Climate Resiliency Workgroup Conference Call

Monday, December 16, 2019
1:30 PM –3:30 PM Full Workgroup

Conference Line: 929-205-6099 Meeting ID: 446-617-076
Webinar*: https://zoom.us/j/446617076
Meeting Materials:
https://www.chesapeakebay.net/what/event/climate_resiliency_workgroup_december_2019_meeting
CBPO Location: Conference Room 305

*If you are joining by webinar, please open the webinar first, then dial in.

Action Items:

- ✓ The workgroup needs to ensure the update of 2018 data for the existing five indicators is addressed.
- ✓ The workgroup should review the list of 13 indicators from the original 21 for considering 1 or more new indicators for development.
- ✓ The workgroup should review the list of 200+ list of candidate topics and re-evaluate if any new topics has risen to the top due to new science, reporting, and available information. Please provide any feedback to Julie (julie.reichert-nguyen@noaa.gov), Cuiyin (cwu@chesapeakebay.net), or Breck (bsullivan@chesapeakebay.net).
- ✓ Add a column in the spreadsheet of potential indicators to show signals of change to help identify how it would benefit other workgroups. The updated spreadsheet will be sent out to the workgroup before the January meeting.
- ✓ Contact Nicole Carolozo (nicole.carlozo@maryland.gov) if interested in the story map of potential sites for the Maryland's Ecological Effects of Sea Level Rise Project. Any feedback is welcomed.
- ✓ Nicole Carolozo would like feedback on key individuals she should contact to be a part of the project workgroups.
- ✓ Bring Nicole Carolozo and the lead Celso Ferreira back to another CRWG meeting.

AGENDA

1:30 **Welcome, Introductions & Announcements** – Co-Chair Mark Bennett, USGS and Co-Chair Erik Meyers, The Conservation Fund & Coordinator Julie Reichert-Nguyen, NOAA

- **Finance and Invest Forum 2020 -** The Chesapeake Bay Program (CBP) is hosting a Finance and Invest Forum in early March 2020. The forum will pair finance and investment experts with experts at the Bay Program. During the afternoon, they will have breakout sessions for each GIT/workgroup to connect with a finance expert.

    - Kristin Saunders stated it will be a full day event where a finance expert will be assigned to each workgroup attending. In the morning they will go through an example based on oysters to walk through how to do a finance strategy focused on CBP goals. The afternoon will have breakout groups for each workgroup and their assigned financial expert will go through questions and construct an outline of a strategy more centered around that workgroup's goals.
    - Elizabeth Andrews mentioned they hosted a Coastal Policy Center Resilience Funding Forum last May. It might be helpful to look through the webinar and list of speakers. Kristin will share this with Laurel.
- **Grants Gateway Solicitation -** Nicole stated they have opened their Grants Gateway Solicitation. There are multiple outcomes, but outcome two addresses understanding and planning for coastal vulnerability and outcome three is designing and implementing nature-based practices to enhance community resilience. It will be open through February 14, 2020. https://dnr.maryland.gov/ccs/Pages/funding/grantsgateway.aspx
- **CRWG GIT Funding Project –** The proposal received six bids. Reviewers of the contractors will have from January 7th – 27th to review the bids.
- **January 2020 In-Person Meeting theme and goals –** Cross CBP workgroup meeting to prioritize development of next climate indicators that also would benefit other workgroup goals/outcomes.
    - The December Climate Resiliency Workgroup (CRWG) meeting was a kickoff of this topic with Peter's Tango presentation as a refresher for the entire workgroup before a daylong meeting on the topic in January.
    - From the December CRWG meeting, Julie is looking for initial input and feedback on which other workgroups she should invite to the Cross-GIT workgroup meeting. During Peter's presentation, the workgroup will look at the list of indicators gathered so far and look for input from the workgroup of any indicators not on the list.

1:45 **Refresher on the Climate Indicator Effort** – **Peter Tango** (USGS)

Peter will inform the workgroup on the status of developed climate indicators and remind workgroup of additional indicators that were identified for potential development. Workgroup discussion will focus on reviewing identified indicators to provide initial input on which CBP workgroups we should target to participate in January 2020 meeting.

