Climate Resiliency Workgroup Meeting

Monday, August 16, 2021
1:30 PM – 3:30 PM

Webinar*:
https://umces.webex.com/umces/j.php?MTID=md22b0fd9d215fd2b6001f0f1a153229c

Password: CRWG

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Meeting Materials:
https://www.chesapeakebay.net/what/event/climate_resiliency_workgroup_crwg_august_2021_meeting

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

Action Items

- ✓ Distribute DoD request related to working with community members next to military installations who are interested in addressing climate change problems partnership-wide.
- ✓ Follow up with investors looking into crediting projects in the Chesapeake Bay.
- ✓ Invite the Nature Conservancy to a future meeting about their blue carbon SAV restoration project.
- ✓ Work with Kristin Saunders to put forward some of the blue carbon challenges and questions to the PSC for their September meeting so that they are aware of them.
- ✓ Reach out to the CBP Budget and Finance Workgroup to see if any of the members have expertise on carbon markets or ideas on where to pursue the implementation of projects for carbon credits.
- ✓ Members may contribute additional ideas for priority adaptation actions on the Jamboard.
- ✓ Share additional CRWG meeting topics with Julie (julie.reichert-nguyen@noaa.gov) or Breck Sullivan (bsullivan@chesapeakebay.net).

AGENDA

1:30 PM **Welcome and Meeting Overview – Chair Mark Bennett (USGS)**
Focus of meeting:

- CRWG C-StREAM interns share their experience and research from the summer. Projects relevant to the CRWG's 2021-2022 Logic & Action Plan on

climate change indicator development (1.2 a & c; list of prioritized indicators) and blue carbon science needs (2.3)

- Identify priority climate adaptation actions under the Adaptation Outcome that align with the newly approved Logic & Action Plan (2.2).
    - Mark Bennet commented they are looking for actions the workgroup can take to help drive the Adaption Outcome with work members are interested in pursuing. Julie and Mark want to organize these meetings in a way to take advantage of what the workgroup members need to know or want to do.

1:35 PM **Announcements:**

- Request for Applications - CBP 2025 Tidal Water Model for the Assessment of 2035 Climate Change Risk to the Chesapeake Bay TMDL Cooperative Agreement with EPA, 6 years from expected start date of 12/5/2021, estimated funding of $1,650,000, **Application Submission Deadline: September 20, 2021**
- Wetlands Watch Pilot Project Symposium - Building Resilience to Sea Level Rise Through Conservation (shared by Carin Bisland)
- 2021 Living Shorelines Tech Transfer Workshop, October 19 - 20, 2021, Cape May, New Jersey, Register HERE
- STAC Report: Climate Change Modeling 2.0 (shared by Gary Shenk)
- Report: Developing Future Projected Intensity-Duration-Frequency (IDF) Curves (Miro et al. 2021) and Online Tool
    - Here is the link to the webinar recording on the new climate change-informed IDF curves: https://chesapeakestormwater.net/events/projected-chesapeake-idf-curves/
- FY2020 Department of Defense (DoD) Chesapeake Bay Program Annual Progress Report (shared by Kevin Du Bois)
    - Kevin Du Bois said DoD is trying to connect the dots between the joint land use studies DoD does with communities that surround military installations. They look for opportunities to address climate resilience issues and corporately fund those issues. If there are community members that have military installations as their neighbor and are interested are interested in addressing climate change problems, DoD is interested in working with them. Julie recommended distributing this request more partnership wide. The below DoD article discusses the process of going through these projects. Funding Projects to Sustain Military Readiness and Promote Chesapeake Bay Restoration through DoD Program Synergy: https://www.denix.osd.mil/chesapeake/dod-cbp-quarterly-journals/index.html
- Updated USGS Chesapeake Science Strategy
- FY21 CBP GIT Funding Program Manual HERE

- Maryland Department of Natural Resources' Grants Gateway is open for FY23 resilience and restoration funds. Proposals are due by December 15, 2021. https://news.maryland.gov/dnr/2021/07/19/grants-gateway-open-for-fy23-resilience-and-restoration-funds/
- VIMS' CCRM is hosting a Shoreline Management Webinar Series - next one is Aug. 25th, 10-12.

