Climate Resiliency Workgroup Quarterly In-Person Meeting

Monday, October 21, 2019
10:00 PM–3:00 PM Full Workgroup

Meeting Materials:
https://www.chesapeakebay.net/what/event/climate_resiliency_october_2019_quarterly_in_person_meeting
CBPO Location: Fish Shack

Actions

- Julie, Cuiyin, and Breck- follow-up with Nicole Carlozo to present on MDNR ecological study involving wave attenuation/sea level rise (SLR) during future CRWG meeting (tentatively, 12/16/19).
- Rebecca Chillrud- share Will Parson's e-mail to CRWG members interested in helping with or highlighting a project in Bay 101 videos.
- CRWG members- share any grant-awarded projects/papers with Rebecca, rchillrud@chesapeakebay.net, to potentially highlight in Bay 101 videos.
- Julie- follow-up with Heidi Kunka (PA) on BMP climate assessment report from Penn State (due end of year).
- Jim George and Nicole Carlozo- look into whether internal MD adaptation tracking spreadsheets can be shared as a template for other groups.
- Julie, Cuiyin, and Breck- follow-up with David Wood on RFP for intensity duration curve analysis that could assist with flooding considerations.
- Julie, Cuiyin, and Breck- follow-up with Katherine Brownson on future collaborations between Forestry Workgroup and CRWG. Forestry Workgroup thanked CRWG for input.
- Julie and Mark- follow-up with modeling workgroup (Peter Claggett and Lew Linker) and stakeholders on how to incorporate SLR considerations with the land-use model.
- Julie, Breck, Cuiyin- follow-up with coordination with healthy watersheds (Nora Jackson), review healthy watershed metrics for any climate resiliency overlap.

Minutes

10:00 **Welcome, Introductions & Announcements** – (Co-Chair Mark Bennett, USGS and Co-Chair Erik Meyers, The Conservation Fund)

- New Climate Coordinator: Julie Reichert-Nguyen
- GIT Funding Proposals: Building a Baywide Scorecard to Track Climate Resilience for Watershed Communities (CRWG); Targeted Local Outreach for Green Infrastructure in Vulnerable Areas (Habitat WG)

***Deadline: The bid for GIT funding RFP from contractors will be due on Nov 15th.**

Nicole announced that MDNR was awarded an ecological study on SLR of a grant from NOAA. The goal is to research the wave attenuation benefits from SLR. **She would like to provide update during future CRWG meeting**.

- **Collaboration Opportunity:** On November 15th MDNR will hold a kick off meeting with advisory committee. Kathy recommended inviting Celso Ferreira (George Mason) and Ariana Sutton-Grier (UMD) to speak. They're the PI's on this work. It also would be great to have Jeff Halka (MD GSA, retired coastal sediment expert) a part of the conversation.

10:10 Communications Update – Rebecca Chillrud (CRC)

There will be a series of Bay 101 video for Climate Resiliency handled by Will Parson. The theme of the videos will be focused on these aspects:

- Urban tree canopy/heat island effect (Baltimore tree trust, Md.)
- Deal Island Peninsula Project/sea level rise and human and habitat need connection (Somerset County, Md.) – tentative; Norfolk, Va. as backup
- Brook trout need for cool water (Pendleton County, W.Va.)
- Sea grass (Gloucester County, Va.)
- Agriculture: climate change impact on ag land (Clinton County, Pa.)
- Flood resilience (Tioga and Broome counties, N.Y.)

Collaboration Opportunities: Elizabeth Andrews interested in connecting with person developing seagrass video- shared that her students are working with The Nature Conservancy (TNC) on sea grass project. Nicole mentioned that MDNR also just worked with TNC on Deal Island. Ben can help make connections in Norfolk if location is used. Bruce mentioned NOAA-funded ocean acidification/seagrass habitat research by Emily Rivest (VIMS) and Dick Zimmerman (Old Dominion University).

