted specific issues and had a cartoon and a few lines of text. Rob Burg said that Sound Facts continue to appear on the website and in social media and are very popular. Penny suggested an additional item with signage at public access points which would credit the LISS and have QR codes to access Sound Facts or other information about the Sound. Paul Stacey added that neighborhoods needed to be structured in a much more environmentally friendly way, with a lot more natural cover, for example, an effort far beyond just the LISS. Jessica concluded with Question 5. If you were going to communicate one piece of information to

individual or groups about how to protect LIS and its natural resources, what would it be? Paul Stacey replied with the need for 100 ft stream buffers and at least 50% “natural” vegetation, meaning more natural than lawns. Jim Ammerman finished by asking Bill Lucey, the STS LIS Soundkeeper for comments. Bill replied that he does at least 50 outreach events a year, to a variety of groups with a wide range of environmental literacy. He always connects what he is talking about to the locality, for instance using the STS Sound Health Explorer to discuss local beaches. He thinks that increasing members of the public, approaching a critical mass, understand the issues and are advocating for improved laws at the local, state, and national levels. However, Bill said that he also understands Paul Stacey’s frustration with fertilized lawns and other environmental insults. Jim Hagy said that the key was the proper design of communities from the beginning that were also good for the environment. Jessica concluded by thanking everyone for input, inviting further input, and stating that the research phase of their effort would conclude by January with a draft communications plan by March and a final plan by July.