The initial effort for the climate resilient indicators was based on a GIT funded project completed by the Eastern Research Group (ERG). The goal of the project was to conceptualize, select, and partially develop a suite of indicators that can

be used to track progress toward the Climate Resiliency goal and outcomes in the 2014 Watershed Agreement.

ERG developed a master list of potential topics. The resulting list included approximately 210 topics and can be found on the CRWG webpage under Initial Topic List 6-14-17. Criteria was created for choosing indicators for development which allowed ERG to propose a suite of 21 indicators for possible development which included physical and resilient indicators. From the list of 21, two (Protected Lands & Restored Habitat – oysters and wetlands restoration) were already existing. Seven additional indicators (Average Air Temperature, Change in High Temperature, Precipitation, River Flood Frequency, River Flood Magnitude, Relative Sea Level Rise, Stream Temperature) were developed into official indicators for the CBP because there was on-going monitoring which would be continually updated. All of these indicators can be viewed on Chesapeake Progress. Peter is in touch with Michael Coleion who helped ERG with the indictors, and he has expressed that five of the seven indicators are ready to be updated with 2018 data.

There are 13 remaining indicators considered as priority. These topics are continually discussed throughout the CBP. There is monitoring available for these indicators, but they are not fully developed in terms of character or finalizing if the right data was collected. An example is the indicator for Bay Water Temperature. There is a strong set of resources for this indicator and protocols developed to show timeseries and trend information for this topic.

Peter suggested next steps on indicator work for the CRWG. The workgroup needs to ensure any annual updating on existing indicators is addressed and share the list of 13 indicators from the original 21 for considering 1 or more new indicators for development. Peter also suggested sharing the list of 200+ list of candidate topics and re-evaluate if anything new has risen to the top due to new science, reporting, and available information. STAR may also help with the CRWG to help evaluate cross-GIT indicator needs for prioritizing new indicators.

After Peter's presentation, Julie went over the spreadsheet of current and expected indicators for the CRWG. The spreadsheet provides a visual example of what Peter talked about in his presentation. Under Group C in the spreadsheet, the indicator coastal flooding has data available, but it is not uploaded on Chesapeake Progress. This is low hanging fruit the workgroup could easily tackle in 2020. Julie hopes some of the next indicators the workgroup decides to develop helps other workgroups express progress with their outcomes and address co-benefits within the CRWG. The vision of moving forward is to have a suite of physical indicators available but then show how these impact ecological resources or communities. The next step would be to have indictors that track the progress towards the CRWG outcome with moving forward with climate

resiliency practices and impacting management decisions. This will be the end goal because the workgroup needs to build up knowledge on it to express progress since the CRWG outcome is not quantitative.

In terms of interest from other CBP workgroups, Julie has heard interest from the Fish GIT for a water temperature indicator. In the December STAR meeting, they discussed a forage fish indicator. An urban tree canopy indicator is also in the process of being developed, and the last update was given to the CRWG in March 2019. The Healthy Watershed workgroup presented at the CRWG October meeting about interest of incorporating climate into their metrics. SAV workgroup presented at the management board that they want to address climate change in their work. On January 7 – 8 2020, the Fisheries GIT will host a session on how change in precipitation will affect oyster populations due to the decrease in salinity. Overall, there is a lot of interest from other workgroups to incorporate climate change and track its impact on different resources.

Kristin suggested the CRWG should be thinking about an indicator for Chesapeake Progress that tracks the performance of the outcome for the workgroup and not push this as an end goal.
Kristin also gave the example from the Healthy Watershed Workgroup about how they chose their indicators based on signals of change. Kristin wondered if it would help to change the spreadsheet on the summary of indicators to sort it as signals of change to see if it matches better with the work of other workgroups. Julie agrees that it would be good to include a tab in this worksheet to link it back to some of the threats of other workgroups.
Kristin did note that a disadvantage for the CRWG with their outcome is that they are collecting data from a wide breath of topics across all the different states. She advocates for an indicator to show the work the workgroup has done instead of changes/observations within the ecosystem.

