Hampton-Seabrook Estuary (HSE) Collaborative Meeting

September 27, 2023
11:00AM – 12:30PM

Meeting Minutes

1. **Welcome and Introductions**

   Rayann welcomed participants and reviewed the agenda.

2. **Steering Committee & Coordinator Updates**

   Rayann shared that the Steering Committee has wrapped up its Charter. The Coordinator has also been working on the project tracker. Thank you for the feedback from others to keep that up to date.

   One project added is a LOI for the Regional Climate Resilience Challenge Grant. Will hear back in early October about whether NH CAW is invited to submit a full proposal. The LOI included a number of projects and project partners. Projects that are most relevant to HSE are:

   - Implement 2023 HSE Management Plan (EMP) through administration of a small grants program and dedicated staff support for volunteer municipal Conservation Commissions.
   - Establish baseline assessment and long-term monitoring protocol for HSE salt marsh.
   - Deploy 3-year nature-based ditch restoration in ~120 acres of town-owned salt marsh.
   - Upgrade the tidal South Main St culvert in Seabrook to reduce flood and sea level rise risk by elevating an important access road for a low-income neighborhood and evacuation route for beach communities and to restore natural flows for more resilient salt marsh habitat, engaging community and neighborhood groups to support planning, design, and restoration of an impaired upstream salt marsh.
   - Implement recommendations from the Hampton Harbor Flood Study, utilizing the hydrodynamic model to evaluate economic and physical feasibility of adaptation options in conjunction with community conversations.
   - Continue community engagement to operationalize findings from the Just and Equitable Voluntary Elevation and Buyout Pilot, modernizing the Building Department and supporting FEMA grant applications.

   Updates from Steering Committee members:

   Jay shared an update on SHEA's work on the PSM. One part is the Conservation Coordinator position. In the process of finalizing a job description with the Conservation

Commissions. Hope to be able to post the position in late October to early November and have someone in that seat at the end of 2023 or January 2024. If anyone is interested in getting a copy of the job description and sharing it, Jay will be happy to forward it to you.

Betsy reiterated that NH should hear back about the NOAA Regional Climate Resilience Challenge Grant in earlyish October.

3. **Field Work Report Out**

   a. **Pepperweed removal – Kevin Lucey, Habitat Coordinator, NHDES Coastal Program**

A recording of the presentation is available with the September 2023 meeting material at: https://prepestuaries.org/hampton-seabrook-estuary-collaborative/

Summary points:

- Pepperweed removal and mapping in Rye and the north side of HSE in 2021 and 2022.
- Nature Groupie found 5 new sites, doubling the number of known sites in NH.
- Partners tried to respond to the 12 sites in NH. Permit for herbicide and presentations. Approved to apply herbicide on public land. Treatment was monitored. Extra time is needed to coordinate with private landowners. This is a next step.

   b. **Invasive plan removal, and salt marsh monitoring and mapping – Mary Ann Hill, Chair, Hampton Falls Conservation Commission and UNH students Erin Finken, Jayden Mowery, and Katie Ryan**

A recording of the presentation is available with the September 2023 meeting material at: https://prepestuaries.org/hampton-seabrook-estuary-collaborative/

Summary points:

- Erin Finken, Jayden Mowery, and Katie Ryan, UNH students, presented their work.
- Identified and recorded details on saltmarsh health and specific vegetation, measured ditches, floral species abundance.
- Installed stakes in the marsh to measure deterioration
- Used a GPS unit and mapped with GIS and Basecamp software. Created an interactive map.
- Created a small guidebook on saltmarsh vegetation.

Questions:

- Chris Meaney: What surprised you the most?
  - Katie: The diversity of species
  - Jayden: The extent of the ditches out there
  - Erin: Learning about the marshes while deciding what to do for the project.
- Mary Ann recommended that others consider UNH interns in the future.
- Mary Ann mentioned the digital twin and something we can look into to track the salt marsh systems and change. Accuracy is within an inch.

