



WORKING MEETING: ASSESSING ADAPTATION OPTIONS FOR MARSHES IN CHOPTANK RIVER, MD

October 21st, 2025
10:00 am - 1:30 pm

This meeting will be in person at the Wharves of Choptank Visitor & Heritage Center, 3 Crouse Park Lane, Denton, MD 21629. The meeting will be held in the location's only meeting room. To request virtual accommodations, please contact the meeting organizers.

Purpose: Master students with the University of Michigan SEAS program are assisting Envision the Choptank and the Chesapeake Bay Program to synthesize data and information on marshes in the Choptank River to inform resilience planning. To date, information on invasives (phragmites, emerald ash borer), sea level rise, marsh migration, adjacent land use, marsh condition and change has been collected to inform marsh vulnerability. The Master students will provide a project update including their progress on GIS analyses with available Choptank River data, literature review, and informational interviews with experts. We will use breakout groups with the students, practitioners, and researchers to discuss questions on adaptation options and monitoring, research, and practical implementation considerations related to improving resilience of Choptank's marshes.

Agenda

- I. Meeting Agenda and Review (10:00 – 10:10)**
Participants will be welcomed by the students and meeting organizers. A brief background of the project and the purpose of today's meeting will be shared.

Decisions [required]:

1. None

Actions [required]:

1. None

Discussion Notes [optional]:

- Meeting facilitators Joanna Ogburn and Emily Thorpe introduced the meeting and gave a brief background of the project.

- II. Student Presentations (10:10 – 11:10)**
Paul, Ilana, William, and Mia (UMich SEAS students) will each give a 15 minute update presentation on what they have done so far in the project and questions they have for the breakout group sessions. The questions presented by the students will guide the breakout sessions.

Decisions [required]:

2. None

Actions [required]:

2. None

Discussion Notes [optional]:

- The students' presentations are posted on our [meeting website](#).

III. Breakout Groups

(11:10 – 12:00)

Participants will break into working groups to address questions the students have prepared and help think through next steps. Participants will choose breakout groups based on student questions/work.

Decisions [required]:

3. None

Actions [required]:

3. None

Discussion Notes [optional]:

- Due to attendance, we discussed the students' questions as a group.
- Patricia Delgado:
 - o It would be beneficial to make more specific in understanding community types being impacted; example mapping phragmites, understanding quantity change, map low/high marsh, identify how communities change with shifts to help understand where to restore
 - o Identify primary channels and look inside the marsh to better understand how to target restoration efforts
 - o Have you considered storm events? These are important to keep up with SLR, as they bring up sediment that stabilizes
 - o Talk to university people who work in wetlands
- Elliott Campbell, Maryland DNR (chat):
 - o I have an article under review comparing ecosystem services of Phragmites and native high marsh that could be useful, the pre-print is available here-
 - o https://www.researchgate.net/publication/396023106_The_Case_for_and_Against_Phragmites_australis_An_Ecosystem_Service_Cost-Benefit_Analysis_for_ChESApeake_Bay_Marshes
- Larisa Prezioso:
 - o Does anyone have any thoughts on the ditching inside of marshes? Marshes have been ditched to help with drainage, what is the impact of that? How does that expedite some of these changes? Are there ditches in areas adjacent to the Choptank that are in progress/being planned and what are the consequences of that?
- Dylan Taillie:
 - o William, you might have already talked to Rachel Bacher, but the SLAMM model would be really helpful for you and modeling into the future, to your point of farmlands and forest transition, you can get an idea of how much land is expected to transition.

