Climate Resiliency Workgroup

February 23rd, 2023

1:30-3:30 PM EST

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

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

Minutes

Action Items:

- CBP Monitoring Efforts: Please reach out to August Goldfischer (agoldfischer@chesapeakebay.net) with STAR if you are interested in attending the Bay Monitoring Meetings, which focus on the recommendations from the Enhancing CBP Monitoring Report.
- CBP Monitoring Efforts: Coordinate with Healthy Watersheds, Stream Health, Brook Trout to confirm interest in option of a Project Chief from USGS to help with refining the stream temperature change indicator related to aquatic life and potential use in other products like the update to the Healthy Watersheds Assessment.
- Strategy Review System: CRWG Staff will reach out to workgroup members who did not respond to the survey to understand their interests and preferred roles within the workgroup.
- CRWG Meetings: Coordinate with the Local Government Advisory Committee (LGAC) to reserve time at a future workgroup meeting to discuss and identify collaborative opportunities around the 2022 LGAC Forum recommendations
- GIT-Funded Marsh Adaptation Project: There are opportunities for workgroup participation in the project as it moves into the next stages. Nicole Carlozo (MD DNR) will send email notifications of these opportunities as they arise. Additionally, the project team will be reaching out to regional partners and organizations to understand their organizational priorities; the team please asks that you or your organization respond to any outreach efforts with this project.

1:30 PM **Welcome, Opening Remarks, and Announcements – Mark Bennett, Co-Chair (USGS), Jackie Specht, Co-Chair (The Nature Conservancy) & Julie Reichert-Nguyen, Coordinator (NOAA) [5 minutes]**

Focus of meeting:

- *Share updates on recent resiliency efforts throughout the Chesapeake Bay Program*
    - *Review of 2022 Local Government Advisory Committee Forum: Incorporating Resilience in to Local Planning*
    - *Review of GIT-Funded Marsh Migration Data Synthesis Project Findings*
    - *Status Update on GIT-Funded Marsh Adaptation Project*

Key Activities:

- *The STAC Rising Water Temperature Workshop was recently highlighted in a Bay Journal Article! The article discusses the ecological impact of rising water temperatures on living resources in the tidal and non-tidal waters of the Chesapeake Bay as well as the management implications from these rising water temperatures.*
- *Submerged Aquatic Vegetation Workgroup's Winter 2023 meeting will be on March 15th, 2023. Marc Hensel, who presented at the Climate Resiliency Workgroup's (CRWG) January Meeting, will be presenting on the final results of the GIT-Funded Modeling Climate Impacts on Submerged Aquatic Vegetation (SAV) in Chesapeake Bay project. More information about the meeting can be found on the calendar page.*
- *Maryland Sea Grant recently published an Executive Summary reviewing the recent marsh workshops. The summary covers the tidal wetland conversation short- and long-term priorities for implementation and infrastructure change across the multiple wetlands-related workshops that occurred last year. For more information and for questions, please reach out to Taryn Sudol (tsudol@umd.edu)*
- *The Chesapeake Bay Program (CBP) Scientific, Technical Assessment and Reporting (STAR) team is accepting nominations for the STAR Co-Chair position! Please consider nominating yourself or others with any or all of these interests: providing strategic direction and advocating incorporation of key scientific findings in CBP, expanding science capacity through additional partnerships, and meeting facilitation. Commitment of STAR Co-Chair may be up to 4 years or extended based on interest. It is encouraged that anyone who thinks they would be a good fit to submit a statement of interest (no more than half a page) that details why they would be a good fit for this position. Please submit the statement of interest to Breck Sullivan (bsullivan@chesapeakebay.net), and please reach out to August Goldfischer (agoldfischer@chesapeakebay.net) if you have any questions.* ***This request is due Friday, March 3, 2023.***
- *At the February 28th Budget and Finance Workgroup Meeting, Jake Reilly and Joe Toolan from NFWF will provide an update on the Chesapeake Watershed Investments for Landscape Defense (Chesapeake WILD) funding program. NFWF is soliciting proposals that align with the WILD Program Pillars, one of which relates directly to Climate Resiliency (Protecting and enhancing nature-based resilience for critical habitats). Jake and Joe will*

provide roughly a 15 minute overview on WILD followed by 30 minutes of Q&A and discussion. If you are interested in attending, please reach out to Jamileh Soueidan (jamileh.soueidan@noaa.gov).

Summary

Julie welcomed the workgroup. She mentioned that the focus of the meeting will be on hearing updates on various resilience efforts throughout the Chesapeake Bay Program. She discussed how the updates are relevant to the actions that are built into the 2023-2024 CRWG workplan. She also highlighted key activities that are following up on other efforts that the workgroup has supported. First, she mentioned the Bay Journal article which highlighted the STAC Rising Water Temperature workshop. The workgroup supported this effort over the past two years through the pre-workshop state-of-the-science meeting as well assisting with many aspects of the workshop itself. Additionally, the final report summarizing the workshop findings has been released.

Julie then introduced Taryn Sudol to briefly discuss the *Executive Summary* released by Maryland Sea Grant highlighting the recent marsh workshops. Over the past year, there were a number of workshops related to wetlands and tidal marshes. This summary pulls the findings from these workshops together in one document and organizes them by overarching themes and priorities that were heard across the workshops. She also mentioned that the report from the Maryland Sea Grant Large Scale Marsh Resilience workshop will be published soon.

Lastly, Julie highlighted that STAR is accepting nominations for the STAR Co-Chair position as Scott Phillips is retiring this March. If interested or would like more information, please reach out to August Goldfischer (agoldfischer@chesapeakebay.net) or Breck Sullivan (bsullivan@chesapeakebay.net). Julie also mentioned that the Budget and Finance Workgroup will be having presentations on the Chesapeake WILD funding through NFWF at their February meeting.