Rebecca also shared that vlogs will accompany the videos- if CRWG members would like to highlight any papers or grants awarded, please e-mail them to her, rchillrud@chesapeakebay.net

State Climate Action Plans

Many states within the Chesapeake Bay Watershed have completed comprehensive Climate Action Plans or are in the process of revising or developing one. The plans detail steps that the states can take to reduce their contribution to climate change by reducing greenhouse gas emissions relevant to their state. They also outline efforts to increase climate adaptation in their state to adjust to the potential damages and consequences of climate change.

10:20 <u>Pennsylvania – Heidi Kunka (DEP PA)</u>

On April 29, 2019, Governor Tom Wolf announced Pennsylvania's membership in the U.S. Climate Alliance. PA joined The Regional Greenhouse Gas Initiative this year. This climate action plan was released in 2018. Summary version also available. Next climate adaption plan will come out in 2021. Majority GHG emissions from energy consumption. First time mentioning adaptation in this version of CAP. Have subcontract with Penn State to evaluate BMPs

associated with livestock, infrastructure, and Chesapeake Bay—looking at climate impacts on agriculture and stormwater BMPs.

Heidi asked if any other states use EPA's GHG inventory tool. Delaware does.

Jim asked if there are any systematic training for students on greenhouse gas inventory. Heidi replied training is available for fall and spring to gather data for greenhouse gas inventory. MDNR offers training through CC-P (Climate Change Professionals) program.

Ben asked if PA has a way to track the implementation plan. Heidi said no tracking mechanism available. Ben asked about the funding mechanism. Heidi responded that CAP is funded through Air Quality Bureau and the energy assessment report is funded by state energy fund.

Julie recommended coordinating the NOAA/EPA BMP resiliency study and the BMP study in PA. Heidi responded that BMP climate impact assessment will be completed by the end of this year but will be made available to the CRWG.

Breck asked if PA has thought about where the energy growth will be in. Heidi mentioned that PA is looking into using more solar energy.

10:40 <u>Maryland – Jim George (MDE)</u>

Jim presented the the history of climate action by Maryland with focus on adaptation. Different phases—Phase I (sea level rise and coastal storms) and Phase II (societal/economic considerations). Built in similar strategies as climate plan documents in the Watershed Implementation Plans (WIPs). Incorporates BMP siting and efficiency considerations. Expectation is that climate change will cause the cost of meeting the TMDL goal to go up due to more maintenance needed with BMPs.

MD uses an internal spreadsheet to track adaptation strategies. Ben asked if the spreadsheet is available to the public as a template for others. Nicole mentioned that she can look into whether the spreadsheet can be shared. Zoe added that the adaptation updates were provided in the annual reports to the MD Commission on Climate Change via greenhouse reduction act. MDNR is working with IAN on factsheets that summarize the recommended actions for each sector—useful communication tool.

Ben asked if MD is planning to help localities to track their flooding events. He added that Wetland watch is using citizen science monitoring effort to establish a database to record flooding events and developed an app called Sea level Rise to measure the king tide event, and they will be also mapping future high tide line in conjunction with the king tide event.
Zoe added that there will be Nuisance flooding update and also plans for future mitigation in Ellicott City. Will be aired via local government channel 1:30 PM Wednesday, House of Delegates.

11:00 <u>DC – Melissa Deas (DOEE)</u>

Melissa presented on Climate ready DC, a climate adaptation/resilience plan for DC which was released in 2016. There is a separate plan for mitigation. Her responsibility is to implement the Climate Ready DC plan. There are 77 actions, but no funding. Focuses on analyzing impacts, risks, vulnerabilities, and solutions under warmer, wetter, wilder (extreme weather events) scenarios. E.g., currently water quality is driving where to plant trees—may also need to consider heat areas that need more shading from trees. Successes—working with priority neighborhoods, stormwater trading, audit tool to assess vulnerabilities to climate change for development. Lessons learned—start implementation strategy with community first.

Jim asked about resilience hub. Melissa added that it is a trusted community facility, such as a church, that operates year-round which is equipped as a middle ground between shelter and home.

Heidi asked about the percentage of federal building in DC. Melissa responded that 80% of waterfront buildings are federal, which they have no control of.