- Emily Thorpe:
 - It might be good even to quantify which marshes have space to migrate inland and that could potentially be priority spaces for conservation easements.
- Patricia Delgado:
 - It is hard because nature is going to do what it is going to do, we cannot stop it or avoid it. How do we get resources and get people involved?
- Dylan Taillie:
 - To Paul's point, 50% in the study were not up for an incentive program, but the other 50% were, which is kind of a positive thing. Incentive programs are a lot of work. Interventions don't have to be as complicated as putting a bunch of sediment down, it could just be planting cypress or more salt tolerant species - looking for where there are kind of low energy, low funding required interventions. But yea, nature is going to do its thing.
- Patricia Delgado:
 - And maybe educating people, and compensating those who are already doing something or willing to do something. For example we look at elevation maps and see what areas people are needed to do something in and target there. It would also be nice to quantify how much land would be lost in SLR so we know how much would be lost and of what land use type.
- Paul Cirillo:
 - Regarding the threshold of elevation for transition, I found a paper that calculated the median threshold for elevation from tidal marsh to forests. I wonder if that can be incorporated into future analysis to determine SLR loss. For context it is .54 meters.
- Nicole Carlozo:
 - (Regarding farmers' role in marsh transition): There is interest, but it is so so hard to meet capacity. And an organization like The Nature Conservancy has a lot of priorities and this might not be very high up on them. There is a lot of interest in doing these types of projects, but the limiting factor is capacity.
- Joanna Ogburn:
 - There could be some solutions. Maybe some sort of pilot project or demonstration so that way we could show other farmers or landowners that, here are options, here is how it will play out. There is a lot of uncertainty because farmers and landowners don't know how these solutions will work, and it would be a great tool to be able to have an example or demonstration going through an early adopter.
- Dylan Taillie:
 - There's a big question in what we want out of this as well, it depends on what we are restoring for. Are we restoring marsh specifically for a species, where we are putting in effort to protect and enhance current grass types and elevation levels, vs. if you just want marsh to exist. Restoring for a species would mean you want to remove phragmites, but there are benefits to phragmites in sediment trapping if you just want a marsh to exist. If we want to have a pilot program or any of these solutions we need to identify the larger goal of what we are restoring for.
- Joanna Ogburn:
 - Yes, building off of that, what does resilient mean? What makes a resilient marsh? Is it healthy? How do we know when we have hit the benchmark?
- Patricia Delgado:
 - It is about having a good understanding of your site, and what is happening there. Like I said earlier, change and transition is happening. If we remove certain species, we face erosion. If we add certain species, we get the opposite effect. We have to understand the site, what species we could be restoring for, or have otherwise a restoration goal.

- Paul Cirillo:
 - Are there specific management goals listed on websites for the managing entities of these marshes? Or other environmental conservation sites? That could be helpful for us to go through and make a restoration plan tailored to each site.
- Larissa Prezioso:
 - Speaking from my experience, no - we do not have one. And there is also an issue of marsh access, we are missing a lot of information because there is no access through something like a dock that we can walk out on and take samples or observe.
- Emily Thorpe:
 - It is an interesting question though because marshes may have different priorities. For example, the marsh outside of the Wharves of Choptank center here is facing erosion, and a prison sits near it so people are worried about land eroding too close to the prison. So it is an infrastructure question. Not dissimilar to Dover bridge, which is a major roadway for that part of the county.
- Paul Cirillo:
 - I wonder if there is a way to know the priorities of the landowners - for example, if they are super into native plants or they don't care at all, and we can identify strategies from there.
- Patricia Delgado:
 - I think education is important more than anything. I would spend my time talking to them and reinforcing the understanding that this is a natural process that is happening and they need to prepare for it and try to do something instead of spending all of our resources delaying it.
- Larissa Prezioso:
 - (In reference to understanding erosion and sediment accretion): There was a restoration analysis done for Choptank marsh in 2014, they looked at a paper that was done in 1986, but they found that the Choptank had an accretion rate of approximately half a centimeter per year, and they compared this with the rate of sea level rise. The island complex would need to be approximately 11.3" to 1 ft higher than existing to be competitive with sea level rise. I don't know if there is a calculation that can be done based on this study, if it can be extrapolated to other materials or if we can analyze this information, if that would be useful.
- Joanna Ogburn:
 - Back to what we were discussing earlier, I was also curious about the goals for restoration; having a better understanding of what functions currently exist in the marshes at play here. Or maybe there are model projections about what is going to be lost, for example with loss of Ash trees, and do we have a good enough understanding of ecological functions we stand to lose if we take no action.
- Emily Thorpe:
 - I know in our monitoring webinar Jake Shaner, who is with Horn Point now, was interested in understanding more of the role these upper marshes play in terms of fish spawning and nursery habitat, and that could be potential research around whether they tend to have the same level of ecosystem service.
- Patricia Delgado:
 - I think we need to remove our mentality of looking at what we are going to lose. It is more like a swap. Nature is always changing and us and nature are responding to these changes, so maybe we just need to keep what we have as best as we can instead of restoring back to some mystery level.
- Dylan Taillie:
 - I am curious what is the optimal time to do planting of more salt tolerant trees in the transition to salt marsh? Is it going to transition where we are going to lose root

