Climate Resiliency Workgroup Meeting

September 18th, 2025
1:30-3:30
Visit the meeting webpage for meeting materials and additional information.

Purpose: This meeting will feature presentations from ongoing and recently completed projects supported by the CRWG, including the Choptank Marsh Adaptation project with the university of Michigan SEAS students and the Baltimore Vulnerability study with the NOAA National Center for Coastal and Oceanic Science. The group will also discuss the past success of the workgroup, projects completed, and future plans and hear an update on public feedback. Finally, the workgroup will provide feedback on their experience with the Climate Resiliency Workgroup to help inform transition activities to support the revised Chesapeake Bay Watershed Agreement (currently in draft).

Minutes

I. 1:30-1:35 - Welcome

Lead: Mark Bennett, Chair (USGS), and Julie Reichert-Nguyn, Coordinator (NOAA).
Mark and Julie will welcome meeting attendees and introduce today's meeting.

II. 1:35-1:55 - Michigan SEAS Students Marsh Adaptation Presentation

Paul Cirillo, University of Michigan student.
Paul will provide an update on the students Marsh Adaptation project, including project scope, progress so far, and future work.
The presentation will be posted here.

Decisions:

1. None

Actions:

1. Julie Reichert Nguyen to schedule a meeting with Molly Mitchell and UMICH student team to discuss marsh change methodology regarding limitations of using Digital Elevation Models (DEMs)
2. Julie Reichert Nguyen to schedule a meeting with Neil Ganju and UMICH student team to discuss use of Unvegetated to Vegetated Ratio (UVVR) and marsh lifespan metric in assessing marsh adaptation options

Discussion Notes [optional]:

- Summary:
    - Molly Mitchell pointed out that there are limitations to DEMs in evaluating marsh change because it is hard to get bare earth returns from Lidar.

    - Discussed that most farmers won't move once their land 'fails;' if farmland becomes part of a conservation easement, managers can work with farmers to help implement healthy marsh and beneficial strategies to allow marsh migration and maintain farmland before it fails.
- Full discussion:
    - Molly Mitchell (chat): This is an interesting project! Lidar (and resulting DEMs) are notoriously inaccurate in marshes because it is hard to get bare earth returns. How are you handling this issue in your comparison of elevation over time?
    - Paul Cirillo: This is definitely out of my scope of work. I don't have too much experience in GIS, so I can't really answer your question. I don't want to answer something that I don't know, but I can absolutely pass this along to my teammates to consider when developing their GIS methodology.
    - Julie Reichert-Nguyen: We are still working on the methodology, so maybe we could schedule a meeting with you. I see that Neil Gangu is in this meeting, who is one of the researchers that developed UVVR, so Neil you are on my list to schedule a meeting to talk through some of this. We are also working with some practitioners who have been on site of these marshes to verify and confirm what we're seeing in this data. We've noticed that with the Choptank tidal freshwater marshes, we don't have a lot of observed data to work with. It would be great if we could schedule time with you both since you have worked with these GIS datasets.
    - Amy Freitag (chat): How do management options like easements and relocating farmers fit into the Resist, Adapt, Direct (RAD) chart you just showed?
    - Paul Cirillo: I have talked to professionals in our interviews around relocating farmers, like how are farmers accepting what is happening to their lands? Most are of the opinion that farmers are choosing to accept that their land is degrading and their crops are failing, and they won't move once their land, for lack of a better term, fails. A lot of these farms are multi-generational, so there is a cultural aspect of not wanting to move from the lands that they have worked on for so many generations. Easements seem like they are largely through the directing part of the RAD framework, so through collaboration of marsh managers, if farmland becomes part of a conservation easement, then managers can work with farmers to help implement certain healthy marsh or beneficial strategies to allow marshes to migrate through the farmland and inland.
    - Julie Reichert-Nguyen: This project is ongoing, so we will definitely build this into any future adaptation meetings for the Adapting to Changing Environmental Conditions Outcome.

III. 1:55-2:15 - Baltimore Risk Assessment

Lead: Amy Freitag, NOAA.
Amy will present on the status of her Baltimore Risk Assessment project.
The presentation will be posted here.

Decisions:

1. None

Actions:

1. Leads for Adapting to Changing Environmental Condition Outcome review and consider method in report to help with potentially selecting subwatersheds to focus adaptation efforts.