Kevin Du Bois suggested that for property at risk or damaged, the best indicator would be FEMA's repetitive loss data. Molly stated that she has used the data before, and they had to request the data. FEMA condensed it so it was still very robust, but they couldn't give them the point data.

Julie suggested that with the limited time in the January meeting to conquer a low hanging fruit with indicators that already have a lot of data available, and for the another meeting, the workgroup focus more on an indicator that shows progress from the work being done for climate resiliency. Peter recognizes what Kristin was stating about tracking progress of the work done to increase climate resiliency and thinks the workgroup needs to consider how to target and start that discussion to understand what information is available to know the benefits being implemented. Erik asked Peter if he knew how many of these potential topics were qualitative vs. quantitative. Erik thinks that to show beneficial

indicators they need to be on a smaller scale than an indicator for the entire Chesapeake Bay Watershed. It would good for the workgroup to pick out different case studies of areas that demonstrates management actions. GITS might be able to identify some these areas that correlate with their goals. Kristin suggested looking at the Army Core of Engineers mapping effort where each jurisdiction had to choose an area that they wanted restoration implemented.

2:30 **Ecological Effects from Sea Level Rise Project – Nicole Carlozo** (MDNR)
The Maryland Department of Natural Resources is a partner on a study awarded to the George Mason University to evaluate ecological effects from sea level rise. Nicole will provide an update on the project.

This project kicked off in September, and the goal of this project is to quantify the wave attenuation and flood protection benefits of natural and nature-based features in Maryland. They are focusing on marshes and seagrasses as their natural features. Later in the process, they would like to look at living shorelines, but they have not yet decided which types of living shorelines. They also hope to inform conservation and management decisions under current and future sea level rise scenarios. Nicole wanted to present this information to the CRWG because she believes it can help inform the wetland buffering capacity indicator. She also hopes the CRWG can help her team make the connections they need with experts and stakeholders in the region and to help with outreach. She will also be sharing this information at the next Habitat GIT meeting. MDNR is going to be using the results from this project to update their state-wide decision-making tool. They have a coastal resiliency assessment which they hope to integrate the results into that layer, and they are interested in how it can help inform other management decision tools that support their stakeholders.

This is a three-year project, and in the next year, they are going to tackle the following objectives: 1) Enhance understanding of flood protection capacity & performance of natural and nature-based features (NNBF) under extreme & chronic events, and 2) Increase understanding of statewide flood protection capacity of NNBF under current conditions and future sea level rise scenarios. Under the first objective, they are currently working on site selection which will include both eastern and western shore sites. Nicole can share the story map of potential sites with anyone interested, and feedback is welcomed. They will start monitoring three sites in the Spring 2020 and then move the equipment to another three sites in 2021. For objective 2, they will evaluate the buffering capacity through multiple models that George Mason has experience running. George Mason will run a suite of hydrodynamic models by coupling them together along with the data collected during the field work of the project. Once they have gone through and run the models, they can begin running simulations by selecting multiple sea level rise scenarios or define different extreme weather

events and other scenarios. These scenario-based simulations will help compare the benefits of various management actions.

The anticipated outcomes and products of the project includes site-level biological and hydrodynamic characterizations, spatial datasets, and updated statewide conservation and restoration targeting tools. As sea levels rise, they hope to provide management recommendations and communication materials.

Right now, they are also working on contacting any key individuals that should be included in the workgroups for this project. The workgroups would have more in-depth conversations to discuss what data and sites should be considered. Nicole would like feedback from the CRWG on individuals interested in being a part of the workgroups. The proposed workgroups include:

- Sea level rise (2020)
- Living Shoreline (2020)
- Marsh Model (2020 – 2021)
- SAV Model (2020 – 2021)
- Risk Reduction (2021)
- Management Actions (2021)
- Data Integration (2022)
- Scenario Modeling/Community Outreach (2022)

Nicole said it would great to have Celso Ferreira (lead) join a workgroup meeting. Kristin Saunders commented that Bruce Vogt and Gina Hunt have been focused on a project at SERC about threshold information of shorelines on natural resources. She could give Nicole their contact information if she would like to talk with them. Kristin also asked if their work on the sea level rise modeling correlated with the efforts done by the CBP. Nicole stated it is going to be based on Maryland sea level rise projections. If this does not align with the CBP, Nicole thinks it would be beneficial to run a few projections relevant to the CBP.

