Climate Resiliency Workgroup

December 14th, 2023

1:30 – 3:30 PM EST

Event webpage:
https://www.chesapeakebay.net/what/event/climate-resiliency-workgroup-meeting-december-2023

This meeting will be recorded for internal use to assure the accuracy of meeting notes.

Workgroup Actions

- *Effects of Sea Level Rise Funding:*
  - *Connect with workgroup members willing to sit on the Management Transition Advisory Group. If any members are interested please reach out to Julie Reichert-Nguyen (julie.reichert-nguyen@noaa.gov).*
  - *Coordinate with workgroup chairs to draft a letter of support for the project proposal.*
- *Invite Beyond 2025 Climate Small Group Leads to present the final recommendations at the February 2024 CRWG meeting*
- *CBP's Modeling Workgroup will be hearing a presentation on Stormwater Management and Climate Change at their Quarterly Meeting, taking place January 9th – 10th*
- *Connect with Amy Freitag about NOAA NCCOS's current effort on combining flood modeling with precipitation, storm surge, and SLR*

Partner-to-Partner Connections

- *GIT-Funded Marsh Adaptation Project:*
  - *The workshop for the CRWG Supported GIT-Funded Marsh Adaptation Project is being held on January 19th, 2024. If partners are interested in attending, please reach out to project technical lead, Nicole Carlozo (nicole.carlozo@maryland.gov)*
  - *If partners have insights or input about the mapper, or relevant data layers to include in the Tier 2 of the mapper, please reach out to Nicole Carlozo (nicole.carlozo@maryland.gov).*
  - *Connect with Vamsi Sridharan once mapper is finalized, as it has relevant data that could support the ESLR funding.*

Minutes

1:30 PM **Welcome, Opening Remarks, and Announcements – Mark Bennett, Co-Chair**

(USGS), Jackie Specht, Co-Chair (MD DNR) and Julie Reichert-Nguyen, Coordinator (NOAA) [10 Minutes]

Focus of meeting:

- *Share updates on current efforts that support our Climate Resiliency Adaptation Outcome*
    - *GIT-Funded Marsh Adaptation Project*
    - *Effects of Sea Level Rise NOAA Funding Opportunity*
- *Share updates on Beyond 2025 Climate Small Group Talks and discuss role of Climate Resiliency Workgroup*
- *Brainstorm project ideas for next round of Goal Implementation Team Funding*

Workgroup Announcements:

- *Chesapeake Community Research Symposium 2024 (June 10-12, 2024) call for presentation abstracts (**due February 1, 2024**). Theme of the symposium is "Chesapeake Bay Restoration: Managing Water Quality for Living Resources in a Changing Climate." We also want to highlight that this year, Julie and Jamileh are supporting a session focused on the Rising Water Temperature STAC Workshop Tidal Recommendations, titled "Tackling Ecosystem-Level Impacts from Rising Water Temperatures in the Tidal Waters of Chesapeake Bay." This session invites research on the above tidal recommendation topics. Talks can range from assessing water quality thresholds and habitat suitability for fish, benthic organisms, and SAV to climate change modeling or model data synthesis related to habitat, living resource response, and/or species community shifts. We welcome presentations on watershed or habitat strategies, particularly research related to mitigating increasing water temperatures in the nearshore tidal waters, reducing other stressors that affect living resources in tidal waters, providing thermal refugia, or protecting key fish-related habitats (e.g., marshes, oyster reefs, SAV). We also encourage presentations on social science research, including communication strategies or behavior change research related to rising water temperature effects on fisheries and habitats or implementation of actions to adapt to changing climate conditions.*

1:40 PM **Effects of Sea Level Rise NOAA Funding Opportunity (Vamsi Sridharan, Tetra Tech) [25 Minutes]**

George Mason University (lead PI), Tetra Tech (co-PI) and NOAA Chesapeake Bay Office (co-PI) submitted a letter of intent to the NOAA Effects of Sea Level Rise Funding Opportunity. This project idea addresses a key knowledge gap identified by the CRWG in quantifying the resilience effectiveness of nature-based solutions. Vamsi will update the workgroup on the project idea. Given the strong

alignment with progressing the climate adaptation outcome, the CRWG is being asked to provide advisory support on the project.