Discussion Notes:

- Summary:
    - Julie Reichert-Nguyen notes that this GIS method of analysis, overlaying layers of infrastructure, flood hazard areas, and ecosystem services, (analytical method) might be useful for helping select subwatershed areas for the adaptation outcome.
    - Amy notes that the full report should be out in the next month or so.
- Full discussion:
    - Amy Freitag: This is meant to serve as a teaser of the report that should be out in the next month or so.
    - Julie Reichert-Nguyen: Thanks Amy this is great, the vision we are having for the Adapting to Changing Environmental Conditions Outcome if it all goes forward is that we want to look into more effects coming from the watershed around storm water management and flooding, and what is happening to the coast. The method you are using could be helpful in assisting us with picking our seven subwatershed areas.
    - Vamsi Sridharan (chat): Exposure to urban heat could increase during flood events if AC/HVAC units fail. Particularly coupled with likelihood of disease exposure with waterlogging conditions. Is this something you looked at?
        - This question was unaddressed during this meeting
    - Vamsi Sridharan (chat): Have you taken into account any existing flood-protection/mitigation infrastructure in the storm surge modeling?
    - Amy Freitag: Yes, sort of; this storm surge data is from the modeling that is being updated as we speak, it does include some flood protection and mitigation infrastructure, but individual flood protection like private property is not included in the data.
    - Michael Maddox (chat): Is this available for all of the Chesapeake Region? Amy Freitag: No, it is not, but we have a chunk on the eastern shore and a chunk on the western and it really wouldn't be that hard to put them together. And a lot of these data sets are applicable to the whole state. There is no reason someone honestly couldn't do it, except for the storm water piping, which you have to work directly with each jurisdiction on.
    - Vamsi Sridharan (chat): Do you know if there are any efforts ongoing Baywide to tie this study into flood forecasting, and early warning systems?
    - Amy Freitag: Yes, the changing ecosystems and fisheries initiative was and is currently being folded into other projects, so those models are not going away and the idea is that they become live and part of the forecast system that you receive on your phone through an app. That is the long term goal, I don’t know what that looks like in the immediate future. Individual communities have used this data as a way to combine these three forms of flooding, but we are in the baby stages of that in Oxford Maryland, so that is our test case to be determined over the next three years.
    - Julie Reichert-Nguyen: Lots of great work, and I can see a future meeting around flooding and forecasting, and I think this is a topic that will come up in our seven watersheds for communities struggling with flooding and how to

best adapt and be prepared. This is a great project, thank you Amy, it is great to see where you are at and looking forward to the report.

IV. 2:15-2:25 - Adaptation Resilience Grants Survey

Lead: Lena Easton-Calabria, RAND/MID-Atlantic RISA.
Lena Easton-Calabria will share information about a survey for workgroup members.
Find the survey here.

Decisions:

1. None

Actions:

1. Interested members fill out the survey or share with others that may run or have used climate adaptation and resilience grants of $100,000 or less; survey deadline is 10/3/2025.

Discussion Notes [optional]:

- Summary
    - Interested parties should respond to the survey by October 3rd.
    - The survey aims to learn more about how climate adaptation and resilience grants of $100,000 and less are used in this region; if you led one of these grants or know someone who has, we would appreciate a response from you.
- Full discussion:
    - Lena Eason-Calabria: I am the managing director for MARISA, the Mid Atlantic Climate Adaptation Partnership funded by NOAA, and I just wanted to hop on and share a survey that we have recently launched. We're trying to learn more about how climate adaptation and resilience grants of $100,000 and less are used in the region. If you yourself or someone at your organization has led a grant of this size, we would really appreciate any response from you. If you can pass it on to any colleagues we would appreciate that too. We are planning to host a webinar of results and an academic publication, but if there is another way this information would be useful to you let us know. You can email me if you have any questions (leaston@rand.org). We are asking for responses by October 3rd.
    - Vamsi Sridharan (chat): Lena, could you speak to how competitive these grants are?
    - Lena Eason-Calabria: Our grants are relatively competitive. We aim to reach across the region and so as knowledge of our program has grown they have become more competitive. The size of the grant varies, so the survey helps us understand how to better allocate the right kind of funding over what period and the reporting requirements to make sure this amount is as impactful as it can be.
    - Lena Easton-Calabria (chat): Lena Easton-Calabria, MARISA Managing Director, leaston@rand.org. MARISA website: midatlanticrisa.org

V. 2:25-2:45 - Workgroup Successes and Future Plans

Lead:Mark Bennett, Chair (USGS) and Julie Reichert- Nguyen, Coordinator (NOAA).
Julie Reichert-Nguyen and Mark Bennett will recap the many successes of the workgroup over the years, and give insight into future plans.