Erik asked if the focused areas included both eastern and western shore sights. Nicole said their initial monitoring efforts will include one eastern, one western, and one central coastal bays area. She said there is not someone currently on the advisory group that has a close connection with western shore communities. If there is interest for a western shore focus area, they would need help engaging those communities.

3:00 **Report out from Maryland Sea Grant's Marsh Resilience Summit – Taryn Sudol** (MD Sea Grant)

The Marsh Resilience Summit occurred in February of this year and brought together over 200 marsh professionals (academics, land managers, regulators

and educators) to learn and discuss marsh resiliency in the Chesapeake Bay. Taryn will provide a summary of the Summit Proceedings.

Before the summit, they started with seven sentinel sites, and as a result of the summit, they added the Virginia Commonwealth University Rice Rivers Center. The River Center attended the submit and realized they met the monitoring requirements. MD Sea Grant hosted the summit because marshes are under threat and changes to marsh extent impacts other coastal land uses. At the summit, they talked about what methods work, what different techniques will be available in the future, research priorities, and calls to action all while bringing a wide range of stakeholders to the meeting. Taryn provided a summary of the sessions and discussions held at the meeting. The marsh migration session went over the role subsidence plays in sea level rise, the role of phragmites, migration barriers and policy options. To show the economic value of marshes, they held a session on environmental markets for blue carbon and insuring natural infrastructure. There was a session on co-benefits of marsh conservation to discuss human benefits, accountability, and citizen science, and a session on community resilience to focus on property values, road vulnerability and increase local government capacity. The management techniques session discussed where the restoration projects are located, how regulations lag behind science, and knowledge gaps for freshwater marshes. In this session, they also commented on how scientists release their findings in scientific journals and reports, but it never reaches those implanting the projects on the ground. For the dredge and beneficial use session, they talked about how the Army Corp of Engineers are helpful on large scale projects but don't know if this can be done on a smaller scale. On a smaller scale, the communities have the most trouble with the permitting process. The living shorelines and thin layering session went into the thought process of how to encourage more people to have a living shoreline which requires more social science understanding and social marketing. The final session, agriculture and industry, centered around marshes intruding in more agricultural areas due to migration. They taught farmers what they could do with the issue of saltwater intrusion, and talked about the trade offs between marshes and other land uses.

There will be more workshops in 2020. On February 28, 2020, there will be a "Vertical Land Motion in the Chesapeake Bay" submit held in Hampton, VA. There will also be an "Evaluating Land Use Tradeoffs" submit in October on the Eastern Shore of MD.

Julie mentioned that for the TMDL there are a lot of sediment reduction strategies, but she commented that it seemed Taryn was suggesting to have strategies that look at sediment transfer. Taryn said there seems to be a sediment shadow throughout the watershed, and there is the question of do marshes get the sediment they need for elevation from higher up in the

watershed. Some of the practices for sediment reductions limits the sediment for marsh elevation.

3:30 **Meeting Adjourn**

Next Meeting: Tentatively, January 27th

Participants: Julie Reichert-Nguyen, Cuiyin Wu, Breck Sullivan, Mark Bennett, Peter Tango, Jeremy Hanson, Katie Matta, Taryn Sudol, Rebecca Chillrud, Kristin Saunders, Nicole Carolozo, Carlo Blankship, Elizabeth Andrews, Kate McClure, Cassandra Davis, Alisson Breitenother, Lindsay Byron, Mark Bennett, Erik Meyers, Dough Austin, Angie Wei, Laurel Abowd, Molly Mitchell, Carol Friedrichs, Krista Romita Grocholski, Heidi Bonnaffon, Kevin Du Bois,