11:20 Delaware – Ian Yue (DE DNR)

Ian is the climate planner in the DE DNREC division of climate office. DE is aimed to release draft plan by Dec 2020. The plan will focus on both mitigation and adaption. Adaption is still being discussed at the leadership level. Upcoming climate planning of DE DNREC will focus on mitigation strategies and action. No executive or legislative mandate to develop plan. Funding from state appropriations for FY2020. Cabinet committee on climate and resiliency (11 agencies) was created from past Executive Order. Past reports to assist with effort includes July 2012 sea level rise, September 2013 adaptation, and 2015 research gaps, March 2016 flooding considerations for new development, climate-ready workforce, and CMAP. Tech analyses done by consultant. 35% GHG contribution from transportation (fossil fuel combustion). Industrial source mainly comes from one facility.

Heidi asked about the public engagement process since PA CAP 2018 didn't include public engagement. Ian added that these are included in the RFP handled by contractor.

Mark asked if DE is considering reviewing the 24 hour storm rainfall rates, and how to project that into the future. The bay program is considering an RFP for intensity duration curve analysis that could assist with flooding projections.

11:40 New York – Cassandra Davis (DEC NY)

Currently, NY does not have climate action plan but Cassandra walked through a few climate change related programs in NY:

- State Energy Plan—40% GHG reduction, 50% renewables (largest GHG from transportation).
- Climate Leadership and Community Protection Act—Need government to sign another bill for permanent committee (Climate Action Council)
- Climate-Smart Communities—20 within Chesapeake Bay watershed—focuses on implementing BMPs that minimize climate change impacts

- Cornell Climate Smart Farming Program—provides user-friendly tools
- Update BMP efficiencies—BMP selections based on resiliency

Major concern—how heat will affect dairy farms (most farms in NY). Look into RGGI (Regional Greenhouse Gas Initiative) funding.

12:00 Virginia – Joshua Saks (VA)

VA is not part of RGGI but hoping to change with next election. VA is planning to regulate methane and carbon. Transportation emission using the Volkswagen settlement investing in the public transit and electric charging stations. VA is planning to work on an executive order to have majority of renewable energy. Coastal resilience master plan incorporates flood safety/ insurance considerations. VA is working on effort on flood plain protection with Conserve VA on acquisition of land.

12:00 Incorporating climate change into the Chesapeake Forest Restoration Strategy – Katherine Brownson (U.S. Forest Service)

Katherine provided an overview of the Chesapeake Forest Restoration Strategy and planned to incorporate climate resilient actions into their efforts to update the strategy. She is interested in getting feedback from the CRWG on any additional climate change adaptation or resilience actions they should address. She is requesting ideas for case studies of projects that are incorporating climate change considerations into forest restoration efforts.

With the new edition of Forest Restoration Strategy, they plan to update several sections to include climate change considerations. Climate change and forest restoration will focus on these four aspects: climate projections, forest and climate change mitigation, forests and climate change adaptation, planning resilient forest restoration projects. They are looking into:

- Siting of riparian restoration to help with flood mitigation and cooling streams for key fish species
- Planting trees to mitigate urban heat island effect and moisture retention during drought
- Resilient tree species based on response to climate change scenarios and availability of habitat; genetics for species that will do better
- Site selection and BMP design

Katherine asked the CRWG input on other ideas in which forest restoration can contribute to climate adaptation and resiliency in the Chesapeake.

- Nicole asked if they are addressing marsh migration and impact on coastal forests. Taryn added that during Marsh Resilience Summit it was discussed that forests and marsh may have conflicting land use. Matt Kirwin is a good expert on that issue. Zoe added Ghost forest in Chesapeake Bay reported by Times.
- Kevin asked if USFS is researching any social marketing work on expanding the riparian forests, especially in residential sector involving the removal of trees from a safety perspective (e.g., trees falling down from more extreme storm events). He added that in

ag area, field begin to suffer from flooding and inundation and loss of crop production and one way to address can be to convince farmers to grow trees which also have a TMDL benefit which can underwrite the loss of ag crop.