Jackie also welcomed the group and added that she thinks the conversation following the LGAC Forum presentation will be interesting one as a lot of the workgroup's adaptation work has largely focused on habitat. She thinks it will be a chance to discuss more about the human element of adaptation. She also added that she is excited about the GIT-Funded Marsh Adaptation project update presented by Nicole, as she thinks it will be a good step forward in bringing funding to the region for adaptation work.

1:35 PM **Announcements: Bay Monitoring Kick-Off Meeting Related to PSC Recommendations and Potential USGS Opportunity for Supporting Watershed Monitoring Network (August Goldfischer, CRC & Breck Sullivan, USGS) [15 Minutes]**

- *Following the publication of the Enhancing CBP Monitoring Report, STAR is leading a series of meetings to discuss next steps for the monitoring recommendations identified in the report and facilitating partnerships to sustain and enhance the monitoring networks. If you are interested in*

attending these meetings, please contact August Goldfischer (agoldfischer@chesapeakebay.net).

- *Breck Sullivan will be sharing a USGS Opportunity for a coordinated watershed monitoring network as recommended in the PSC Enhancing CBP Monitoring Report. If you are interested in this opportunity, please contact Breck Sullivan (bsullivan@chesapeakebay.net).*

Summary

Julie introduced August Goldfischer and mentioned how last year, the workgroup provided recommendations to the partnership on climate monitoring needs, supporting a partnership-wide effort in enhancing Chesapeake Bay Program monitoring efforts. This presentation will be discussing where the partnership is in this process and the next steps in this effort.

August began the presentation by reviewing the partnership-wide effort to enhance the Chesapeake Bay Program's monitoring networks. They mentioned that this is a collaborative process with STAR and the CBP workgroups and partners to identify and fill the gaps in the current monitoring efforts, develop monitoring protocols for outcomes that may not have coordinated monitoring in place, and plan for what these monitoring networks will look like in the future.

On January 11th, 2023, STAR gathered a group of representatives from all the jurisdictions in the Bay watershed, federal and state partners, the Chesapeake Bay Commission, and the Chesapeake Monitoring Cooperative to launch this effort and implementing the recommendations from the report. The goals of this meeting were to ensure that there was an understanding among partners about what the monitoring recommendations were for the CBP core monitoring networks (e.g., tidal, non-tidal, benthic, submerged aquatic vegetation [SAV], land-use and land cover, and community science monitoring). The next goal was to review how monitoring is currently funded. They also wanted to get an indication of which monitoring recommendation each agency has the highest interest in. Additionally, they wanted to determine the next steps to develop/finalize funding strategies for these core monitoring networks. Lastly, they wanted to solicit feedback on priorities to establish monitoring for the goals and outcomes in the Watershed Agreement.

At this meeting, they did not have time to discuss all monitoring networks, so they focused on the non-tidal, tidal, SAV, and toxic contaminants network funding. They spent time asking for feedback on which partners and agencies were interested in supporting which recommendations. August mentioned that the other core monitoring networks will be discussed at future meetings. Additionally, there was interest in developing monitoring networks for outcomes that do not currently have monitoring as well as interest in monitoring for climate, including stream temperature.

August reviewed the input they received from the Jamboard exercise, as it pertains to the Climate Resiliency Outcomes. The Jamboard included the names and affiliations of people and organizations that are involved in climate monitoring.

They reviewed the short-term next steps that were identified following this meeting. The first is to solidify an understanding of funding details for current monitoring. The next step is to work with the SAV workgroup and their partners to find funding to establish SAV sentinel site monitoring, which will also address cross outcome goals. They also are working with the Hypoxia Collaborative, who are finalizing site selection for hypoxia monitoring sensors. The Bay Oxygen Research Group will investigate the incorporation of a temperature assessment into the 4D interpolator. The Mid-Atlantic Coastal Acidification network is currently gathering information about ocean acidification data through a survey; this was an exploratory need that was expressed by the Climate Outcome in the CBP report. Lastly, they are working on finding funding to build out monitoring design plans for outcomes which need them.

They then reviewed the long-term next steps. First, they decided to convene as a large group two additional times in 2023. August mentioned to reach out to them if there is interest in being added to the upcoming meetings. The next step would be considering threshold monitoring in tidal water quality. They also mentioned there is interest in sharing the data, methods, and protocols from the SAV satellite use with other outcomes and workgroups. They then highlighted that there is interest in ensuring that partners have all the information they need in order to show the value and critical need for sustained monitoring networks. Lastly, they mentioned the need for developing funding strategies for long-term support.
August then introduced Breck Sullivan, who presented on a specific opportunity to implement some of the monitoring recommendations that in the report. She began by providing an overview of the PSC monitoring review, which focused on identifying priority monitoring needs for the outcomes in the Watershed Agreement. For the Climate Monitoring and Assessment Outcome, an identified priority need focused on the development of climate change indicators for monitoring and assessing ecological and community effects and resilience related to tidal bay water temperature change, stream temperature change, sea level rise, and extreme heat. Based on this monitoring need, they identified interest in helping to work on this effort within the participants who attended the kick-off meeting. Additionally, there is a new USGS funding opportunity that could provide some capacity to support to help with the monitoring network. Since it is through USGS, the focus relates primarily to the watershed with a specific focus on stream temperature and flooding. USGS would fund a Project Chief who would work to compile information on data available, understand how jurisdictions and organizations are operating to gather the data, what is needed to analyze change of time for the parameter, and to synthesize the information that was gathered. This would help take the monitoring need from a conceptual idea to a design plan that can be implemented.

Breck then discussed three main requests to help support this effort. They are to confirm that stream temperature change and monitoring are still a priority need for the outcome, and to gauge interest and engagement from the workgroup for collaborating with a project chief. She also noted that they are looking into other watershed outcome monitoring needs and that there is the potential for a phase 2 of implementing the network. Breck mentioned to reach out to her if there is interest in working on this opportunity (bsullivan@chesapeakebay.net).