1:45 PM **Bay Water Temperature Indicator: Ecological Considerations, Anissa Foster (NOAA-CRC Intern)**

Abstract: My internship project focused on compiling potential uses for a Bay Water Temperature Change Indicator related to fish impacts in Chesapeake Bay. Concepts from the literature were reviewed to develop ideas for ecological impact indicators that connect water temperature change to fish habitat suitability. Existing data were reviewed to identify data needs for a heat wave indicator related to striped bass habitat.

The Climate Resiliency Workgroup currently has physical indicators on ChesapeakeProgress, but they are moving to developing ecological impact indicators to capture how the changing physical conditions are affecting natural resources in the Bay. A physical indicator of interest is water temperature. Her project focused on connecting this indicator to ecological impacts related to striped bass habitat suitability. A large portion of the work was conducting a literature review of the information available on connecting water temperature to habitat suitability. There was not a lot of information on ecological indicators, so they shifted to reviewing vulnerability assessments. For the indicators available, they investigated how they are structured and created to help draft conceptual models of the Bay Water Temperature Change indicator.

Setting off the project, she participated in the STAC Rising Water Temperature Workshop preliminary meeting. They found they need to consider the potential management applications before developing the indicator. There are also data limitations, so they are considering a multi-data approach. From these recommendations, insights from indicator-related efforts, and the literature review, they parsed out themes of warming causing distribution shifts in species and heat wave events that could affect survivorship. They chose to focus these themes on striped bass because it is an important species for the Chesapeake Bay. Concepts can be adapted to other species if habitat requirements were available.

Anissa created two conceptual models, one for a temperature-influenced distribution change indicator and one for a heat wave indicator. Both took into the considerations of habitat requirements of striped bass. Warming waters are not the only requirements for habitat suitability. Dissolved oxygen is also very important so an idea for the temperature-influenced indicator is to make it a

multi-metric indicator to better understand where suitable habitats are in the Bay.

Next steps include consulting with fish experts, presenting the concepts to the STAC Workshop, and consideration of a multi-data approach due to the limitations of individual data sources.

Questions & Comments:

- Julie mentioned the workgroup worked with the Management Board on what should be their priority climate change indicators. The Bay Water Temperature Change Indicator was chosen as new priority indicator. Julie is interested if any of the workgroup members or their organizations are doing research to connect climate change impacts to living resources or habitats.
- Peter Tango stated it seems they frequently speak about temperature change as degrading, habitat losses, even "vulnerability" has a sense of doom. However, as one niche closes another one opens. Some species and communities are going to be winners. Habitat change and habitat shifts are going to be give and take, not all gloom and doom. He suggests they track habitat change and highlight the winners (e.g., brown shrimp are now in the lower bay) and the losers (yes, brook trout distribution is going to be rough in the future). Understanding winners and losers should be helpful to managers versus just focusing on a theme of degradation.
    - Adrienne Kotula agrees with Peter and this would be helpful messaging for policy makers as well.
    - Mark Bennett said great point Peter. They see the same thing about minimum instream flows.
    - Kevin Du Bois suggested looking at red drum as a potential winner. The Bay has been the northern boundary for them, but they are becoming more common in the Bay.
- Kevin Du Bois said it seems that scientists want to save habitat for ecological aspects, but people rarely want to save the habitat for those reasons. The workgroup needs to consider what are going to be the drivers for people protecting the habitat. A good place to look is the recreational angler community. The inshore habitat is being less suitable for striped bass so recreational anglers are having less access to them. They probably are less willing to support habitat efforts as striped bass move pass the 3-mile limit where recreational anglers cannot reach them. The social science aspect is what could help support habitat-building and temperature lowering efforts.
    - Julie mentioned this could be an area that the GIT Funding social assessment project by the Stewardship Goal Implementation Team could tackle for the Climate Adaptation Outcome. For the STAC Workshop, the focus is on management responses related

to temperature change. The social science connection could be explored through the social assessment project.

- Elizabeth Andrews VIMS mentioned VA Dept. of Wildlife Resources, VA Dept. of Conservation & Recreation and VCPC have a CZM grant to look at climate change impacts on habitats and species. From the grant proposal: "We propose to enhance current conservation targeting by developing future projections of likely migratory patterns and abilities of natural habitat and species guilds to shift under climate change and sea level rise. The period of future projections will be determined by the project team based upon conservation program needs and availability of robust data."
- Elizabeth Andrews stated there should be a successor species scorecard or indicator.
    - Julie mentioned this could be a topic for a future CRWG meeting.