- Kathy asked about the prediction on trees migration were made. Ian added that natural climate land with the US climate alliance is also working on climate adaption and mitigation.
- Bruce asked if USFS have engaged with WIP developers and drafters to promote the riparian buffers. Katherine responded that there has been a disconnect with WIP developers
- Zoe added two things to think about: wildfire risks and accounting tree loss to other climate threats beyond urban development and regarding tree management risks. Jim pointed out that MD forest industry is not working well which ties with the forest management which can be a part of the management.

1:30 <u>Effects of climate and land use change - Peter Claggett (USGS)</u>

Peter discussed the 2050 Land Use Change Scenarios and accounting for the combined effects of climate and land use change. He requested the WG's input in these following question.

- What types of land cover/use transitions are most important to monitor?
- What future scenarios are needed?
- Is there a need for consistency with national-to-global scale scenario assumptions (IPCC-AR5 SSPs)?

Lew ask if the risk of inundation from SLR (projected by NOAA SLR Viewer) being considered for developed lands in the land-use development model. Peter responded that SLR/floodway was not simulated in MD. In MD, it is decided that 1-meter SLR, no growth. Ben recommended overlaying the result of growth model with the inundation/SLR scenario to identify conflicts. Need to consider areas that experience daily flooding (tidal) with areas that historically experience infrequent flooding (100-yr flood events). Lew asked if land use shrink included in what we report out. Peter responded that the model does not change the land acreage which are under water.

Elizabeth pointed out we need to understand more the loss of nitrogen and carbon from loss of forests and wetlands as a result of SLR. Mark mentioned that wetland retreat is currently not modeled well. Elizabeth also mentioned that there are safety concerns with flooding/storm surge—emergency personnel can't get to people. Recommended projecting the storm surge along with sea level rise. People may move out before the storm surge hit it.

Mark pointed out wetland changes due to sea level rise and how none of the models deal with retreat very well. The number we put out may be worse than what we predicted.

Ben commented that given the state of science, all of this info may not be helpful at the CBP level. He recommended looking into future growth and SLR together in a simplistic way and just

identify the more complex issues; focus on developing a road map for individual managers. State and local groups would look into the complex issues in more depth.

Molly added that her group has good understanding for VA where wetlands will migrate using land-use and hydrographic models.

Kathy commented that this group will be good to link with citizen monitoring science effort, such as Margaret's research on sunny side flooding. She raised her concern that current information is not helping restoration managers.

Heidi asked about the source of land conservation data. Peter responded Matt Keefer with DCNR.

2:30 Healthy Watershed Assessment – Nora Jackson (CRC)

Nora provided a summary and overview of the Chesapeake Healthy Watersheds Assessment and how the metrics for health and vulnerability could be utilized by other outcomes. States decide how to identify healthy waters (waters that don't need restoration; healthy based on metrics). GIT-funded project (TetraTech) models Chesapeake Bay at finer scale (all catchments) to identify healthy waters.

Breck asked if the assessment is updated every two years. Nora responded that as new data come out, the assessment will be updated.

Mark commented that it is important to understand the individual metrics so that climate impact will be assessed on each item. Julie commented if state can prioritize the resources with the changing environment.

Nicole asked how the result of the assessment compared to what state identified as healthy watershed. Nora responded that there is no science available indicating the individual metrics with the habitat health.

Meeting Participants:

Mark Bennett
Julie Reichert-Nguyen
Bruce Vogt
Ian Yue
Krista Grocholski
Breck Sullivan
Cuiyin Wu
Heidi Kunka
Joshua Saks
Melissa Deas
Katherine Brownson

Erik Meyers
Rebecca Chillrud
Allison Breitenother
Nicole Carlozo
Ben McFarlane
Elizabeth Andrews
Kevin Du Bois
Cassandra Davis
Kathy Boomer
Lindsey Byron
Jim George
Peter Claggett
Nora Jackson
Taryn Sudol
Zoe Johnson
Molly Mitchell