Summary

Vasmi provided an overview of the current NOAA Effects of Sea Level Rise program proposal that is being developed in conjunction with the George Mason University, Virginia Institute of Marine Science, and NOAA Chesapeake Bay Office. This project addresses one of the workgroup's identified science needs, which is to quantify the resilience effectiveness of nature-based solutions. This project, titled "Oyster Reeds as Nature's Breakwater: Quantifying Climate-Resilient Adaptation Performance," which will help a larger goal of creating a catalog of quantitative performance metrics of these nature-based strategies across environmental conditions and operational requirements. Vasmi also highlighted how these metrics need to include considerations about the utility for various end-users (e.g., homeowners, regulators, consultants, scientists and researchers).

To get to these implementation guides and metrics, there are several physical, socio-economic, and science gaps that need to be filled; this proposal aims at addressing some of these gaps. Technical gaps include lack of research on engineering parameters, research is based on localized experiments, studies mainly focus on wave attenuation and marsh recovery, and gaps include storm surge protection, erosion control, biodiversity recruitment, and performance in medium to high wave energy environments. Furthermore, there is a lack of quantification of value-added co-benefits at any generalizable scape. Vamsi also highlighted the regulatory and legal barriers that exist, which essentially stem from the lack of having quantifiable metrics for nature-based solutions to assist making use of these strategies actionable to the various stakeholder groups.
This project will employ a six-pronged approach that includes a strong regional partnership. It utilizes ongoing efforts in conjunction with monitoring work in the post-implementation phase at locations where shoreline projects have been established. They are analyzing oyster-related nature-based solutions, to understand what these strategies have in offering both engineering and ecosystem co-benefits and how it translates to marsh resilience and coastal protection. They also plan on combining this with a framework that can be used for decision making by various stakeholders.

Vamsi reviewed the key elements of this project which fit into an adaptive management framework. First, they plan on assembling a management transition advisory group (MTAG) to guide the project proposal. Vamsi mentioned that the project team is looking for people to sit on this advisory group, and if anyone in the workgroup is interested to reach out to the team. If the project is funded, they will begin by collecting post-implementation field data to develop a matrix of environmental conditions, designs and performance of the structures. The team will then utilize remote sensing and machine learning at the field sites to cover broader spatial areas and temporal coverage. They will then conduct wave, surge, and erosion simulations through hydrodynamic models to understand how these nature-based solutions perform under future climate change conditions. The project team will then perform socio-economic analyses

to understand the value of the ecosystem services provided by these structures. Lastly, they will compile the findings from the previous stages into a web-based library which can serve as a decision support tool for landowners and regulators.

Vamsi highlighted the number of regional partners that have come together to support the project development, underscoring how the project can be used as a template for forming regional partnerships for future projects. He then discussed the formation and role of MTAG. This advisory group will be comprised of experts from different stakeholder groups to provide insights to the project team about site selection, performance metrics, scenarios and data needs, online library format, and outreach and science communication. This team will meet at least twice a year, with the sub groups meeting on a more regular basis to discuss specific topics. Following MTAG's guidance, the actual implementation of the project will include site selection based on where monitoring is already occurring, monitoring of environmental factors at sites (e.g., coastal erosion, wave energy, marsh migration), and analysis of socio-economic benefits. They will also employ remote sensing and machine learning to expand understanding across wider spatial and longer temporal ranges, as well as using numerical models to incorporate information about sea level rise and extreme events. This information will be used to inform socio-economic analyses, which will help end-users weigh the benefits of implementing one type of living shoreline over another. This will all be made available in a web-based library for decision-making.

Discussion

Julie thanked Vamsi for his presentation and mentioned that the full proposal deadline is January 23rd, which is a short timeframe. She mentioned that she was glad that Vamsi was able to brief the workgroup on this effort, as their feedback and support will help with proposal development. She highlighted how this project aligns with the workgroup's Climate Adaptation Goal. Julie also mentioned that they are hoping that the workgroup will provide a letter of support, stating that workgroup members will potentially sit on the Management Transition Advisory Committee.

Jeff Yang commented that he thought the proposal was well thought out; he mentioned that the presentation touched on storm surge and was wondering if they are planning on monitoring the effects of storm surge on these different nature-based solutions. Julie responded that there will be monitoring aspects in this project, especially as it relates to wave attenuation and marsh condition and connecting it to storm surge and sea level rise. The first step in the project is to understand what is already being monitored at these location and how can the project team build it into their remote sensing and machine learning models. For the more innovative approaches to understanding these environmental factors, the project team plans on working with the regional partners to set up monitoring at the sites. Vamsi added that in order to keep things manageable, they are looking for sites that do have established monitoring. If the project starts in 2024, he believes that they will have all the monitoring data by 2026.