Discussion

Julie thanked Breck and August for their presentations. She mentioned that not all the CRWG's nontidal folks were at the meeting, so she mentioned reaching out to them specifically to discuss this opportunity. She also mentioned that the 2023-2024 workplan, there is an action that states that the workgroup plans on working with the Healthy Watersheds GIT, Brook Trout Workgroup, Stream Health Workgroup, and Forestry Workgroup to facility cross-workgroup discussion on stream temperature and climate change. Julie mentioned that from a capacity standpoint, this collaboration would help with tackling the nontidal actions in the workplan. Breck requested that we send her that workplan action as it would be helpful to bring to the USGS team. Katie Brownson (US Forestry Service) mentioned that she could potentially help with the stream temperature work based on her work with the STAC Rising Water Temperature Workshop, but she also mentioned that it would be beneficial to bring in folks from the Healthy Watersheds GIT and Stream Health Workgroup.

1:50 PM **CRWG Membership Survey Results and Next Steps (Jamileh Soueidan, CRC/NOAA) [30 minutes]**

- *Jamileh Soueidan will share an overview of the results of the survey and will hold a discussion on what next steps the workgroup should take based on the findings.*

Summary

Jamileh reviewed the results from the CRWG membership survey that was sent to workgroup members and interested parties. The presentation aimed to understand the preferred meeting structures, preferred roles in the workgroup, and individuals' interests, knowledge, and experience as they pertain to the Climate Resiliency Goal and Outcomes in the Chesapeake Bay Watershed Agreement. It was noted that not all workgroup members responded to the survey so Julie and Jamileh will be reaching out to them individually to understand their interests and preferred role within the workgroup.

Jamileh started the presentation by reviewing the changes to the core workgroup membership. Of the 45 total survey responses, 17 responded that they are interested in being core workgroup members, which includes 8 new members, while 26 responded that they are interested in remaining or being added to the interested parties' distribution list. In terms of affiliation, the majority of the new core workgroup membership is comprised of federal government representatives, followed by state government, local government, academia, and contractors. Nonprofit participation remained at one member and local government representation was a new addition to the workgroup membership list.

Jamileh then briefly reviewed changes to workgroup meeting structures and dates. Respondents indicated that they preferred keeping the 2-hr, monthly meeting structure. However, they also indicated that they would prefer moving the meetings to Thursday afternoons. Based on the results of the survey and the availability of workgroup staff and leadership, monthly meetings were moved to the third Thursday of the month from 1:30-3:30 PM. Given other requests and workloads, the workgroup leadership team will determine whether there is capacity to support monthly meetings.

The survey asked about the knowledge and expertise of workgroup members and interested parties. Topics with the 5 lowest average levels of knowledge and expertise include fisheries science and management; climate change impacts on non-tidal fisheries; climate change impacts on tidal fisheries; large scale marsh restoration; and climate change impacts on agriculture practices. Topics with the highest average levels of knowledge and expertise include climate change impacts on water quality; climate resilience and adaptation planning; proposal and grant writing; flood-related impacts from climate change; and data analysis.

Jamileh then reviewed workgroup interests in workplan actions that relate to the Monitoring and Assessment Outcome. The actions that garnered the greatest interest from respondents include supporting blue carbon activities; incorporation of DEIJ considerations in climate change assessment products; development of a flooding indicator related to community resilience; developing methods to quantify wetlands gains and losses; and supporting collaboration with the Healthy Watersheds GIT, Stream Health Workgroup, and Brook Trout Workgroup. She also discussed that they assessed the responses to understand which affiliations were most or least interested in which topics. For the highest ranked Monitoring and Assessment activities, affiliations seemingly were evenly spread with interests ranging from "not interested" to "extremely interested." The actions that were ranked lowest for workgroup interest include supporting projects that assess climate resilience related to forest buffers, development of a Bay water temperature indicator, assisting with the TMDL climate model, assessing multiple stressors related to marine heatwaves and dissolved oxygen effects on living resources, and participating in ocean acidification monitoring discussions. Again, the affiliations of the respondents were relatively equally distributed across the range of interest levels, though Jamileh did highlight that there was little interest from respondents associated with academia in actions associated with forest buffers and ocean acidification. This assessment does not indicate priorities as all actions in the workplan were identified as important, but it does show which actions where workgroup members' organizations could potentially support progress on.

Jamileh then reviewed workgorup interests in workplan actions that relate to the Adaptation Outcome. The actions that garnered the greatest interest from respondents include supporting efforts to identify, review and assess metrics for targeting natural infrastructure projects; incorporating equitable adaptation considerations into workplan efforts; assisting partners with identifying partners and projects that align with their work to increase capacity; developing a means of tracking climate adaption activities and defining resilience enhancement; and assisting with discussions on marsh migration trade-offs related to land-use and forest loss. Again, affiliations seemingly were evenly spread with interests ranging from "not interested" to "extremely interested." The actions that had the lowest average interest from respondents include reviewing the social science recommendations from the Social Science Assessment and provide advisory support; coordinate with the CBP Strategic Engagement Team and Local Government Advisory Committee (LGAC) in reviewing the recommendations from the 2022 LGAC Forum; providing advisory support on identifying climate research needs related to best management practices (BMPs); supporting efforts and identifying resilience strategies related

for forest buffers; connecting partners with funding opportunities for natural infrastructure projects; and providing advisory support and summarizing lessons learned on the grant application process. Again, respondents from the various affiliations were fairly dispersed amongst the responses. Some notable trends include the lower interest in the activities related to forest buffers and funding and grant support by those affiliated with academia. Jamileh did underscore that for all the activities presented, there is at least some respondents who are very or extremely interested in the activity regardless of where the average interest of all respondents lies. This provides a lead for the workgroup when determining where to find support for the activity.

Jamileh then highlighted the open ended responses that pertain to additional climate resilience activities that members and interested parties would like to see the workgroup focus on. The general themes in the responses include supporting FY22 GIT-Funded projects, including actions that address climate impact to headwater streams and forests in the workplan, including actions that focus on SAV in the workplan, addressing sunny-day flooding, and assisting and informing governments as they make infrastructure and permitting decisions.