2:15 PM **Blue Carbon Application in Chesapeake Bay, Adriana Marcela Murphy (C-StREAM intern with VIMS/NOAA)**

Abstract: Coastal Blue Carbon is a hot topic, and it is getting attention as a potential way to mitigate climate change and finance wetland and SAV restoration projects. Different methodologies have been developed to include coastal habitats into the carbon market, however, evaluation of existing data in the Chesapeake Bay is still needed to apply these protocols.

Coastal Blue Carbon is the carbon sequestered and stored in vegetation of coastal habitats such as salt marshes and sea grass beds. These habitats are a promising way to mitigate climate change while also providing protection from storm surges. However, these habitats are facing many threats such as sea level rise. The habitats become a source of carbon as it is released into the atmosphere when they are damaged or destroyed. To incentivize using these habitats to fight against climate change, Adriana investigated how they can be incorporated into the carbon market through the buying and selling of carbon credits.

Developing a blue carbon crediting project begins with a feasibility study to understand if data is available and if other projects are in the area. The next step is to apply a blue carbon methodology. The voluntary carbon market is overseen by different standards and one of those standards is Verified Carbon Standard (VCS). Adriana's review focused on the methodologies overseen by VCS which is dependent on the project type. VCS has two different types of projects when involving wetlands, the restoring wetland ecosystems (RWE) and conservation of intact wetlands (CIW). For all the methodologies, there are several key eligibility conditions – additionality, permanence, leakage, GHG assessment, and sea level rise. There are some instances where there are not optimal conditions to apply the methodologies, and wetlands are not eligible to use a blue carbon project. For example, a restoration project needs to quantify the carbon dioxide emission reductions compared to the baseline emissions. If the difference is less than 5%,

the project is not generating significant reduction, and the project would be deemed ineligible. Part of Adriana's research was to conceptually map out how to find areas that had the right conditions. It begins with deciding the boundary area and if sea level rise will affect that area. One also needs to look into different carbon pools and sources of greenhouse gas emissions which leads to using different methodologies for a carbon credit project. There is also the possibility to do a grouped project which combines multiple projects and allows to add new activities over time. She has a created a table that describes the difference between methodologies to help pick which one is best for a project. A very important part of blue carbon projects is the legal requirements which she was not able to tackle during this internship. A next step would be a project to understand legal barriers to starting and completing a blue carbon crediting project.

Questions & Comments:

- Kevin Du Bois asked if anyone in the CBP partnership is going to attend the RAE Living Shoreline Tech Transfer Workshop in October? He is particularly interested in the session on Digital Tools for Visualization and Modeling as it pertains to the Wetlands Workgroup GIT-funded project on marsh migration. Can anyone report back on this session? – It didn't appear that anyone is currently planning to attend.
- Julie commented she is looking into how to make the tables Adriana made on the methodologies and data needs accessible to members.
- Julie mentioned one thing interesting that she learned from this project is that there is no validated blue carbon project in the United States. There is a seagrass bed restoration project out of the Nature Conservancy that is getting close to validation. The workgroup may want to think about what the next steps are to identify some of the barriers especially legal barriers to implement a project. Also there are questions about if wetland restoration efforts done by the Bay jurisdictions are eligible under the additionality requirements if they are doing it for their watershed implementation plans.
- Nicole Carlozo asked if "additionality" does not allow you to take co-benefits into account?
    - Molly Mitchell said this is a really important question.
    - Adriana stated if there are other factors causing the project to move forward besides the carbon market piece, it is not additional. They need to demonstrate the project is happening because of the carbon market even if that piece is not funding the entirety of the project.
    - Nicole said the projects that they pursue for the water quality benefits have a targeting mechanism in place to best meet those goals. It sounds like they would need the same thing for blue carbon projects. The specific parameters would justify that the project is for blue carbon even if the project also allows co-benefits for water quality.