systems that are holding sediment and fish habitat, and if we do specific tree plantings to try and hold root systems together, at what point would we do those? I don't know if this reflection is helpful but we can help it along in the transition.

- Patricia Delgado:
 - The timing is hard to get right. We have planted many times, and only one area has a small success, though the timing was the same on all of them. It is better just to let the marsh be a marsh where Ash trees are dead. It will be interesting to see what all the dead wood structure does for the marsh as well. It takes time to gather information to inform these decisions, and the more information you can gather now the better decisions you can make in the future.
- Joanna Ogburn:
 - If we take no action, what is the projected function that results over time, and what do we want to do about it?
- Emily Thorpe:
 - That is where quantifying the amount of marsh we stand to lose and stand to gain with SLR might be helpful, and then we take it case by case, especially since these marshes are not interconnected. If one provides a climate resilience function, maybe we should invest more in restoration there, whereas in these other ones we will just let nature take its course and migrate inland. So like Patricia was saying, it will be really context specific, not just a blanket solution.

IV. Lunch Break (12:00 – 12:45)
Participants will bring their own lunch. Tables are available outside and inside the venue.

V. Next Steps Discussion and Break Out Group Re-cap (12:45 – 1:30)
Break-out groups will share what they discussed. The group will also go over ideas and next steps to support further analyses that can help inform the feasibility of adaptation options and identify different/unique ways we can use available datasets.

Decisions [required]:

4. None

Actions [required]:

4. None

Discussion Notes [optional]:

- The group decided the following [next steps](#):
 - For each marsh, students will identify places with more marsh migration potential in order to target landowners. They will also identify different needs for each marsh (preservation, restoration, migration, etc.). This will help them to select areas that can serve as early adopter sites for strategies.
 - Additional research is needed; research support can be found from UMich, which can be applied for in the late summer and early fall, as well as working with UMCES community service and other community engagement. Additional research could be habitat mapping, elevation surveys, sediment transport, mapping Ash tree loss (combine elevation and migration corridor data to target tree planting), interstitial salinity monitoring, and determining areas for Phragmites management.

<i>Name</i>	<i>Affiliation</i>	<i>Name</i>	<i>Affiliation</i>	<i>Name</i>	<i>Affiliation</i>
Amanda Poskaitis	Underwood & Associates	Elliot Campbell	Maryland DNR	Julia Fucci	CRC
Anna Hamilton	Tetra Tech, Inc.	Mark Scallion	Chesapeake Audubon Society	Rachel Bacher	MDNR
Richard Tian	UMCES CBPO	Sara Coleman	MDNR	Taryn Sudol	Maryland Sea Grant
William Nardin	UMCES - Horn Point Lab	Joanna Ogburn	Envision the Choptank	Emily Thorpe	Envision the Choptank
Hilary Gibson	JBO Conservation/ Envision the Choptank	Mia McNinch	University of Michigan	Paul Cirillo	University of Michigan
William Zong	University of Michigan	Ilana Greenspan	University of Michigan	Dylan Taillie	MDNR
Laura Prezioso	Eastern Shore Land Conservancy	Nicole Carlozo	MD DNR	Pamela Mason	Wetland Workgroup Chair
Patricia Delgado	Jug Bay Wetlands Sanctuary				