She then reviewed the general themes that emerged in the responses to the question about how the workgroup can capitalize on the influx of infrastructure funding. The responses included assisting communities and leaders in potential eligible projects that are supported under the resilience funding; looking at the criteria in the Bipartisan Infrastructure Law and ensuring activities are aligned with that criteria (e.g., focus on natural infrastructure and living shorelines); building capacity and partnerships; and potentially requesting that GIT-Funding could support the hiring of dedicated grant writers for this funding.

Discussion

Julie started the discussion by highlighting how the survey is assisting in understanding where the workgroup's capacity lies in relation to the actions that were included in the workplan. The results help inform where there are collaborative opportunities to help increase capacity or funding opportunities like what was presented earlier by Breck Sullivan. She mentioned that there is some planning that needs to be done to understand how to fill the gaps in our capacity and understand what is feasible in the next two years.

Breck commented in the chat that it was interesting to see the flooding indicator ranked highly; she mentioned that progress on a coordinated flow monitoring network could help support that action. She also commented on response to the additional workplan actions question that states, "possibly setting priorities that localities can then cite in support of their projects," saying that she would encourage people to cite the workplan and CBP Climate Directive. Additionally, if it helps to respond to a science need, they can also cite the CBP STAR Science Needs Database as support.

Jackie Specht added that she is curious to hear what the other workgroup members had to add. She thinks that there is this a challenge in identifying what adaptation and monitoring actions the workgroup plans to make progress on in the next two years and beyond. She mentioned

that there is prioritizing that needs to occur, as well as making collaborative connections to help increase capacity for the actions that the workgroup cannot tackle on their own.

Nicole Carlozo mentioned that she needs time to absorb the information presented, but made a salient point that there was not one singular topic that everyone agreed was priority for either outcome.

Jason Dubow asked about what the next steps are in response to the survey results. Julie responded that the leadership team will be meeting to dive deeper into the results and determine where there is a need for greater capacity to tackle these actions. She mentioned that there may need to be prioritization of workplan actions as well as determination of what actions will be short-term and what will be long-term actions, which may carry over into future workplans.

2:20 PM **Review of the 2022 Local Government Advisory Committee Forum: Incorporating Resilience into Local Planning (Jennifer Starr, Alliance for the Chesapeake Bay) [25 minutes]**

- *Jennifer Starr will share the proceedings and recommendations that came out of the 2022 LGAC Forum: Integrating Resilience into Local Planning. This forum focused on how to successfully build resilience into new and existing plans and identifying the barriers to doing so.*

Summary

Jennifer Starr presented on the proceedings and recommendations from the 2022 LGAC Forum: Integrating Resilience into Local Planning. She started by mentioning that sharing and discussing these recommendations is actually an action in the 2023-2024 CRWG workplan. Jennifer began by thanking the workgroup members who not only assisted on the Forum's planning team but also presented at the Forum.

She then provided background information about how these annual Forums are developed. The Forums are funded through a grant with the National Fish and Wildlife Foundation (NFWF). LGAC hosts annual one-day, problem solving forums, where LGAC members and expert stakeholders come together to take a deep dive on an environmental issue in the Chesapeake Bay. The issues are chosen based on what challenges LGAC members are currently tackling. Once the topic is selected, a planning team spends 6-9 months planning the forum. She highlighted the topics from the previous 6 years' forums which include integrating resilience into local planning; developing collaborative watershed partnerships; building local community resilience against climate-related flooding; stormwater and green infrastructure workforce development; filling gaps to advance WIP implementation; and streamlining integrated infrastructure implementation. She mentioned that the 2023 forum will likely focus on workforce development as it is a critical need.

She provided an overview of the model that they use for the forum and mentioned that she will delve into each of these topics in more detail for the 2022 forum. They start the forum with a welcome and provide an overview of the topic and purpose. They then review the problem

statement, which is developed by the planning team and then refined the day of the forum through discussions. Then they discuss the obstacles and barriers and confirm assumptions. They then review relevant case studies and examine models that have addressed some of those obstacles and barriers; for the 2022 forum, CRWG member, Ben McFarlane, presented a case study. She then mentions how the afternoon is focused on breakout discussions and problem solving, and they end the day with a report out.

Jennifer then reviewed the details of the 2022 forum, starting with the problem statement, which states:
Local governments face increasing pressure to ensure the safety and health of residents, businesses, infrastructure, and the natural environment in the midst of a changing climate. The development, integration into existing plans, funding, and implementation of actionable resilience plans are key to the success of building this local resilience. However, there are persistent barriers to achieving this success, including staff capacity limitations, lack of funding clarity, and unclear paths to resilience plan implementation. Addressing these targeted, persistent barriers can catalyze the success of these local resilience efforts.

They then spent time reviewing the obstacles and barriers, which they developed into chronological categories of building the buy-in, understanding limitations and barriers in the planning process, and barriers to actual implementation. A lot of the barriers and obstacles overlap in these categories (e.g., staff capacity, funding, etc.). These barriers and obstacles were developed by the planning team and were extensively discussed during the forum. Following the conversations about barriers and obstacles, they then reviewed the assumptions, which were developed prior to the forum itself, which highlighted budget constraints that challenge local governments' ability to act; challenges in capacity and resources to address problems in resilience; the variation of state policies across the watershed; working collaboratively across jurisdictions; successful resilience planning that consider local conditions and needs, which are government specific; consider both short- and long-term solutions, though there might be a variation in investments; capitalizing on the influx of federal infrastructure funding; and ensuring that all the resilience effort is integrated into existing requirements. These were the agreed upon assumptions that the forum attendees discussed during the forum.

