Climate Resiliency Workgroup Conference Call

Tuesday, February 18, 2020
1:30 PM – 3:30 PM

Conference Line: 929-205-6099 Meeting ID: 501-673-765
Webinar*: https://zoom.us/j/501673765

Meeting Materials:
https://www.chesapeakebay.net/what/event/climate_resiliency_workgroup_crwg_february_2020_meeting
CBPO Location: 200 Harry S. Truman Parkway Annapolis, MD 21401

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

Action Items:

- ✓ Peter Tango will put Julie in contact with Kelly Maloney and staff at USGS regarding fragmentation study related to brook trout and bird habitat.
- ✓ Gary will come to the April CRWG meeting to discuss the modeling climate assessment, and the workgroup can start discussing the crosswalk of how the modeling information can help with creating the indicators.
- ✓ Kristin will follow-up with Doreen about the idea of re-designing Chesapeake Progress to connect cross-workgroup information. Currently, each workgroup has their own page, but there are outcomes that are connected to one another.
- ✓ Julie will follow up with Phillip on projects to collaborate on with the data he presented.
- ✓ Please fill out this form by February 28th if interested in attending the March 16th Diversity Training: https://forms.gle/Pjfv4JkyZLxApuVC8

AGENDA

1:30 AM **Welcome and Meeting Overview – Co-Chair Mark Bennett (USGS) and Erik Meyers (The Conservation Fund)**

- Summarize ideas and input from January Cross-GIT In Person Meeting.
- Provide more examples of how indicators can connect with the goals and outcomes within the CBP.
- Showcase additional data that may be used for indicators.

1:40 AM **Climate Resiliency Goals and Indicator Framework – Julie Reichert-Nguyen (NOAA)**

Julie presented on the proposed draft framework for future climate indicator development for feedback by CRWG and how it relates to the overall CBP indicator framework.

2:00 AM **Climate Indicator Follow-up Discussion – Cuiyin Wu (CRC)**

Cuiyin summarized the ideas and input from the last meeting, including the Mentimeter results, for feedback on which indicators to move forward with first this year.

In the January meeting, the participating workgroups was asked to rank in order from most to least which ones you think are relevant to the workgroup's goals and outcomes. From this list relative sea level rise was ranked first and wetlands restored on agriculture land was ranked second. They were also asked to rank in order of most to least which indicator the workgroup would recommend the CRWG to develop. Bay Water Temperature was ranked first, and wetland extend and physical buffering was ranked second. The workgroup participants provided a list of 31 topics that could be missing from the Eastern Research Group (ERG) list to also consider as climate-related indicators. Common themes were seasonality, invasive species, and habitat conditions.

Julie walked through the physical indicators, impact indicators, and resilience indicators that each workgroup advocated during the last meeting (see presentation for summary list of interested indicators from each workgroup).

Healthy Watershed Discussion:

Lisa recommended incorporating human behaviors such as how agriculture is changing. Practices are changing that could affect loading in the Bay (e.g., farmers planting earlier). Lisa stated the workgroup will want to track the causal effects.

Jennifer asked why the Healthy Watershed workgroup asked for percent working forest as a resilience indicator. Nora commented these requests were framed with the Climate Resilient Indicator Framework in mind. Katie said a working forest is being harvested and actively managed to be sustainable. Julie suggested changing the name to percent forests that are sustainably managed which could be used as a policy-related resilience indicator.

Kristin asked if the workgroup has looked across the requested indicators to determine whether data are available. Julie answered that ERG has done some of that already for the indicators they worked on for the contract, but some time has passed, so there may be additional data sources. The Climate Resiliency Workgroup (CRWG) is bringing in speakers to discuss possible available data. The CRWG is planning to connect interested indicators across the workgroups with data in future meetings.

Nicole Carolozo suggested considering conservation of marsh migration areas as a resilience indicator for healthy watersheds.

Fish Discussion:

Julie stated that conservation of marsh migration is also of interest for the Fisheries GIT.

Kristin stated either the North Atlantic LCC or the Science Application at the Fish and Wildlife Service put together a data layer that shows marsh migration patterns. There also may be information from the cross-GIT mapping project.

Forestry Discussion:
Katie mentioned with the update of hydrology datasets, the GIS team at the CBP will be able to tell where there are buffers on the landscape.
Peter Tango stated USGS did a study on the impacts of unconventional oil and gas on bird communities and brook trout areas due to fragmentation. He stated that these studies might have data sets or GIS layers that could be used to represent the information. Peter will put Julie in contact with Kelly Maloney and staff at USGS to hopefully answer questions on this topic.

Submerged Aquatic Vegetation (SAV) Discussion:
SAV can be a sign of resilience while also being impacted by climate. There were no additional comments for potential SAV indicators.

Wetland Discussion:
Lisa gave two examples to help explain behavior. An indicator that could represent human behavior is degree of irrigation installation on farmland which connects to wetlands. Therefore some groundwater tables are decreasing and wetlands are drying out. Another example is with wetland mitigation, the workgroup could look to see if the forest upland from the wetland is protected, developed, or will potentially be developed.

Overall Comments:
Kristin wondered if the information from the modeling workgroup on climate resiliency could help the CRWG pick pertinent indicators.
Gary noted under the physical indicators there are topics the modeling workgroup is looking at too. Julie said coordinating with the modeling workgroup would be helpful because the current indicators are on a broad scale. Gary will come to the April CRWG meeting to discuss the modeling climate assessment, and the workgroup can start discussing the crosswalk of how the modeling information can help with creating the indicators.

2:20 AM **Healthy Watersheds –Nora Jackson (CRC)**
Nora presented on climate metrics of interest related to the healthy watersheds goals and outcomes and provided an example of how it can be applied to the proposed climate indicator framework while answering a management question.