Nicole Carlozo commented in the chat that she would love to see some more MD sites included if anyone has any knowledge of shoreline projects with oyster components. Julie mentioned that since her and Nicole last spoke, the project team had the opportunity to meet with folks from the University of Maryland Center for Environmental Science, and they are planning on connecting them with more oyster sites. They are still looking at location of the sites and what would align with the project.

2:05 PM **GIT-Funded Partnership-Building and Identification of Collaborative Tidal Marsh Adaptation Projects Update (Nicole Carlozo, MD DNR) [20 Minutes]**
Nicole will provide an update on our workgroup-supported GIT-Funded Marsh Adaptation project. Phase 2 of the project is currently underway, and the regional focus areas workshop is planned for mid-January 2024.

Summary

Nicole provided an update on the current CRWG supported GIT-Funded Project, "Partnership-Building and Identification of Collaborative Marsh Adaptation Projects." The purpose of this project is to build partnerships and bring together the best available data and science to identify large-scale tidal marsh projects that will build climate resilience, with the hopes that regional partners will be better equipped to pursue federal funding opportunities through the Bipartisan Infrastructure Law and the Inflation Reduction Act. The working definition of Marsh Adaptation used in this project focuses on incorporating climate change information and resilience strategies when planning, designing, implementing, and managing marsh restoration and conservation efforts to enhance the longevity of marsh area and health. Ideally, this project will support the management of marshes to be more resilient to climate impact, implementation of strategic large-scale restoration strategies, increased understanding of geographical and organizational priorities of regional partners, and alignment of research opportunities with implementation to increase data and information on the success of strategies.

Recently, the project moved from phase one (which focused on reviewing and compiling existing information on resilience, ecological, and social vulnerability metrics, partner outreach, and selection of regional focus areas) to phase two. During phase one, the project team developed a metrics mapper and partner alignment mapper to determine regional focus areas; there are two different mappers that users can access. The first contains all metrics used in Tier One (which was used to identify the regional focus areas) and Tier Two (which contains regionally specific data for the selected focus areas) and the metric descriptions, and the second mapper is a working mapper for users with more GIS experience and allows them to manipulate the metrics for more in-depth analyses. To select the regional focus areas, the project team examined the resilience, ecological, and vulnerability metrics included in Tier One of the mapper and regional partner activity to evaluate the potential for a larger-scale adaptation project. Out of seven identified areas, the project team and steering committee selected the Wicomico River (Monie Bay to Deal Island, MD) and the Middle Peninsula, VA as

regional focus areas. The sites were selected due to the high level of partner activity, have extensive protected lands adjacent to the marshes, and have the potential for marsh migration.

Phase two includes planning a workshop for the Maryland and Virginia stakeholders within the two regional focus areas, and identifying large-scale marsh restoration and research projects and supporting the regional partnerships. Within the developed coproduction framework that is being used to target collaborative marsh adaptation projects, the project team has completed the metric mapping (e.g., resilience, ecological, and social vulnerability metrics) and partner alignment mapping, and are working with the partners in the regional focus areas to identify specific projects. Potential marsh adaptation projects will include evaluating different project scenarios including protecting existing healthy marshes or restoring and/or enhancing degraded marshes. Nicole mentioned that this effort includes the workshop in January and if anyone did not receive a Save the Date to the workshop but would like to attend, to please reach out to her or Julie. In addition to the workshop, next steps include finalizing the Tier Two metrics, working with the CBP GIS Team to incorporate the mapper into the CBP's targeting portal, and working with the CRWG to seek funding to support other regional focus areas. Nicole also mentioned that if folks have input to provide on the Tier Two metrics in the mapper, please reach out.

Discussion

Julie thanked Nicole for the update and for all the work she has done as the technical lead for this project. Vamsi asked if any of the products would be available to share, as they can potentially help inform the socio-economic analysis in the project proposal he presented on earlier. Nicole mentioned that they do plan on making these products available once the project wraps up in the spring. She mentioned that he can touch base with her or Julie to help connect him with the data/products. Julie commented that this is a project ties in nicely with the project proposal Vamsi presented on earlier in the meeting, as there is large concern in the regional focus areas about sea level rise and subsequent marsh degradation. She thinks that this project can help inform the ESLR project presented earlier, as it can be informative about working with partners who are interested in stopping marsh degradation, especially in high wave energy environments. Nicole also mentioned that one of the gaps in this project is working with underserved communities and pulling in local representation. For the Maryland focus area, Audubon Society is conducting local surveys to capture information from local stakeholders on how they use the marshes and what they are witnessing. She said that they are still exploring ways to integrate it into the project.