The presentation will be posted here.

Decisions:

1. None

Actions:

1. None

Discussion Notes [optional]:

- Summary:
  - Julie Reichert-Nguyen and Mark Benentt discussed the past of the workgroup- including projects such as climate change indicators on Chesapeake Progress, implementation of climate-informed data in Watershed Implementation Plans, Co-leading the Rising Water Temperature STAC workshop, creation of the Marsh Adaptation Mapper, and other collaborative efforts.
  - The Climate Resiliency Workgroup will be breaking into the Adaptating to Changing Conditions Workgroup as well as the Changing Environmental Conditions team under the proposed new Watershed agreement. The workgroup will function with an Adaptation outcome, and the Team will engage with workgroups across the partnership.
- Full Discussion:
  - See agenda item VII below

VI. 2:45-2:55 - Review of Outcome Public Feedback from Revised Agreement

Lead: Cassandra Davis, New York State Department of Environmental Conservation.
Cassandra Davis will recap feedback from the Watershed Agreement's public review period. The full comments will be posted here.

Decisions:

1. None

Actions:

1. None

Discussion Notes [optional]:

- Summary:
  - The comments in full are posted on our meeting page.
- Full discussion:
  - Cassie Davis (chat): Increase the capacity for pursuing nature-based solutions to improve planning and response to changing conditions while balancing long-term resiliency of watershed communities, economies and ecosystems.
  - By 2040, at least seven subwatershed areas have benefited from knowledge-sharing and technical assistance to identify adaptation options with nature-based solutions. These solutions include restoration and protection projects that will help address risks to people, infrastructure and habitats from changes in temperature, precipitation and landscapes.

- By 2040, workgroup activities will inform and lead to an increase in the implementation of adaptation strategies that integrate nature-based solutions in the above subwatershed areas.

VII. 2:55-3:25 - Workgroup Feedback

Lead: Julie Reichert-Nguyen, Coordinator (NOAA), and Julia Fucci, Staffer (CRC).
The workgroup will participate in a Menti to capture feedback and suggestions.
The menti results are posted here.

Decisions:

1. None

Actions:

1. Julie Reichert-Nguyen to share Menti ideas with the future workgroup leadership team of the Adapting to Changing Environmental Conditions outcome.

Discussion Notes:

- Summary:
  - Mark discussed limitations of a future Changing Environmental Conditions team, regarding lack of resources and how various expertise will be needed depending on the outcome. They discussed the ability to pull in experts to work with different workgroups when needed. It was suggested that STAC can help with this endeavor.
  - For the proposed Adaptation workgroup, it was suggested that the selected subwatershed areas do not have to start at ground zero, and it can lighten our load if we choose areas with varying levels of progress.
- Full discussion:
  - Julie Reichert-Nguyen: We will first talk about the proposed Changing Environmental Conditions Team Mark was referencing that would potentially be under STAR. They don't quite know yet how it is going to be run, how it will be structured, or how it would function. It might be more of ad hoc groups than a dedicated team, but this work would be pretty cross cutting and try to integrate changing environmental conditions science across all outcomes. So any thoughts about what you are hoping to see or any clarification questions? Mark, do you have any thoughts on how the structure would be sorted out?
  - Mark Bennett: I don't really. There would be a need for a coordinator, but there is so much up in the air as far as funding in general which is a big hurdle we are thinking through right now. In the proposal we said there needed to be resources to take action, and there is no sense in meeting with other work groups without these resources. Lee and others have to think through a way to do this. A limitation with a team is that we're going to run into an experience limitation. Depending on what groups we work with, we will need specific expertise. So that is why we are looking at a team where we have the ability to pull in experts when needed, and conduct joint meetings we can follow up on if action is taken on a science gap.
  - Julie Reichert-Nguyen: Thanks Mark, it seems like a great idea to have a directory of experts on various topics associated with certain changes that are willing to help as needed.
  - Mark Bennett: Yes, the idea is to leverage the expertise within universities etc. and identify what is needed to help.