They then examined three different case studies, which varied in location (i.e., Virginia, Maryland, and Pennsylvania) and scale. In Virginia, the case study focused on a regional collaborative; in Pennsylvania, the case study focused on a county effort; and in Maryland, the case study focused on the City of Baltimore. Ben McFarlane presented on the Coastal Resiliency Program in Hampton Roads, VA and shared information about the efforts, successes and lessons learned. Key takeaways included having a regional approach to flood resilience; resilient design guidelines should be scientifically based, appropriate and implementable; data may be incomplete or unavailable; state and federal agencies can provide guidance; and it is not enough to have a resilience plan, as implementing resilience requires incorporating it into existing processes. Jennifer mentioned that this was a great example of successful resilience planning.

The case study from Pennsylvania focused on Cumberland County's Climate Action Plan. Elizabeth Grant with Cumberland County government presented the case study. This was a broader conversation that included not only watershed but also on energy. Their key takeaways included focusing on implementation from day 1; seek help from a variety of sources to leverage capacity; focus on what can be done and who can take the prescribed actions; encourage collaboration with other communities with overlapping goals to increase capacity and reduce redundancy; and incorporate climate and resiliency considerations into all elements for which you are currently responsible.

The case study from Maryland focused on Baltimore City's Disaster Preparedness and Planning Project (DP3). Jaleesa Tate, with Tetra Tech, presented the case study. The planning effort has been creative in developing relationships across city departments and in the community. The effort has focused on ensuring that all voices are being heard and building equitable relationships. Additionally, the city has benefited from implementing the mitigation strategies in the DP3, through both cost savings and improved relationships.

The afternoon session consisted of breakout sessions that aimed to develop strategies for three different goals, which were based on the pre-identified barriers and obstacles. The first goal focused on building buy-in and momentum for integrating resilience into the local planning process. The second goal focused on carrying out the planning process. The third goal focused on implementing the plan.

The key recommendations that were developed during the afternoon discussions were synthesized into five main categories: communication and outreach, guidance, funding, partnership and buy-in, and capacity building. For communication and outreach, participants recommended developing clear, localized language to provide local governments with public education and outreach resources to build support and buy-in for resilience efforts. Under guidance, participants recommended providing local governments guidance on integrating resilience into existing processes, based on state and federal mandates and requirements such as hazard mitigation, stormwater, watershed, and comprehensive land-use plans. For funding, participants recommended expanding funding opportunities to increase flexibility and eligibility criteria for funding sources while demystifying and streamlining funding application process. Jennifer mentioned that the Citizens Advisory Committee is discussing equity and funding, and discussing how to make the funding process more flexible. For partnership and buy-in, participants recommended hosting an annual resilience conference for local and state elected officials, local government staff, academia, and subject matter experts within the non-profit and private sectors to increase awareness regarding the need for resilience throughout the Chesapeake Bay watershed, promote buy-in and support, and highlight funding opportunities. Jennifer mentioned that this is an opportunity to collaborate with the Climate Resiliency Workgroup. For the last recommendation, focused on capacity building, participants recommended identifying a mechanism to build additional capacity in each state to provide technical assistance and support local governments with resilience planning and grant writing with consideration for additional dedicated full time staff.

Jennifer mentioned that the report is now available on the LGAC webpage. The findings have been shared with the Management Board, Principals' Staff Committee, and the Executive Council. The requested that these leadership bodies take the recommendations into account.

Discussion

Julie thanked Jennifer for her presentation and mentioned that the workgroup is going to take time to digest the information and determine how they can support the recommendations that were developed. Julie highlighted the recommendation for an annual resilience conference, which would be a chance to focus on these types of efforts. She also mentioned reserving time at a future CRWG meeting to discuss how the workgroup can identify collaborative opportunities.

Jason Dubow commented that the annual resilience conference is a great idea and suggested that the conference could focus on resiliency of habitat and living resources as a first priority with co-benefits to people as a second priority. Nicole asked if the participants were seeing the benefits from the capacity building funding and focus from the Bipartisan Infrastructure Law. She said that it would be interesting to reach out to participants to determine if they are seeing the benefits from the funding. Jennifer said that she could not answer for the participants but she did mention that there is interest in looking into different state grant portals and gateways as well as developing these tools and finding support for the grant writing process and developing proposals. Jim George provided an EPA link to a portal for technical assistance on securing funding. Lori Maloney thanked Jim for sharing the link, and asked if he could talk more about the portal and the services it provides. Jim explained that with the influx of infrastructure funding the EPA recognized that underrepresented and under-resourced communities may have trouble accessing the funding. They have dedicated $100 million over five years to support organizations that can provide technical assistance (e.g., writing grants, submitting proposals, project development, etc.) to these communities. Jennifer also added that the Environmental Finance Center at University of Maryland is one of the national organizations that is providing this technical assistance.

Ben McFarlane stated that the LGAC workshop was extremely valuable and informative. Jennifer mentioned that if there are any more questions or wanted to follow up about the workshop and recommendations to email her (jstarr@allianceforthebay.org).

2:45 PM **Review of GIT-Funded Synthesis of Shoreline, Sea Level Rise, and Marsh Migration Data for Wetland Restoration Targeting Project (Molly Mitchell, VIMS) [20 minutes]**

- *Molly Mitchell will be presenting the findings from their GIT-Funded project, which aimed to develop a methodology for using results from marsh migration models combined with social, land-use, and*

environmental data to inform marsh management, conservation, and restoration under sea level rise.

Summary

Julie introduced Molly Mitchell, who presented on the Habitat GIT's GIT-Funded project, "Synthesis of Shoreline, Sea Level Rise, and Marsh Migration Data for Wetland Restoration Targeting Project." She mentioned that there were a number of CRWG members who supported the project as steering committee members. This project developed methodology to use existing marsh migration models to help inform land management, conservation, and restoration. The project also provided a dataset of available information (e.g., scale, scope, etc.) that could help inform management decisions. She mentioned that they did not run any marsh migration models during the project itself.