2:25 PM **Beyond 2025 Climate Small Group Talks Update (Bo Williams, EPA and Breck Sullivan, USGS) [20 Minutes]**

Bo and Breck will provide an update on the Climate Small Group Talks that are taking place as a part of the Chesapeake Bay Program's Beyond 2025 Effort. This group is charged with forming recommendations around climate change. After the Beyond 2025 Steering Committee (SC) reviews the recommendations, they will be integrated into the SC's final product to the Executive Council.

Summary

Bo Williams provided an update on the Chesapeake Bay Program's Beyond 2025 Climate Small Group discussions. He reviewed the process that they are going through as a small group to develop recommendations around how climate change will be addressed by the Chesapeake Bay Program in the future. The purpose of the small group discussions is to develop recommendations to address cross-cutting, high-level topics (i.e., climate, healthy watersheds, clean water, people, and shallow water habitats) that have arisen in the Executive Council (EC) Charge and partnership reports (e.g., Reaching 2025 Report, Lessons Learned 3rd SRS Cycle Report, Biennial Report, EC Climate Directive and Workplan, Comprehensive Evaluation of System Response Report, and Rising Water Temperature STAC Workshop Report).

The Beyond 2025 Steering Committee tasked the small groups with a series of objectives, including identifying a vision of what they want to pass to the next generation, the value that the Bay Program adds to this issue, and ideas that can be transformative to how the Bay Program approaches this issue. The timeframe for these groups to develop recommendations is short, so they are focused on providing high-level insights.

The first step the climate small group took was to identify a scope and purpose, which states that they will "provide recommendations to transform Chesapeake Bay Program partnership policies, programs, and projects to address the significant ongoing and future impacts climate change will impose on the Bay and its watershed and people across generations. These recommendations should include strategies to better incorporate climate mitigation, adaptation and resiliency across the watershed and tidal Bay." Bo highlighted a few key points including that this scope and purpose specifically states across generations, as the climate issue is a long-term issue, beyond the timeframes that these agreements operate. He also mentioned the interest in addressing climate mitigation in addition to the resiliency and adaptation work that is currently being conducted by the Bay Program.
The climate small group then developed a series of questions to discuss and address during their sessions. They include defining what a resilient Bay and watershed look like, including determining what the timeframe would be and determining how they would define success. They also want to understand what existing, emerging, and new information, science, and priorities should be considered. Finally, this small group hopes to better understand how the partnership can be strengthened or adapted to be more effective at meeting these goals, and what idea would be transformational for the future of the Bay and its watershed and what would it take to implement that idea.

Bo then highlighted the topics that have been identified by the small group thus far during the discussions. These topics include defining resilience, adaptation and mitigation, climate as a multi-generational challenge, climate vulnerabilities, food insecurity and agriculture, decision science, adaptation frameworks, climate justice, integrating climate across the CBP outcomes, and climate workforce. He then posed a series of high-level questions to the workgroup to get

feedback on the topics that the small group identified and to hear additional insights about what should be addressed through this effort. These questions include:

- What should the Chesapeake Bay Program focus on for climate beyond 2025?
- What additional climate topic areas do we need to consider as we assess program goals?
- Any priorities we should take for our current topic areas?
- Do you have resources/contacts we should include in our review?

2:45 PM **Group Discussion: Climate and Beyond 2025 [20 Minutes]**
The Climate Resiliency Workgroup will have the opportunity to discuss the topics presented by Bo Williams in the Climate Small Group Talks update. This will be an opportunity to weigh in on the topics that have been prioritized by the Climate Small Group and propose topics for the small group to consider during future discussions. Furthermore, the workgroup will have the opportunity to provide insight on what aspects of the climate change challenge should be prioritized during the Beyond 2025 effort and envisioning the new Chesapeake Bay Watershed Agreement.

Discussion

Julie began the discussion by stating that this is an opportunity to hear about what the CRWG members and their organizations are prioritizing when it comes to climate resiliency work and to provide insights into what they think the partnership should be prioritizing in the Beyond 2025 discussions. Jamileh provided a Jamboard for people to share their thoughts on this topic (see slide 1).

