Chesapeake Bay Program
Science. Restoration. Partnership.

**Climate Resiliency Workgroup Meeting**

Monday, November 16, 2020
1:30 PM – 3:30 PM

Webinar*: https://global.gotomeeting.com/join/895021917

**Password: CRWG**

Conference Line: : +1 (646) 749-3112 Access Code: 895-021-917
*If you are joining by webinar, please open the webinar first, then dial in.

Meeting Materials:
https://www.chesapeakebay.net/what/event/climate_resiliency_workgroup_crwg_november_2020_meeting1

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

**Action Items**

✓ Contact Julie Reichert-Nguyen (julie.reichert-nguyen@noaa.gov) or Breck Sullivan (bsullivan@chesapeakebay.net) with additional science needs. The updated science needs list will be discussed at the **December 17ᵗʰ STAR Meeting** (www.chesapeakebay.net/what/event/joint_c_s_star_december_2020_meeting). We will send a revised list beforehand.

✓ Contact Julie Reichert-Nguyen if interest in joining the steering committee for the "Synthesis of Shoreline, Sea Level Rise, and Marsh Migration Data for Wetland Restoration Targeting" project.

✓ Contact Brook Landry (brooke.landry@maryland.gov) if interested in joining the steering committee for the "Modeling climate impacts on submerged aquatic grasses (SAV) in Chesapeake Bay" project.

**AGENDA**

**1:30 PM        Welcome and Meeting Overview – Chair Mark Bennett (USGS)**
- Get feedback from workgroup on CRWG science needs
  - **Do we need to remove any? Do we need to add any? What CRWG or partner resources exist to help address science needs?**
- Get feedback from workgroup on purpose and targeted audience for the CBP Climate Resilience Scorecard
  - **Does the identified purpose and targeted audience address the needs of the CRWG to track climate resilience progress?**
- Introduce some FY20 GIT-funded projects with a climate resilience component

- **Looking for workgroup members who would like to help out (e.g., steering committee, planning committee, workshop attendee).**

**1:35 PM**   **Management Board Quarterly Progress Review Meeting Update – Mark Bennett & Julie Reichert-Nguyen**
Mark presented the Climate Monitoring and Assessment Outcome and the Climate Adaptation Outcome Presentation to the Management Board on November 12th. Mark and Julie will provide updates and follow up actions from the meeting.

The following asks were presented at the Management Board meeting:
- Indicator guidance – identify utility behind climate indicators being selected
  - The CRWG and Management Board members will send STAR/CRWG staffer Breck Sullivan (bsullivan@chesapeakebay.net) indicator topics. STAR will then work as appropriate with the submitters to compile a descriptive list and submit to the Management Board to discuss and identify utility behind the list.
- Establish funding plan for research agenda on climate change impacts to BMP performance (function, design, placement) to inform needed resilience actions – BMP uncertainties affect achievement of desired WQ, habitat, and living resource outcomes
  - The CRWG doesn't have the means to accomplish this ask on their own which was requested by the Principal Staff Committee. There are current projects funded to help the CRWG identify what should be the priority BMPs and where researching is occurring. One of the ideas the Management Board members suggested is with the new administration there might be more funding available for this topic. They discussed ideas on how to get involved in those discussions with the administration. Unfortunately, the timeline with new legislation may not fall in line with the timeline for the current projects underway on BMPs. The CRWG may need to consider follow up actions after the current BMP projects are done around September 2021.
- Engage managers and other CBP partners for use of Bay-Wide Climate Resilience Scorecard – identify potential stakeholder users
  - There was not enough time to discuss this ask. It will be covered in the December 10th Management Board Meeting.
- Support more staff resources for Climate Resiliency Workgroup (CRWG full-time staffer, technical analyst)
  - There was not enough time to discuss this ask. It will be covered in the December 10th Management Board Meeting.

Mark Bennett said there was a lot interest surrounding the BMP work. Julie commented that the Management Board was impressed with all the work the Workgroup is doing, and overall, the presentation went very well.

**1:45 PM**    **[CRWG Science Needs](#) – Breck Sullivan (CRC), Julie Reichert-Nguyen (NOAA), & All**

The Chesapeake Bay Program developed the new Strategic Science & Research Framework for tracking and assessing science needs as a program in coordination with the Strategy Review System. As the workgroup begins developing materials for the next 2 years, the science needs list for the climate resiliency outcomes needs to be updated. The science needs should be necessary to make progress toward the outcomes and can be (but do not need to be) connected to a specific action or section of the SRS materials. This list does not have to be confined to the next 2 years, so needs that are not a priority now but the CBP needs to start thinking about them down the road may captured in the list too. The updated list will be discussed at the **December 17ᵗʰ STAR Meeting**. The following will be discussed during this topic:

- CRWG prioritization of science needs – identify highest priority needs
- Should any climate science needs be removed?
- Are there any CRWG or partner resources/projects that can help address the climate science needs?
- Are there any climate science needs that should be added to the list related to the meeting the outcomes in the Chesapeake Bay Watershed Agreement?

Julie suggested combing the science needs, "Detailed statement of data/research needs for climate resilient BMPs and siting design," and "Impacts of SLR, coastal storms, increased temperatures and extreme events on BMPs (maintenance, shelf life, etc.). The combined science need would state, "Data and research needs for impacts of SLR, storm surge, increased temperatures, extreme precipitation events and saltwater inundation on BMP climate resilience (i.e., maintenance, shelf life, siting and design, etc.)" The workgroup agreed with combining both science needs and the new language of the need. Julie stated this need would be considered highest priority for the workgroup. Nicole Carlozo agrees this should be the highest priority.