There were three project tasks and deliverables. The first was identifying data relevant to assessing marsh longevity, condition, migration, and other relevant marsh metrics. They found more than 111 data sources, which are organized into metadata sheets that contain what geographies are covered, spatial resolution, other relevant information about the dataset, and if it is readily available online. The second deliverable was a literature review of marsh migration models, which included models of marsh response and focused on synthesizing available data for the models. Lastly, the deliverable she focused on for this presentation is the development of the methodology, which focused on three target areas, which were in the York River. The sites were comprised of varying characteristics. The site located closest to the headwaters, in the mid-Pamunkey River, has tidal marshes that are heavily influenced by riverine flow and are tidal-freshwater marshes. It also has high elevation lands behind it. The second site in Carters Creek is an embayed creek marsh with relatively high elevation lands behind it and not exposed to wave energy. It is a brackish marsh. The third site, which is Bay-front, is also brackish marsh, but is subject to wave energy and is surrounded by low elevation, flat land. The different sites allowed them to see how the models compared across marsh type.

The project examined five different models, which are Sea Level Affecting Marsh Migration 5.0 (SLAMM), Integrated Valuations of Ecosystem Services and Tradeoffs (InVEST), NOAA Sea Level Rise Viewer Marsh Migration Model, Evaluation of Tidal Marsh (ETM), and Tidal Marsh Model (TMM). She highlighted that there was a challenge with comparing across these five models as they are each run on different sea level rise scenarios. They selected two consistent water levels (i.e., 2ft increase and 4ft increase in mean sea levels [MSL]).

The first step they took for this project was acquiring the data for each of the models, selecting the two water levels that corresponded to the scenarios that were being investigated. They then clipped the data to the study areas and remove the existing marsh using the tidal marsh inventory, so that they could focus on migrated marsh. This was important as the models do not consider the same areas as existing marsh. They then utilized geoprocessing tools to look across the five models and to see where they agreed with migrated marsh across the different SLR scenarios. They also took two different approaches; the first approach was to look at only

“natural” land-use for potential marsh migration, and the second approach was to allow the models to show marsh migration into other land-use categories. The second approach would inform management decisions about land-use conversion.

She then showed an example from the Bay-front site. Only four models were run for this area; the TMM was not available for the area. The dark green is where all four models agreed, whereas the lightest green is where only one model predicted marsh migration into that space. There are big areas where there is only one model showing marshes in that area, and then there are more tightly constrained areas where the models are in agreement.

Molly then discussed that there was a surprising amount of difference between the models. They are ultimately driven by the elevation of the land and change in elevation of the water, so they expected more consistency between the models. She then showed example one, but with each model a different color to indicate where they do and do not agree. The SLAMM model had marsh migration predicted in areas where many of the other models did not predict. It is likely due to the large resolution.

She then discussed the amount of marsh migration (in acres) that was predicted for each model at each site. In the Pamunkey site, the SLAMM and ETM models were similar in a smaller predicted amount of marsh migration, while the NOAA SLR Viewer and InVEST both predicted larger amounts of marsh migration. However, closer to the Bay, there is a different pattern where SLAMM, InVEST, and NOAA SLR Viewer were predicting a large amount of marsh migration, while ETM was predicting a lower amount of marsh migration. And then in the middle site, Carters Creek, another pattern emerged, where there is agreement between SLAMM and InVEST, while the NOAA SLR Viewer is predicting large amounts of migration and ETM is predicting modest amounts of marsh migration. She also noted that even when the cumulative numbers agree for acres of migrated marsh, the spatial extents might not agree. She also noted that there was not a lot of consistency in which models were the most similar. She then showed a visual of the extents of the models to depict where there is overlap. She then highlighted where these differences might emerge from such as differences in land-use resolution, elevation resolution, elevation source, vertical datum, and marsh source.

She then explained how differences in resolution can lead to large differences in prediction. Finer-scale resolution has smaller pixels, and when the computer is assigning area, it has a lot more detail, so the marsh edge is cleaner. With the larger resolution data, the computer can over or underestimate the amount of different land categories. Some smaller differences she highlighted include the incorporation of vertical accretion and sediment processes, whether barriers to migration are included, and that four of the models are static models.

She ended the presentation by discussing her final thoughts. As there were surprising differences in the models stemming from differences in water level alignment, resolution of data, source of underlying data, and model parameters, they suggest not using one model alone, but rather take a multi-model approach and look for agreement between the models. There are not strong patterns between marsh model parameters and migration results. Finally,

results are not consistent across locations. She mention to email her with any questions at molly@vims.edu. Report can be found here: https://cbtrust.org/wp-content/uploads/VIMS_Marsh_Migration_final_reportmetadatsheets_30Sept2022.pdf

3:05 PM **Update on GIT-Funded Partnership-Building and Identification of Collaborative Marsh Adaptation Projects Effort (Nicole Carlozo, MD DNR) [20 minutes]**

- *Nicole Carlozo will be providing an update on the CRWG supported GIT-Funded Marsh Adaptation Project. Currently, the project team has nearly completed phase one which includes: reviewing existing partner resilience and EJ metrics (GIS mapping), performing partner outreach survey to identify priorities, and overlaying partner metric and priority maps to select two regional focus areas for in depth workshop conversations. Phase two will focus on designing a 2-day workshop for MD, VA, and/or tribal stakeholders and identifying large-scale marsh restoration and research projects and supporting partnerships.*

Summary

Julie introduced Nicole Carlozo and mentioned that the project she is presenting utilizes the findings from the research Molly Mitchell shared in the previous presentation. Nicole provided an update on the GIT-Funded "Partnership Building and Identification of Collaborative Marsh Adaptation Projects" effort which is led out of the CRWG. 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. Marsh adaptation can refer to various different activities, so they have developed a working definition which states "incorporating climate change information and resilience strategies when planning, designing, implementing, and managing marsh restoration and conservation projects to enhance the longevity of marsh area and health." Nicole mentioned that adaptation can refer to conservation projects, restoration projects, management actions, or research that is needed to build resilience to climate change. Factors that the project team are looking at, which impact marshes, include sea level rise and increased storm events and precipitation. This project if focused on identifying large-scale projects, which is using the same definition that Maryland Sea Grant developed for their meetings and workshops; they defined large-scale projects as ones that cover large, significant areas or a network of smaller, significant sites.