Lew Linker commented that this is an important discussion as climate change is so encompassing and touches on all aspects of the Bay Program. He mentioned that he appreciated that food security and agriculture was a topic highlighted by Bo Williams and is included in the small group discussions. He also commented that he thinks that climate impacts to living resources in the Bay should be a topic for consideration and highlighted the potential predation of blue crabs by red drum as an example of this. Julie agreed and also added that changes in shallow water habitat due to climate change also has the potential to impact living resources. Nicole Carlozo commented in the chat that there should be a plan for monitoring habitat transitions. Julie commented that she heard about a NOAA National Center of Ocean Science project, where they are piloting modeling work for landscape change and transitions to be able to better standardize and quantify what is happening under sea level rise. This work can help guide how to monitor habitat transitions and inform adaptation strategies into the future. Nicole also added that MD Department of Natural Resources also supported efforts to model submerged aquatic vegetation (SAV) habitat changes with sea level rise, and she mentioned that there were a lot of assumptions made about ability of SAV to persist in areas that used to be marsh.

Lew commented that they are thinking about this for the Climate Change Model 3.0, which they are developing for 2035. He mentioned that using 2035 to frame the conversations around these topics could be an appropriate timing horizon (e.g., assessing living resources by 2035); this could potentially align with the new Chesapeake Bay Watershed Agreement timeframe as well.

Joel Carr commented in the chat that he would add aquaculture and fisheries to the food security list. He was glad to see that food security was on the list, especially how it relates to climate impacts on agricultural fields (e.g., marsh migration and land conversion, salinization, etc.). He wanted to underscore that as marshes are lost, there will be new nearshore environment, which may allow for expanded fisheries, and that something to think about during these discussions is impacts to aquaculture and fisheries as it relates to food security.

Nicole commented that she was glad to see climate workforce on the list of topics as well. She mentioned that Maryland is working to support this through their Adaptation and Resiliency Working Group, and that they are hoping to hire a NOAA fellow to work on this topic. She mentioned that this is a topic of interest across the state agencies, and that as they work on climate adaptation efforts, it is imperative to have a workforce that is ready and present in the local communities. Julie also commented that the Environmental Literacy and Education team at NCBO has been thinking about how to support a climate workforce.

Vamsi Krishna Sridharan commented that topics around the changing coastline of the Bay, anthropogenic water quality inputs and what the future of the Bay looks like with these inputs, and the changing landscape of research-regulatory-consulting-implementation partnerships should be considered in these discussions as well. In particular, Vamsi commented that there should be a discussion about how partnerships are formed and what they might look like with the new Watershed Agreement. Julie responded that the other parallel effort in the Beyond 2025 discussions that a contractor is supporting to understand the Bay Program's current structure for working with external partners and what that might look like moving forward. Julie also mentioned that landscape architects are a group that comes to mind when thinking about who the partnership can engage with more. Bo agreed and mentioned that the Beyond 2025 effort will be looking into how the partnership is structured and if it being effective when engaging with external partners and groups.

Lew asked about how broad climate justice is on the list of topics that Bo presented. He mentioned that sea level rise will be causing significant impacts to island communities, low lying counties, and coastal communities in the future, he wanted to understand if climate justice included those communities. He was wondering how to navigate the potential loss of homes, cultural sites, and heritage from these climate impacts. Bo responded that this is something to think about in the climate small group discussions and that climate justice is broadly defined to leave room for these discussions. Amy Freitag commented that on the social science side, they get a lot of requests for thresholds of concern (e.g., sea level rise and managed retreat).

Vamsi commented two last points pertaining to shoreline protection infrastructure and water quality credits. He was wondering if there might be a change in the regulatory landscape to address the effects of what's occurring on ones' own property and its impact to the greater environment and if there would be a push to look beyond municipal boundaries to allow for trading water quality credits across jurisdictions. Elizabeth Andrews commented Regulatory challenges definitely need to be addressed, to make sure we have the tools we need to assess and incorporate new technologies and approaches.

Julie then highlighted a comment that Ben McFarlane left in the chat, which was that it is important to keep in mind what the Bay Program and Partnership is responsible for, what are they not, and what can the program do to help move these goals forward. She added that this is an opportunity for the Bay Program to assess where gaps exist and where they can add value when it comes to climate resiliency. Ben also commented that another thing that this group can help the program think about is the difference between actions and outcomes. He mentioned that we can to some degree control what we are doing, but climate change will limit our ability to guarantee outcomes even more than they are already limited.