- Jay congratulated the students and asked whether the Conservation Commission would continue to do this. Mary Ann said that they had budgeted for more interns and planned to continue.
- Next steps – possibly get funding for future restoration and ditch remediation, produce a concept plan on how to restore marsh health

c. Saltmarsh sparrow monitoring – Grace McCulloch, UNH Graduate Student & Margaret A. Davidson Fellow at GBNERR

A recording of the presentation is available with the September 2023 meeting material at: https://prepestuaries.org/hampton-seabrook-estuary-collaborative/

Summary points:

- Monitoring 2 locations on the coast and 2 in Great Bay. Using rapid demographic surveys and nest monitoring.
- 51 nests monitored. The nests are closely located, and nests that fledged and flooded at different times of the summer were also close.
- A lot of flooding occurred. More nests failed than succeeded this year.
- Captured saltmarsh sparrows at all sites in the rapid demographic surveys. Found that sparrows are returning to other sites.
- HSE sites monitored last year but due to the low numbers, efforts weren't focused in that area this year.
- 2023 field season report coming out later this fall.

Questions:

- Chris Meaney: Do you see more success when nests are more closely located?
    - Sometimes they are nesting in a location that is more likely to flood, but it's also timing. We also know that early season tend to fail more than later season.
- Rayann: Have you seen a connection with birds that are nesting in their first year vs returning?
    - We do know from other research that there is some learning, but this isn't part of Grace's research.
- Bonnie: When do sparrows start heading south and do other states monitor?
    - Late October. There is some monitoring. We know that many go to North and South Carolina. It would be fun to find out specifically where the NH birds are going.

d. Marsh currents, turbidity, and particle dispersion - Tom Lippmann, UNH Dept. of Earth Sciences & Center for Ocean Engineering

A recording of the presentation is available with the September 2023 meeting material at: https://prepestuaries.org/hampton-seabrook-estuary-collaborative/

Summary points:

- A number of researchers are working on understanding how sedimentation occurs in salt marshes

- Problem is that the sedimentation rates are not keeping up with sea-level rise and the result is that low marsh is becoming mud flat and high marsh is becoming low marsh.
- Average rate of sedimentation is about 2.58 mm/year, while SLR is 4.17mm/year averaged between the Boston and Portland Tide gauge)
- Looking at solutions like pumping sediment ('mud motor')
- Developed a hydrodynamic model with offline particle-tracking
- Can we use the model to understand the viability of such as system in the estuary?
- Need to improve the model to estimate enhanced sedimentation rates on the marsh
- Deployed GPS surface drifters to measure diffusivity
- Experiments will continue on into the fall
- Also doing dye tracing experiments, tracking with boats and airborne sensors on drones
- Doing fine-scaled field experiments

Questions:

- Chris: Are you measuring accretion? Surficial sedimentation?
    - It would be nice to be able to do that? The sand plates measure that over time. They accumulate about 2 mm/yr. It's a minute amount so hard to measure. We do measure turbidity coming into the marsh and coming out of the marsh.
- Chris: The markers could be easier than the SETs.
    - Tom will talk to Dave and look into this.
- Susan: Using marker horizons or sedimentation plates could be helpful in terms of increasing sample size or looking at short term events. Do you have an impression of the relative importance of large storms vs monthly accretion events?
    - Extreme storms are changing modeling and the flow in the estuary. Unknown what the impact would be in the marshes. Not sure that our marshes would be accurate in predicting this. Would think that closer to the mouth, the larger storms are going to have a bigger impact. The amount of sloughing off that is occurring is surprising.
- Mary Ann: What is the sediment source?
    - Mud mower? Could be dredging. Would be a secondary investigation, what is the source, what are the secondary impacts.
- Ben: Questions about permitting, unintended consequences. What methods are most efficient to put more material out there?
    - The model will be helpful. We can put dye in and trace it for a while. In a short period of time, distribution can be quite extensive. We are looking at the viability of different methods.