This project supports the Chesapeake Bay Watershed Agreement through connections to a number of different goals related to stewardship, climate, and habitat. The CRWG identified capacity building as a key strategy to support the implementation of strategic projects. Through partnership building and identification of these collaborative marsh adaptation project, they are hoping to build capacity for projects, specifically for ones that are eligible for federal funding opportunities through the Bipartisan Infrastructure Law. They are also hoping to identify research opportunities that can support the management of tidal areas as sea levels rise.

Nicole then reviewed the project outcomes which are to identify common criteria for targeting projects through a mapping effort, which is supported by the CBP GIS Team and the contractor (SKEO) and builds off of the Marsh Migration Data Synthesis Project; identify partners and projects within two different focus areas (MD, VA, or tribal lands) that can support large-scale tidal marsh restoration projects; identify research and data gaps and needs to inform tidal marsh restorations at these sites; identify research opportunities that could coincide with tidal marsh restoration efforts to increase understanding of success of climate resilience strategies; and identify short- and long-term funding opportunities for proposed collaborative tidal marsh restoration and research projects. Nicole mentioned that they are hoping to draw on the outcomes form the Wetlands Outcome Attainability Workshop which was held last year.

The project has three phases and is currently in phase one, which focuses on reviewing existing resilience, conservation, and social vulnerability metrics and finalizing a questionnaire and strategy for partner outreach. These activities will support the selection of two focus areas. Phase two includes a workshop later this year to identify potential large-scale projects and to support partnerships in those focus areas. Phase three will include the workshop proceedings including the identified projects, partners, and funding opportunities. Nicole then reviewed the draft project framework for their methodology when targeting projects which starts with metric mapping (e.g., resilience, conservation, and social vulnerability metrics), moves to priority alignment and mapping, which focuses on identifying partner priorities and collaborative opportunities based on the questionnaire and partner outreach, then identifying two focus areas, then the workshops will analyze the feasibility of the projects (e.g., understanding cost, capacity, community support, research and data needs, etc.), and then project selection. Ideally, this framework and process will be replicable for other partners and projects in the future.

Nicole then reviewed examples of the data that are being considered for the metric mapping and the approach for partner outreach. The resilience metrics are pulling from existing datasets, including three models that were presented in the Marsh Migration Data Synthesis project (i.e., NOAA Sea Level Rise Viewer, SLAMM, and InVEST). They are looking at both 2ft and 4ft sea level rise scenarios for the metric mapping. They chose three models based on the recommendation to use a multi-model approach from the Marsh Migration Data Synthesis project. They will be considering the models both separately and looking for areas of model overlap. Once the regional focus areas are identified there will be opportunities to pull in local or state-specific data for project identification. Nicole reviewed other potential data layers focused on habitat connectivity (i.e., The Nature Conservancy's Resilient and Connect Landscapes tool) and marsh condition (i.e., USGS Coastal Wetlands Synthesis and Coastal Change Hazards). The marsh condition metrics include a layer for Unvegetated to Vegetated Ratio (UVVR), which is an indicator of marsh vulnerability. These tools were presented at the CRWG October Meeting. Conservation metrics that are under consideration include regional and state specific datasets. The regional level metrics focused on habitat and species (i.e., EPA EnviroAtlas), habitat connectivity (i.e., Nature's Network), bird habitat (i.e., Audubon), and fisheries habitat (i.e., CBP Hardened Shorelines Threshold). State level datasets include Virginia Natural Heritage Data Explorer, VIMS AdaptVA, MD DNR Greenprint, and MD Critical Area.

There will be time later in the project to pull in additional, regional datasets. The final set of metrics under consideration pertain to social vulnerability. They include FEMA's National Risk Index, CDC's Social Vulnerability Index, EPA's EJ Screen, Health Resources and Services Administration, the American Community Survey, and the White House Climate and Economic Justice Screening Tool. FEMA's National Risk Index is being utilized a first screen because it includes economic risk and loss data as well as social vulnerability factors.

The GIS Team is currently pulling the metrics that were presented together and the team is working through a mapping exercise. While waiting for the mapping tools to be ready, the team has focused on community outreach. They are pulling together a questionnaire to identify partner priorities, which will include both organizational and geographic priorities. The goal will be to map the geographic priorities with the metrics that were presented. The team is also planning virtual, small group discussions to better identify partner roles and to understand if climate change is currently being considered in the implementation of these projects. This will inform the discussions for the workshop. The partner list is still being refined, and the team is still trying to decide the best time to bring in organizations that support underrepresented and under-resourced communities.

Nicole then highlighted the other recent wetland focused projects that have occurred in the watershed, so the project is building off the information generated through these efforts. There is a concern for partner fatigue, so they are trying to be very clear in their outreach, and highlight that this project is focused on building partnerships and identifying large-scale projects that require multi-partner collaboration for success. The project will not be focused on current or existing projects, rather it aims to identify new or needed projects. Additionally, the team is looking at the participant lists from these other efforts to inform identification of partners and for the development of stakeholder profiles, as well as utilizing the proceedings from these efforts to inform workshop development.

The next steps for the project include finalizing the mapping metrics; Nicole mentioned that the team plans to test the methodology with folks from the Middle Peninsula's York River Habitat Restoration Steering Committee. Additionally, the team will be finalizing their outreach methods, which includes sending out the questionnaire and setting up the small group discussions. After the outreach, focus areas will be selected and the team will start developing the workshop.

Nicole ended the presentation by mentioning that if anyone is interested in participating, they can assist various aspects of the project which include reviewing the partnership list, reviewing the questionnaire, coordinating with their organization to submit a response to the questionnaire, and review the targeting framework.