The Healthy Watershed Assessment includes Chesapeake Bay Watershed Vulnerability Indicators. Nora presented on the change in probability of Brook Trout occurrence, current conditions, and future conditions. With an increase in

temperature, the Bay Watershed is losing Brook Trout habitat, but there are areas that are resilient even with the change. Nora analyzed four different catchments in state identified healthy watersheds on the Brook Trout occurrence with the temperature change and compared it to other factors such as percent forest in riparian zone and percent impervious in the riparian zone. The degrading catchment that is showing a reduction in the Brook Trout occurrence has a higher value of impervious in the riparian zone compared to the other catchments she analyzed. This assessment can help plan for areas that should be restored/preserved or highlight which ones are showing resiliency to help identify resilient aspects that could be incorporated into other areas.

Julie commented that the climate indicators do not project future conditions, but instead tracks present conditions to establish trends through time. The CRWG could look into updating the stream temperature data (only goes to 2014) and methods to extrapolate the point data to assist the healthy watersheds in tracking areas exposed to higher stream temperature trends. This information could inform a resilience indicator that tracks brook trout habitat areas resilient to increasing temperatures.

Katie asked how often the CRWG indicators would be updated. Julie said the goal is annually, but it depends on the data.

Julie mentioned in Chesapeake Progress, each workgroup is shown separately, but this information is integrated so maybe the website could move forward to show more of a story and connect indicators with multiple workgroups. Kristin will talk with Doreen about this idea.

2:50 AM **Climate Variability and Change – Phillip Stratton**

Phillip is a PhD student at the University of Maryland College Park and works at the Maryland State Climatologist Office. He shared information on the current effects of climate change through the data available at his office. The CRWG may consider using this data for their own work and how to incorporate it into future CRWG indicators.

Phillip Stratton showed the data available at the MD State Climatologist Office and emphasized they are data rich and project poor. There are also regional Climate Centers that they work with and are a potential contact to gather data from for the workgroup's projects. Some of the parameters they have data for include wind direction and speed, temperature, stream flow, and precipitation. For temperature and precipitation, the stations have 100+ years of data between first observation and last. With these data, Philip showed observed seasonal variation of mean air temperature and the trends from 1895 – 2019 and again with precipitation. He also showed observed seasonal variation of stream flow and trend from 1895 – 2019, and there is no trend with the stream flow on a monthly timescale. If looking at trends for the base flow of the annual seven-day low stream flow, the regions are getting wetter. With the precipitation data,

they can show the trends in precipitation events which shows events are getting stronger. The big storms are getting wetter in VA then in MD and PA. They can also break this data up to look at the quantiles in specific cities.

Phillip said that he showed stations with 100+ years of data, but they can use stations that have 50+ or 30+ years of data which will increase the spatial density of the information. Julie said workgroup members are asking for a more local perspective, and the current CRWG indicators do not show that information.

Jim George asked if Phillip could show the near-term trend along with the long-term trend. Philip said they can do that, but he did not show it in the presentation. Jim asked if he could pick out an acceleration of change. It is not something they have looked at currently, but it is something the office could do.

Julie asked what the scale was for the seasonal variation of temperature. Philip said he showed the state average, but he can show it on a local or station scale. Julie would like to look at it at a smaller timeframe and smaller scale for location, but she likes how he showed it in a different format than what is available with the current climate indicators. Julie will follow up with Phillip on projects to collaborate on with the data he presented.

Nicole reminded the workgroup of the idea of doing focus areas for the indicator development. This connects with the information Phillip presented.

3:20 AM **Announcements – Julie Reichert-Nguyen, (NOAA)**

- Climate Resiliency Workgroup internship announcements. Please share with your networks.
    - NOAA Chesapeake Bay Summer Internship Program in partnership with the Chesapeake Research Consortium (applications due February 20, 2020): Climate Change Indicator Development Support
- February 27, 2020: Taking Nature Black 1-day conference. The conference will include thought-provoking speaker presentations and panels with regional and national environmental leaders and feature discussions of climate change, environmental justice, and environmental joy! https://anshome.org/taking-nature-black/
- NFWF Bay Small Watersheds Grants Program: Deadline is April 14th. Proposals must be submitted through NFWF's online application at www.nfwf.org/easygrants.
- Diversity Training: The first training is on March 16th (The same date as the CRWG meeting), but this training will be held on additional dates. If interested, please fill out the form if you are interested. https://forms.gle/Pjfv4JkyZLxApuVC8

- Molly Mitchell announced they put together a Bay Sea Level Rise report card. It is updated with 2019 data from gauges around the Bay.
- The Water Quality GIT (WQGIT) went through a preliminary discussion on the options for allocating climate change risk in the Chesapeake Bay. Gary will present the decisions made by the WQGIT and the approaches for allocation that are undecided. Before finalizing the allocations, the WQGIT will bring their decisions to the CRWG. This will be around the May CRWG meeting.

3:30 PM **Meeting Adjourn**

Next Meeting: March 16, 2020

Participants: Cassandra Davis, Jennifer Miller Herzog, Melissa Deas, Norm Goulet, Cuiyin Wu, Breck Sullivan, Kristin Saunders, Taryn Sudol, Nicole Carlozo, Rebecca Chillrud, Amanda Poskaitis, Jim George, Katie Matta, Nora Jackson, Julie Reichert-Nguyen, Phillip Stratton, Mark Bennett, Krista Romita Grocholski, Katie McClure, Katie Brownson, Peter Tango, David Wood, Mark Bennett, Gary Shenk, Lisa Wainger, Lindsay Byron, Angie Wei, Katheryn Barnhart