- Kristin Saunders noted that the Principal Staff Committee (PSC) may be having a conversation in September on how to accelerate wetlands and forest buffers, and part of that conversation may also involve carbon markets.
    - Julie suggested working with Kristin to put forward some of these challenges and questions to the PSC so that they are aware of them.
- Kevin Du Bois commented the Water Quality Goal Implementation Team (WQGIT) presented on developing credits for climate resilience and water quality in the agriculture sector. The firm Gordian Knot Strategies is moving into the Chesapeake Bay watershed to bring in investment capital to develop these credits and then sell them back to municipalities. He suggested reaching out to them to see what the status of their entry into the carbon market for the Chesapeake Bay. There could be a GIT project to get blue carbon credits for a wetland restoration project. The private firm could create the blueprint of how to do it going forward.
    - Julie said this is a good idea. The Nature Conservancy could also be invited to present on their restoration project.
- Bill Jenkins commented great presentation. Very revealing in terms of what all needs to be considered in moving forward with this. He mentioned that they are trying to set up a discussion with the Wetlands Workgroup, so he hopes that can help get some traction on moving these considerations forward.
- Kristin Saunders said it sounds like they need to learn about and define standards and methods for how to account for where carbon credits accrue.
- Taryn Sudol mentioned another challenge/curiosity is also how coastal farmers could possibly participate in carbon markets and their receptivity to the processes/legal considerations/regulations.

2:55 PM **Identifying Priority Adaptation Actions, All**

Initial brainstorming exercise to identify priority climate adaptation actions where the CRWG can contribute in connecting scientific information from research partners with decision-making needs. Jamboard captured the discussion, and it is available here. The link will stay open, and members are welcome to contribute to it later.

- Julie said in the Logic & Action plan the workgroup put an action to identify federal, state, and nongovernmental partners who are providing technical and financial assistance for adaptation projects and connect these groups to local governments and communities pursuing climate adaptation. How should the workgroup approach this action? She suggested having a theme meeting by inviting people who are from the funding institutions and those from local governments to talk about funding opportunities for climate resilience projects.

    - Mark Bennett commented if they should talk to the people that are offering the grants or those applying to the grants.
    - Nicole Carlozo suggested a survey for state/fed/non-profit partners engaging with local communities on adaptation to better understand capacity limitations for these connectors.
    - Kevin Du Bois said he was wondering about local government capacity to apply for the grants.
    - Julie is seeing a theme around capacity to have the resources to apply for the grants and the limitations of applying the science.
- Kristin Saunders said there are some state revolving loan fund folks on the CBP Budget and Finance Workgroup, and they may be able to help sort out the question about where to apply carbon credits. There is possible expertise in the workgroup.

3:20 PM **Upcoming CRWG activities, Julie Reichert-Nguyen (NOAA)**

- Exploring possible joint meeting with Wetland Workgroup on marsh migration project efforts (possibly September or November)
- Consider forming small group to move forward with Ocean Acidification (OA) monitoring objectives and remaining gaps for PSC request of improving CBP Monitoring Networks.
    - Julie will send out a request to see which members would like to focus on this item and help provide OA monitoring recommendations.
- Planning meeting to review information from BMP climate resilience assessments (possibly October)
- Meeting to hear from living shoreline project efforts
- Get ideas from CRWG members
    - Nicole Carlozo DNR is also working with CBT right now on a Community Based Organization Capacity Building Initiative project. We may have lessons learned from the project. One of the deliverables is "A final report summarizing lessons learned and recommendations about how to overcome barriers to community-based organization ability to pursue similar projects" https://cbtrust.org/wp-content/uploads/RFP-Technical-Assistance-for-CBO-CBI_FINAL-1.pdf
    - If members have additional ideas, please share them with Julie (julie.reichert-nguyen@noaa.gov) or Breck Sullivan (bsullivan@chesapeakebay.net).

3:30 PM **Adjourn**

Next Meeting: September 20, 2021

Participants: Breck Sullivan, Anissa Foster, Adriana Murphy, Adrienne Kotula, Mark Bennet, Julie Reichert-Nguyen, Ashley Gordon, Ann Phillips, Ben McFarlane, David Wood, Debbie Cornwell, Elizabeth Andrews, Jackie Specht, Kate , Kevin Du Bois, , Molly Mitchell, Nicole Carlozo, Nora Jackson, Rachel Lam, Suzanne Van Drunick, Taryn Sudol, Bill Jenkins, Elissa Torres, Marisa Baldine, Kristin Saunders, Angie Wei, Anna Hamilton, Garrett Stewart, Megan Ossmann, Cassandra Davis, Peter Tango, Donna Bilkovic