- Julie Reichert-Nguyen: I see some other great suggestions in the Menti, maybe a mixed team assigned to users and communicators, that goes from team to team to jump start making sure goal teams are thinking about long term resilience and sustainability as targets and prioritize them as research needs if needed and connect research users. It sounds like there's a suggestion here too that maybe STAC could help support this through a sub committee for instance.
- Mark Bennett: Well, we have talked about STAC, or at least funding that would allow for meetings, and it might be a stepwise thing. The first meeting might just be with the team and the goal implementation team to identify what they are currently doing. Some have already incorporated changing conditions, others probably haven't been.
- Julie Reichert-Nguyen: The question is also how many workgroups will this team work with at a time?
- Mark Bennett: It has to be done in a kind of stepwise fashion. Again, I think the first thing to do would just be to try to set up meetings with the individual goal teams to get a feel for what they have done and prioritize from there.
- Julie Reichert-Nguyen: Moving onto the proposed workgroup for the adapting to changing environmental conditions outcome, any ideas on how we structure this workgroup? It will be a little bit different from what we have done in the past because it will be place-based with specific subwatersheds to focus adaptation work under a new proposed Healthy Landscapes GIT. The jurisdictions have expressed a lot of interest in being involved in the selection of the subwatershed areas. Looking for any thoughts and ideas we can take back to EPA and NOAA to help us jumpstart this work. There is a lot of work being done in Crisfield and identifying nature based solutions, and many organizations have been involved; it took them two years to work with the city and the community to identify these solutions, and then a year so far to try and find funding. The Wetland Workgroup estimated that it would take another year for permitting and likely another three years to implement and construct the projects. So that is ten years for the city of Crisfield to maybe get the nature based solutions they identified implemented. But that is from starting from scratch and, like Cassie said, maybe we don’t need to start from scratch if areas are selected where some of this planning and design work has been done and they need help with building capacity to implement.
- Michael C Maddox (chat): I work closely with Crisfield. Your timeline is not too far off. They are finishing up the planning and design phase without much money to actually implement any of the projects unless their BRIC money is recaptured.
- Julie Reichert-Nguyen: We have a great suggestion here, look at existing plans to implement nature based solutions as a template. Yes, I could see that being built into the management strategy as one of the first things we do. Another comment, look at focus areas that are at different starting points. And, consider how to extract and share lessons learned from the more focused watershed areas. Yes, we will be able to leverage that as well.
- Julie Reichert-Nguyen: Another great suggestion, what if some of the communities that are better resourced and more experienced become mentors for the lesser resourced communities, maybe the seven subwatersheds could train the trainers. This was Matt's comment. Great, we will be reaching out to you, I appreciate it.

VIII. 3:25-3:30 - Member Announcements and Adjourn

Discussion Notes:

- A questionnaire will be sent out to all members gauging interest in future group activities.
- UMD will be hosting their winter workshop in January, see here. Talk to Michal Maddox for more information.
- MD DNR released a coastal flood explorer tool, and you can sign up for upcoming training here.

Next Meeting: TBD, please stay tuned for the announcement of an Adapting to Changing Environmental Conditions Outcome meeting.

Attendees:

Name	***Affiliation***	***Name***	***Affiliation***	***Name***	***Affiliation***
Amy Freitag	NCCOS	Ellen Egen	Aqua Law	Julia Fucci	CRC
Arianna Johns	VA Department of Environmental Quality	Emma Corbitt	HRPDC	Julia Sharapi	Stanford
Ben McFarlane	Hampton Roads DCVA	Erik Meyers	TCF	Julie Reichert-Nguyen	NOAA NCBO
Cassie Davis	DEC NY	Erin McNally	EA Engineering	Katie Brownson	US Forest Service
Debbie HerrCornwell	Maryland Department of Planning	Jasmine Edrington		Katie Drummond	ShoreRivers
Lena Easton-Calabria	MARISA; RAND Corp.	Mark Bennett	USGS	Matt Konfirst	EPA
Meg Cole	CRC STAC	Michael C. Maddox	UMD Climate Resiliency Network	Michele Morgado	MDE
Molly Mitchell	VIMS	Neil Ganju	USGS	Nicole Carlozo	MDNR
Paul Cirillo	Michigan SEAS	Rick Mittler	Alliance for the	Scott Lerberg	VIMS

			Chesapeake Bay		
Taylor Woods	USGS	Vamsi Shridharan	Tetra Tech		