Julie mentioned that the workgroup will hear an update on this effort at the February 2024 meeting, which will review the recommendations that were given to the Beyond 2025 steering committee.

3:05 PM **Goal Implementation Team Funding Discussion [20 Minutes]**
We will hold an open discussion to talk about the next round of Goal Implementation Team Funding. The next round of Goal Implementation Team funding has yet to be announced, so we are taking the opportunity discuss and brainstorm ideas that can be developed for when the next round of funding becomes available.

Discussion

Julie and Jamileh started this discussion about Goal Implementation Team (GIT) funding. The next round of funding has yet to be announced, however they mentioned that it would be great to have a couple of ideas ready for development for when GIT-funding is announced. Jamileh also framed the discussion by mentioning to think about projects that could be funded with ~$85,000 - $150,000 as that is what was typically approved in the past. The discussion ideas were also captured in a Jamboard (see slide 2).

Jamileh then discussed that when the workgroup leadership met, they reviewed the current science needs that were identified by the workgroup at the November 2022 meeting, and wanted to highlight a need around community vulnerability to climate change as one that could potentially be supported through GIT-funding. The science need highlights that there is a gap in research on the impacts of climate change on Bay communities including an analysis on which communities are most vulnerable to climate change impacts and how climate change may be impacting marginalized communities, effective adaptation and resilience strategies for Bay

communities impacted by climate change, including unintended consequences, and research to better understand people's perception of climate change and resilience strategies.

Julie highlighted that the workgroup has previously discussed the importance of research on unintended consequences of the nature-based strategies that are currently being implemented (e.g., green gentrification). She commented that there was discussion around how to minimize these unintended impacts through careful engagement with the communities to co-develop strategies to implement these nature-based solutions. She added that there could be an opportunity for GIT-funding to support a review of these types on unintended consequences as well as a review of policies that local governments or townships might have put in place to prevent the unintended consequences.

Lew Linker commented that this science need is a good one to highlight given all the work that can be done to support it. He highlighted the need around understanding the impacts of climate change on Bay communities, mentioning that the EPA is currently finalizing a new request for applications (RFA), which will provide $2 million over the next five years to support improved intensity-duration-frequency (IDF) curves. This will add to the support throughout the watershed for stormwater management, especially for the higher intensity stormwater volumes that are predicted for the future. He also mentioned that FEMA is also supporting understanding climate change impacts to Bay communities through their assessment of flooding impacts. Lew commented that while there is a general understanding of climate impacts, there is still a gap in understanding what specific climate change impacts to the Bay will look like as a result of flooding, sea level rise, and extreme events and the potential losses from these impacts. Julie asked Lew if he thinks the portion of the science need around people's perceptions could be integrated into potential losses that could happen. She explained the some perceptions include believing that resilience is building back where they are at and staying in areas that might be at risk of repeated climate change impacts. Lew commented that this is a good point; he added that people's perceptions of resilience strategies and their implementation are related.

In the chat, there was further conversation around how sea level rise will affect the coastal communities in the Bay and how to work within these localities around nutrient management and stormwater management. Nicole Carlozo commented that Flood Factor looks at some impacts from flooding, but she is not sure that SLR is built into it. Debbie Herr Cornwell mentioned that guidance for local governments on thresholds to guide a discussion around retreat would be helpful. Ben McFarlane commented that it would be helpful to have high resolution data to look at impacts of climate change at a region or sub-region level as opposed to watershed-wide. He commented an example around models he works on that could be improved by incorporating land cover change into sea level rise projections. If wetlands are converting to open water, that should be accounted for in sea level rise and storm surge modeling. Nicole mentioned that there are some community-level assessments out there. Amy Freitag added that NOAA NCCOS is currently working on combined flood modeling with precipitation, storm surge, and SLR. Nicole also commented that she saw a Coastal Inundation

Community of Practice notice go out through the American Society of Adaptation Professionals, which could be linked in as a resource for GIT project idea development.

Lew commented that Debbie raised a salient point in the chat about guidance to local governments on thresholds for retreat. He mention that teams at RAND, Carnegie Mellon, and Cornell are working on developing such a guidance using a prototype of a vulnerable community as an example. Julie asked if this would be a good group to invite to present at a workgroup meeting; Lew responded that they would be great to engage with, however he mentioned they are just getting started. He also mentioned that the group will presenting on the project plans to the Modeling Workgroup Quarterly on January 9th-10th. Julie also asked about Amy Freitag presenting the NCCOS modeling efforts to the workgroup. Amy mentioned that they are probably three months out from presenting any results. She mentioned that she will be stopping by different NOAA line offices to share more about the project, including NCBO, so she might be able to provide an interim report early in 2024.

