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Long Island Sound Eelgrass Collaborative Meeting – Virtual
September 24th, 2024 (10:00-12:00)

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Participants: Jim Ammerman – Long Island Sound Study/NEIWPCC; Juliana Barrett – UCONN; Mike Bradley – University of Rhode Island; Jennifer Burton – NY DEC; Della Campbell – NY DEC; David Carey – CT Department of Agriculture; Jill Carr – MassBays National Estuary Partnership; Carriel Cataldi **–** CT DEEP; Sara Cernadas-Martin – NY DEC; Emma Coffey **–** CT DEEP; Phil Colarusso – US EPA; Eve Franklin Lynes – SAVE Environmental; Tessa Getchis – UConn; Jessica Griffin - Northeastern University and The Nature Conservancy; Ashley Hamilton – CT NERR; Torrance Hanley – Sacred Heart University; Stephen Heck – Stony Brook University; Emily Herz **–** CT DEEP; David Hudson – Remote Ecologist; Gavin Jackson – CT NERR/ UCONN; Simen Kaalstad – Atlantic Coastal Fish Habitat Partnership; Shauna Kamath – NY DEC; Matthew Leason – CT NERR/UCONN; Peter Linderoth – Save the Sound; Katie Lund – CT NERR; Sabrina Lyall **–** CT DEEP; Jon Morrison – USGS; Kevin O'Brien – CT NERR; Andy Payne – Audubon; Tessa Peixoto – MA DMF; Sabrina Pereira – NOAA; Susan Pinchiaroli – Columbia Journalism School; Maria Rosa – Connecticut College; Cori Rose – USACE; Maeve Rourke – CT DEEP; Athena Ryan – Dominion Energy; Judith Sarkodee-Adoo – NY DEP; Forest Schenck – MA Division of Marine Fisheries; Courtney Schmidt - Narragansett Bay Estuary Program; Eric Schneider – RI DEM; Evelyn Spencer – US EPA; Adam Starke – The Nature Conservancy; Isabelle Stinnette – Hudson River Foundation; Kelly Streich – CT DEEP; Cayla Sullivan – US EPA; Marek Topolski - MD Department of Natural Resources; Hannah Vagts – Fishers Island Seagrass Management Coalition; Robert Vasiluth – SAVE Environmental; Jamie Vaudrey – CT NERR/UCONN; Marissa Velasquez – Stony Brook University**;** Tim Visel – Community Member; Emily Watling – CT NERR/UCONN; Greg Wilkerson – NY DEP; Abbie Winter – CT DEEP; Harry Yamalis – CT DEEP

I.   **Welcome and Brief Review of the June 12th Workshop: Outcomes and Next Steps**
      – Katie Lund, CT NERR

Outcomes of the [Long Island Sound (LIS) Eelgrass Collaborative Workshop](#) were highlighted, with a focus on current and future meeting topics chosen by the workshop's "impact-effort grid" priorities. These priorities were identified by restoration, water quality, and management breakout groups.

II.   [**Updates on the 2022 Summer Eelgrass Survey and Progress on the Intercomparison Study**](#) **(PPT link)**
      – Mike Bradley, URI

Q&A
Where do drone surveys fit into the ideas of fixed wing, underwater, and satellite?

- The drone is not a fixed wing aircraft, it is propellered, though fixed wings are available. Those are lightweight and can be easily moved by the breeze, so it is difficult for the aircraft to maintain a pre-programmed flight path. Propellered are extremely stable drones even under windy conditions. The goal of the drone imagery is to create a Tier II level assessment at these sites. With the imagery and the underwater video, I hope to produce a sitewide percent cover map of the three sites to use for a trend analysis.

Where will the latest imagery be posted, and roughly when?

- We are hoping to work with UConn CLEAR again, where past (2017) imagery is currently available. Draft imagery will be turned over to us very quickly, as we prefer to collect and use in the same calendar year, though the final will likely not be available until 2025.

Your last slide mentioned that no eelgrass was found in the Niantic River. Is that in the same area where Dominion samples?

- This is in the same area that Dominion does their surveys. We were very surprised to see no eelgrass in our September surveys of the Niantic River, despite seeing eelgrass there in 2017. From this point of view, eelgrass will be listed as a loss in the upper Niantic.

Information on Niantic R. Eelgrass - Athena Ryan (Biologist, Dominion Energy - Millstone Power Station)

- There was a die-off sooner than expected in the river. Usually we see it start in September, but we saw it in the third week in August. All the sample beds had started wilting and could not be collected from. This happened last year as well, where sampling was attempted in September, but early die-off prevented it. This August sampling was an attempt to address that issue, instead exhibiting that the die-off starts earlier in the month of August. June and July eelgrass population was as expected this year, though.

To Athena Ryan: based on your experience in the Niantic, does the vegetation usually die off completely at the end of the season? Is this an annual population rather than perennial?

- By the end of September, historically, the vegetative shoots of the eelgrass have completely died off. We usually do not look outside those four months for samples. Every summer in the past, Dominion has been able to collect eelgrass within those four months, but the last two years there have been no collections due to that early die-off.
  - *What do the flowering rates look like in that meadow? Are there high flowering rates that are driving the population forward?*
    - We have sampled for vegetative and reproductive shoots. Comparatively, there are not as many flowering stalks.
  - *An interesting comparison would be the percent of shoots that are reproductive – even if density is lower.*
    - We could easily calculate percent from our counts.

Back to Mike Bradley: *How do you incorporate this new information from Dominion into your ground-truthing? You now have evidence that there was eelgrass, though not from your individually collected data.*

- It would still go down as a loss from 2017 to 2024, even though Dominion was able to see some in June and July. We are seeing a change in timing of when eelgrass is disappearing, specifically within the past two years. This could count at the Tier I level as a loss. With warmer summers, eelgrass is senescing earlier in the season. This survey captures that, which was the hope of the drone surveys. The big picture question here is where else is this happening in Long Island Sound?