4. **Natural Features Protecting Roadways - Lauren Dwyer, UNH Civil & Environmental Engineering Graduate Student**

A recording of the presentation is available with the September 2023 meeting material at: https://prepestuaries.org/hampton-seabrook-estuary-collaborative/

Summary points:

- Presented on her thesis: Climate Change Resiliency for Coastal NH Roads with the Applications of Natural and Nature-Based Features.
- SLR impacts on coastal roads: service interruption, groundwater rise, and pavement overwash during storms, which is the focus of Lauren's research
- Traditional grey adaptation solutions include seawalls, riprap, raising road elevation
- Natural and nature-based features (NNBF) utilize and mimic performances of ecosystems. Ex. salt marsh, beaches, and dunes
- Conducted interviews with state and federal stakeholders to gain an understanding of knowledge and concerns regarding SLR and coastal roads and using NNBF as an adaptation solution.
- Reasons for not implementing: state doesn't have adequate space for NNBF, department does not have the knowledge or capacity for successful implementation, they have done a small trial and it was unsuccessful.
- Natural features mapping to determine where and how existing natural features protect coastal roads from SLR and storm surge now and in the future. Deliverable: maps of natural features in coastal NH categorized based on protection. Used a K-means cluster analysis.
- Assigned salt marshes into a protection category and mapped results. Lots of protection for storm buffer and erosion control in the HSE vicinity, but little to no protection for SLR due to low elevation.
- Hampton Beach protected in all categories
- Beaches dunes and salt marsh occur in the disadvantaged census tract in Hampton. Combination of these features is important for protection.

Questions:

- Alyson: Kudos Lauren, we are often talking about the values of natural features and your work is branching into an audience that we are not often engaging with
- Betsy: How can this kind of work could dovetail with other work like prioritizing tidal crossings? There is high interest from NOAA in understanding and ranking vulnerability.
    - Kevin: Decisions to replace culverts are opportunistic. But the BIL allows us to be more proactive and set different priorities.
    - Tim: We get an opportunity almost every winter to field truth this work. This gives us great insight into the impacts in the future. Would like to do more with those opportunities.
    - Rayann: The length of time that roads are inundated is not often documented. How to find the opportunity to document that.
    - Betsy: Mass CZM has a great MyCoast app that allows citizens to capture impacts.

5. Grant Opportunities

Open grant opportunities as of September 24, 2023:

- NOAA-NMFS-HCPO-2023-2008081
  NOAA's Transformational Habitat Restoration and Coastal Resilience Grants Under the Bipartisan Infrastructure Law and Inflation Reduction Act
  $1,000,000 - $25,000,000
  Due November 17, 2023

- NOAA-NMFS-HCPO-2023-2008173
  Coastal Habitat Restoration and Resilience Grants for Tribes and Underserved Communities, Under the BIL and IRA
  $75,000 - $3,000,000 award
  Due: Dec 19, 2023

- NOAA-OAR-SG-2024-2007783
  2023 Inflation Reduction Act Climate-Ready Workforce for Coastal States and Territories Competition
  $500,000 - $10,000,000
  Due: February 13, 2024

- NOAA-NMFS-HCPO-2023-2008056
  NOAA's Restoring Fish Passage through Barrier Removal Grants Under the BIL and IRA
  $1,000,000 - $20,000,000
  Due: October 16, 2023

- EPA-REG1-WPDG-23-01
  FY23 and FY24 Region 1 Wetland Program Development Grants
  Total of $2,722,000 available, 25% match
  Due: November 22, 2023

- EPA-EE-23-01
  Environmental Education Local Grants Program for Region 1
  $50,000 - $100,000, 25% match
  Due: November 8, 2023

- F24AS00012
  NAWCA 2024 US Small Grants (North American Wetlands Conservation Fund)
  $1,000 - $250,000, match requirement
  Due: October 12, 2023

6. **Project & Other Updates from Collaborative Members**

   Ran out of time for this agenda item.

7. **Networking & Open Discussion**

   Ran out of time for this agenda item.

Note: presentation slides and recordings will be posted to https://prepestuaries.org/hampton-seabrook-estuary-collaborative/.