Julie thanked everyone for the discussion, which she mentioned would be continued in the New Year to prepare for the next round of GIT-funding. She mentioned that the funding is a great avenue to start chipping away at science needs like the one identified and discussed during the meeting. She also mentioned that with GIT-funding, there would need to be the support of a technical lead from the workgroup or interested parties.

3:25 PM Announcements and Wrap-up [5 Minutes]

- The Chesapeake Research Consortium (CRC) and the NOAA Chesapeake Bay Office (NCBO) recently released their summer 2024 internship opportunities. CRC's Chesapeake Student Recruitment, Early Advisement, and Mentoring (C-StREAM) program is focused on recruiting, advising, and mentoring college students from populations who have been historically excluded from the environmental field and are underrepresented in environmental research and management professions. Additionally, NCBO and CRC offer summer internships in a range of fields including fisheries management, habitat assessment, ecology, scientific field support, data analysis, education, community engagement, partnership development, modeling, and environmental policy development. Visit CRC's website to learn more and read about the available internship positions.

- The National Estuaries Program (NEP) is now accepting proposals for their Watersheds Grants program. The Program is a nationally competitive grants program designed to support projects that address urgent, emerging, and challenging issues threatening the well-being of estuaries within the 28 NEP boundary areas. Awards will range from $200,000-500,000 and will be completed within a four year period.

Letters of Intent are due January 26th, 2024. For more information, visit the program website.

- The EPA recently released its Notice of Funding Opportunity (NOFO) for its Environmental and Climate Justice Community Change Grant program, which offers an unprecedented $2 billion in grants. The Community Change Grants will fund community-driven projects that address climate challenges and reduce pollution while strengthening communities through thoughtful implementation. This historic level of support will enable communities and their partners to overcome longstanding environmental challenges and implement meaningful solutions to meet community needs now and for generations to come. There will be two tracks of funding under this opportunity. Track I will fund approximately 150 large, transformational community-driven investment grants of $10 million - $20 million. Track II will fund approximately 20 meaningful engagement grants of $1 million - $3 million. Grants cannot exceed 3-years in duration. Please review the NOFO for further information about the exciting opportunities under the Community Change Grants program and details about the application process.

- Maryland Sea Grant recently released their Marsh Geomorphology Profiles. These summarize the characteristics, capacity for ecosystem services, associated management concerns, and restoration techniques for seven common marsh types in the Chesapeake Bay, based on steering committee guidance and *Large-Scale Marsh Persistence and Restoration in the Chesapeake Bay* workshop participant discussions. To review the profiles, visit their website!

Partner Announcements

- Lew Linker commented that there will be a joint meeting on April 4th, 2023 between the Modeling Workgroup, Climate Resiliency Workgroup, and Urban Stormwater Workgroup to discuss the Climate Model 3.0 and in preparation for the June STAC workshop on this topic.