You can clearly see a difference between 2017 and now, so can you do abundance over time to see how the meadows are growing? How likely is it that you will do this next year?

- Abundance over time is really the "Tier III protocol," which are more in-water diver surveys, done for transects, biomass, and ecological studies. While that is part of the overall mapping and monitoring protocol, it is not really part of this project. This data was originally collected by members of SeagrassNet.

- We will do this again, following the same exact process next year. With luck, we will have the aerial imagery to get two years of data.
  - *This could be interpreted as biomass, but it could also be interpreted as acreage. Could you do changes in acres over time?*
    - If abundance equals acreage, then yes, we will do changes in acreage over time.
  - *The aerial surveys line up with tasked satellite photos done through the FISMC – do you want access to these?*
    - Yes. It is 50cm resolution rather than 4 meters, which is the exact data I need.

For mapping purposes, have you identified a target density or % cover to determine the edge of a bed?

- There is no hard and fast data on this. However, we are looking at remotely sensed data. Anything under 5% coverage is a little too sparse for the 16,000-foot imagery to detect any eelgrass. The answer from this project's perspective is that the edge is between 5% and <10% total cover. This project has significantly more underwater video data, though, and sparse coverage seems to go on for a longer period. That 5% cover can go quite far, which should be considered in edge determination.

Do you anticipate any issues in terms of meadow changes over the course of the season affecting your photo interpretations?

- The method used now at 16,000 AGL will miss the beds that die off in August and September. The question is how much acreage loss is that? The LIS acreage is about 1,500 acres, this die-off is only about 10-15 acres. Whether or not it reflects an overall decline should be considered, as the intraseasonal beds may impact the overall trends in seasonal analysis.

Is this something we will be able to see in the intercomparison study since we are also looking at seasonal variability (i.e., seeing where die-offs are occurring earlier)?

- These are the benefits of using satellite imagery. The goal of this project is to develop a plan. If the LIS Eelgrass Collaborative feels that quantifying and assessing these ephemeral beds is important, then the aerial imagery at 16,000ft and the Tier I survey is not going to cut it for that part. We may need to do something else, like looking at historical satellite imagery since there is a longer dataset to choose from and view. For the Niantic River and this project, we only have imagery for July and September. The data collected is also flawed, especially in the analysis of these ephemeral beds. As the temperature increases, these smaller coves that had eelgrass are likely not going to be viable habitat.

III. [Scope, Timing, and Discussion on the Next Eelgrass Habitat Suitability Index (EHSI) Model](#) (PPT link)
   – Jamie Vaudrey, CT NERR

Jamie Vaudrey and the Cornell Cooperative Extension are looking for volunteers to be involved in the EHSI Model Project. A [Microsoft Poll](#) was launched to gauge who wants to be involved and at what level. The 2013 EHSI model was briefly reviewed and described, specifically highlighting weaknesses and missing data that are to be addressed in the model update. A timeline with future steps was shared, as well as field site methods to assess the skill of the updated model.

The work will be conducted on an Open Science Framework platform to allow the sharing of information as it becomes available to the Collaborative group. See the [presentation link](#) for more details.

Q&A

Is it possible to extend the survey West into New York City?
- We do not currently extend it into NYS. I will see if it is possible. The limitation of this model is that we need very consistent data that is present across the sound in a systematic way.
- If the data is there, moving further West is possible. It is just a matter of where the boundaries are drawn for the creation of the maps.
  - Funding is not available outside of LIS, so that specific boundary would need to be respected when looking to spread further.

Have you considered Dissolved Oxygen in the water and the soil? How is wave energy included?
- We did not include DO in the sub-aqueous soils in the original model, though we did include it from the water column. Sulfide is a better indicator in the soil rather than oxygen. High sulfide means you have low oxygen. That might be the indicator we look at, especially since that data is already available.
- As we were writing this proposal for this project, I asked about wave energy data. We could use a layer that represented the wave energy in LIS.

IV. Guidance for Seed-Based Restoration & Transport (White Paper) and Next Steps for Draft BMPS – Katie Lund, CT NERR

The LIS Eelgrass Collaborative Workshop in June helped identify priorities for eelgrass restoration and management, including the development of guidance for eelgrass seed transport. A brief update was shared on work conducted by a summer CT NERR legal intern, who drafted a white paper focused on interstate eelgrass seed transport for restoration. The document will clarify agency guidance and summarize collected information from a bi-state approach.

Also of note: Steven Schott from Cornell Cooperative Extension is working on a related topic- drafting a set of Best Management Practices (BMPs) for seed based restoration and transport.

Collaborative members were invited to help edit and finalize these two documents before their next December meeting.

V. [Flowering Study-Field Season Highlights & LISS Updates](#) (PPT link) – Cayla Sullivan, EPA & Partners

A description of the LISS-EPA flowering study assessment approach was shared, with updates from individual partners about their respective project locations. See the [presentation link](#) for more details about the following locations: Esker Point (CT DEEP), Heckscher State Park (NYDEC), Barleyfield Cove/Fisher's Island (FISMC)

A request for proposals (RFP) in collaboration with NEIWPCC is going to be released for LIS seed based dispersal, with the goal to further understand the meadows of LIS and eventually encourage a shift to seed-based restoration.

VI. Agency/Partner Updates

CT DEEP, Kelly Streich
- Evaluating the feasibility of drone imagery to measure total eelgrass meadow area.

- o   Utilized ArcGIS Pro, but found inconsistencies
- o   Computing power for these methods is key
- o   Compared machine VS hand delineation
- Developed a final report with training exercises and available training data.