Julie thanked Nicole for presenting. She also mentioned that as the project moves forward, there will be opportunities for workgroup participation, and she will send emails and notifications as these opportunities arise.

Discussion

In the chat, Jason Dubow asked if there was a community outreach or input opportunity prior to project selection. Julie responded that there will be community outreach before project selection, but it will be after the two regional focus areas are selected. She explained that the GIS mapping exercise is looking at Bay-wide data and will support working with partners who coordinate across various partners to help identify the two regional focus areas.

Breck Sullivan asked if there is a way that this work could support the wetland action plans that the states recently developed with the Wetland Workgroup. Julie responded that there are Wetland Workgroup members on the project's steering committee, so the goal is to see if there is alignment between the project and the wetland plans; they are also on the partner list for outreach.

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

- *The Requests for Proposals for the Chesapeake Bay Program's Goal Implementation Team Funding are now available. Each year, certain outcomes are chosen by the Chesapeake Bay Program as top priorities to address, and these stretch across all Goal Implementation Teams (GIT) and workgroups. This program funds consultant services to provide technical assistance to support Chesapeake Bay Program goals and outcomes. To review the various Requests for Proposals that are published for the current funding cycle, click here. Proposals are due March 13th, 2023.*
- *Jamileh and Julie presented on the STAC Rising Water Temperature Workshop efforts at the U.S. Northeast Climate-Fisheries Seminar Series on February 23, 2023 at 12:00 PM. The presentation focused on the drivers of rising water temperatures in the Bay, its ecological impacts, the recommendations that were developed during the workshop, and current and future NOAA efforts that support the recommendations.*
- *The first Sea Grant Blue Carbon Law Symposium will be held May 17th-18th, 2023 in Athens, Georgia. This event will convene legal scholars, ESG investors, conservation finance and carbon registry specialists, coastal and marine decision-makers, and scientists to co-create a whole-field understanding of the role and opportunity for coastal blue carbon investment. For more information and to register, click here.*

Funding Opportunities:

- *The National Fish and Wildlife Foundation (NFWF), in partnership with the U.S. Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service (FWS), and the federal-state Chesapeake Bay Program (CBP) partnership, is now soliciting proposals through the Chesapeake Bay Stewardship Fund to protect and restore water quality and habitats of the Chesapeake Bay and its tributary rivers and streams.*

NFWF is soliciting proposals under two distinct programs through this request:

- *Through the **Small Watershed Grants (SWG) Program**, delivered in partnership with EPA and the CBP partnership, NFWF is soliciting proposals for projects within the Chesapeake Bay watershed that promote voluntary, community-based efforts to protect and restore the diverse and vital habitats of the Chesapeake Bay and its tributary rivers and streams.*
- *Through the **Chesapeake Watershed Investments for Landscape Defense Grants (WILD) Program**, delivered in partnership with FWS, NFWF is soliciting proposals for projects that conserve, steward, and enhance fish and wildlife habitats and related conservation values in the Chesapeake Bay watershed.*

***Proposals are due by Thursday, April 20, 2023.** NFWF is holding an informational webinar for prospective applicants on Friday, March 3, 2023. Interested applicants must register in advance here in order to participate. NFWF will also record and post the webinar to the Chesapeake Bay Stewardship Fund webpage shortly after its conclusion.*

*Jake Reilly and Joe Toolan from NFWF will be providing an update on these grants at the Budget and Finance Workgroup meeting **on February 28th, 2023 at 1:00PM**, if you are interested in attending, please email Jamileh Soueidan (Jamileh.soueidan@noaa.gov).*

- *The National Fish and Wildlife Foundation (NFWF), in partnership with the National Oceanic and Atmospheric Administration (NOAA), the U.S. Department of Defense, Occidental, Shell, and TransRe is now soliciting **Pre-Proposals** for the **2023 National Coastal Resilience Fund**. The Request for Proposals is available here.*

  *NFWF will award up to $140 million in grants to create and restore natural systems in order to increase protection for communities from coastal hazards, such as storms, sea- and lake-level changes, inundation, and coastal erosion, while improving habitats for fish and wildlife species. NFWF prioritizes projects that are community led or incorporate direct community engagement and benefit underserved communities facing disproportionate harm from climate impacts. Pre-proposals must be submitted through NFWF's Easygrants system no later than **Wednesday, April 12, 2023**. An informational webinar has been scheduled for **Thursday, March 2, 2023 3:00-4:30pm ET** to provide an overview the National Coastal Resilience funding opportunity. Applicants are strongly encouraged to participate and can register for the webinar here.*

3:30 PM **Adjourn**

Participants:

First Name	Last Name	Affiliation
Moriah	Baybrick	
Katie	Brownson	USFS
Nicole	Carlozo	MD DNR
Cassie	Davis	NYS DEC
Jason	Dubow	MDP
Lena	Easton-Calabria	MARISA
Darlene	Finch	NOAA
Jim	George	MDE
August	Goldfischer	CRC
Anna	Hamilton	Tetra Tech
Grace	Hansen	HRPDC
Debbie	Herr Cornwell	MDP
Angela	Jones	DoD
Lori	Maloney	EBTJV
Kate	McClure	MD Sea Grant
Ben	McFarlane	HRPDC
Molly	Mitchell	VIMS
Rebecca	Murphy	NVRC
Amanda	Poskaitis	NWF
Katherine	Rainone	MWCG
Julie	Reichert-Nguyen	NCBO
Kristin	Saunders	UMCES
Justin	Shapiro	CRC
Amanda	Small	MD DNR
Jamileh	Soueidan	CRC
Jackie	Specht	TNC
Jennifer	Starr	Alliance for the Chesapeake Bay
Taryn	Sudol	MD Sea Grant
Breck	Sullivan	USGS
Dylan	Taillie	MD DNR
Sophie	Waterman	CRC
Taylor	Woods	USGS
Gia		