3:30 PM Adjourn

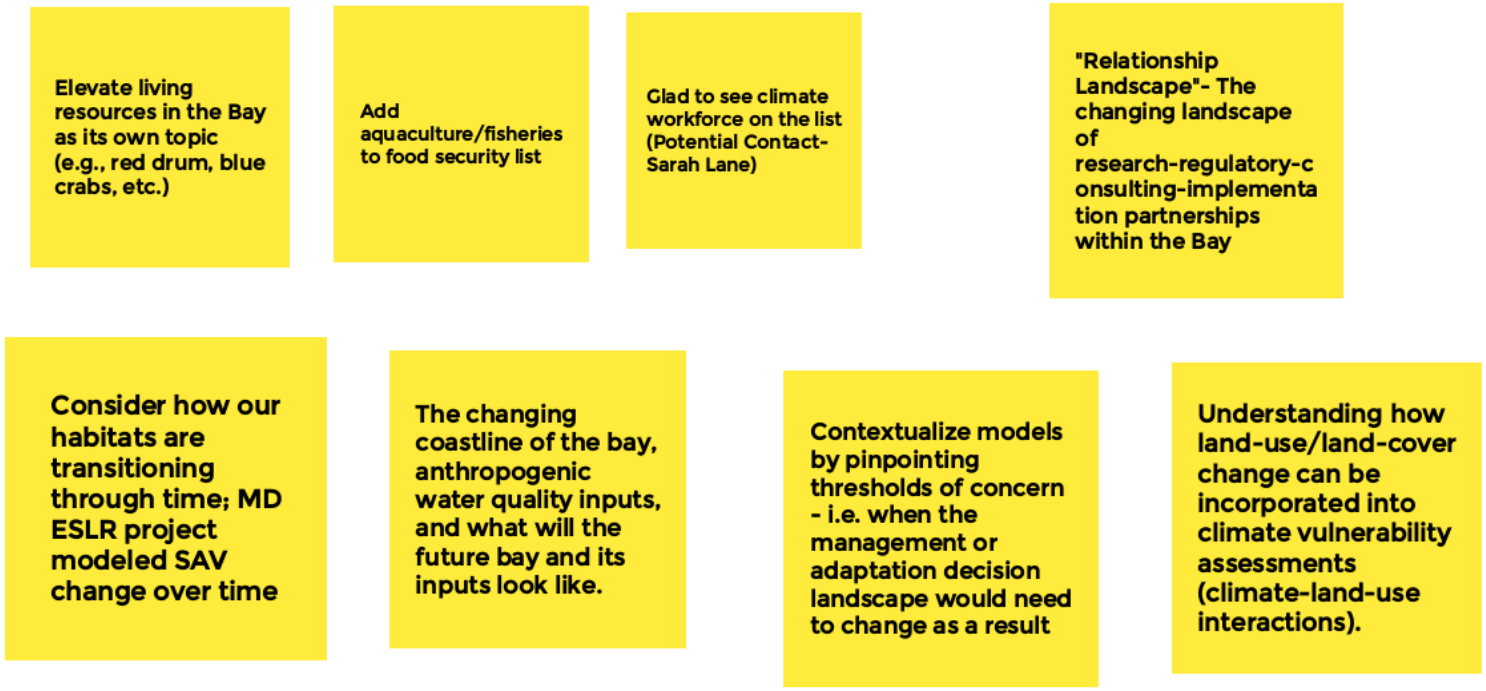
Meeting Attendance:

First Name	Last Name	Affiliation
Alexander	Gunnerson	CRC
Amanda	Small	MD DNR
Amy	Freitag	NOAA
Andrew	Larkin	NOAA
August	Goldfischer	CRC

Bailey	Robertory	CRC
Ben	McFarlane	HRPDC
Bo	WIlliams	EPA
Breck	Sullivan	USGS
Caitlin	Bolton	MWCOG
Debbie	Herr Cornwell	MDP
Doug	Austin	CBP
Elizabeth	Andrews	UVA
Jamileh	Soueidan	CRC
Jay	Ford	CBF
Jeff	Yang	EPA
Joel	Carr	USGS
John	Denniston	MD DOT
Julie	Reichert-Nguyen	NOAA
Lew	Linker	EPA
Marie	P	
Mark	Bennett	USGS
Nicole	Carlozo	MD DNR
Rebecca	Murphy	CBP
Ruth	Cassilly	CBP
Sharon	Baxter	VA DEQ
Taryn	Sudol	MD Sea Grant
Taylor	Woods	USGS
Troy		
Vamsi	Krishna Sridharan	Tetra Tech

What should the Chesapeake Bay Program focus on for climate beyond 2025?

Including: additional topics to consider or prioritizing topics that were identified



(Slide 1)

Further Idea Development

Current Science Need:

Research on:

1) the impacts of climate change (including flooding, sea level rise, extreme weather, heat, etc.) on Chesapeake Bay communities, including an analysis of which communities are most vulnerable to climate change impacts and how climate change is impacting marginalized communities in the region

2) effective adaptation and resilience strategies for Chesapeake Bay communities impacted by climate change, including how to minimize unintended consequences (e.g., green gentrification)

3) peoples' perception of climate change and implementing resilience strategies.

RFA for developing guidance, improved IDF curves, support in watershed for stormwater management. Gap-SLR, extreme events, storm surge; specific analysis of losses

potentially build in community level impacts to SLR; flood factor looks at some impacts, but need to check if SLR is built into it

It would be helpful to have a template or model for how to do that. It would be really important to do that with high resolution data, so it might be more helpful to look at regions.

Guidance for local governments to identify thresholds (cost benefit analysis) to guide discussion on retreat

Workgroup meeting to further develop idea

on #3) alongside willingness and ability to pay for resilience strategies, and how that aligns with perception

Potential review of existing tools and compiling into one place

(Slide 2)