For the science need, "Green infrastructure performance including increased sediment due to climate change," Julie comments that this one could be covered by the previous science needs since some green infrastructure strategies are approved BMPs. She asked if there was something in particular they should highlight with this science needs in terms of increased sediment due to climate change. Lisa Wagner has done work on the cost effectiveness of green infrastructure. Regarding the sediment issue, one key issue is that there are pluses and minuses to reducing sediment movement. There are cases where green infrastructure reduce sediment for submerged aquatic vegetation. She stated the sediment dynamics is more important to consider. Neil Ganju agrees

with Lisa's comments. He said the unintended consequences of green infrastructure on sediment dynamics is not being considered enough in research. Mark Bennett said we need to include this language in the science need list.

Lisa Wagner suggested that considering cost-effectiveness should be a facet of the living shoreline research. A consideration is if groups can do less expensive projects that still have substantial benefits. Julie commented this can be a new science need.

The other science need related to BMP is, "Better understanding of precipitation changes with regards to intensity, annual amounts, seasonal impacts, storm events, and stormwater management." Julie suggested listing Urban Stormwater Workgroup as the lead and the CRWG as a supporting workgroup from an advisory capacity. Workgroup members had no objections to this revision. Julie will bring this suggestion up at the STAR meeting to see if the science need can go under the Urban Stormwater Workgroup.

The CRWG also has Habitat and Living Resource Science Needs. The two science needs "Better understanding of sea level rise and subsidence impacts in changing climatic conditions," and "Changing climate conditions and their impacts on wetlands" are currently on the list, but Julie suggested combining them to have it be more specific to wetland loss, marsh migration, and adjacent land use considerations related to SLR and subsidence impacts. The workgroup had no obligations to combining the science needs. Julie suggested elevating this need to highest priority for the workgroup. Mark agrees to list it as highest priority. He also commented that Neil Ganju's project could be added to the engaged resources. Neil stated his project is the USGS Chesapeake Bay integrated science project which is part of Scott Phillip's and Ken Heyer's portfolio of projects. They are looking at marsh vulnerability assessment geospatially. More needs to be done to understand how the vulnerability metrics are changing over time. He also stated there are other marsh migration efforts at the Virginia Institute of Marine Science and USGS. Another topic he stated that should be researched is to track shoreline change to know the lateral loss. Neil also agrees that this science need should be one of the highest priority.

Nicole stated there is a lot of interest in understanding tradeoffs between marshes and forests with marsh migration. Julie said the workgroup could consider this as an additional science need, and she knows the Forestry Workgroup has also been interested on this topic.

Nicole commented another topic to consider is having a better handle on marsh condition and how conditions are going to change with sea level rise. She does not have a direct research question right now. Julie commented this topic could be added later in the science needs list since it is an iterated process.

Another living resource need is "changing climate conditions and their impacts on SAV." Julie asked the workgroup if they think it should be a high priority. Members said yes depending on how many other needs are characterized as high priority.

Nicole Carlozo stated there is there is another ongoing effort in Maryland where they are testing out SAV module with SLAMM (with Rebecca Golden). They are trying to evaluate how sea level rise will impact sea grass distribution. The limitation with the project is that they are only looking at one species. They want to expand across MD and VA depending on resources

Melissa Deas stated that in the District they are actively pursuing blue green infrastructure as a flood resilience strategy.

The last living resource science need is "Climate impacts to key aquatic fish species abundance, life cycle and habitat." Julie commented that other groups are working towards this science need so it is another one she can bring up at the STAR meeting that other groups may lead, and the CRWG will support through an advisory capacity. The workgroup did not have any objections to it. The CRWG only has one social science need that states, "Human behavior – implications of the human response (positive and negative) to climate change, flooding, sea level rise as well as motivation and needs of communities to adapt." It was suggested that the Stewardship GIT lead this effort. The workgroup agreed.

There are two science needs recommended for removal. The workgroup agreed to remove the need, "Changing climate conditions and their impacts on invasive species." They also agreed to remove the need, "Detailed list of specific science/data needs for Citizen Science programs," because it is not really a science need. Nicole Carlozo stated it is topic the workgroup should still be thinking about especially in terms of trying to implement more resilient restoration practices across the watershed. There is a lack of resources for capacity of monitoring and citizen science may be able to help with it. In Maryland, they are working to develop citizen science protocol based on SAV protocol which was developed through GIT Funding.

Julie suggested adding the following science needs to the updated list, "Method/metrics to track climate resilience progress related to Chesapeake Bay Watershed Agreement goals," and "Evaluation of science needs to implement blue carbon financing strategies." Julie says the first one should be one of the highest needs since it is directly related to being able to meet the Climate Resiliency Monitoring and Assessment Outcome. There were no objections from the workgroup on adding those two science needs.

Nicole Carlozo asked if policy and legal implications can be added to the Blue Carbon science need. Breck answered that these implications can be included in the "more detailed" section of the list so that people can understand the entire project, but SSRF is only focusing on finding resources for the science aspect.

Two additional science needs that the workgroup considered adding is "saltwater inundation impacts on wetland habitats (e.g. brackish waters), SAV, and land use (e.g. ag, forest)," and "effective designs for combining gray-green infrastructure approaches." Workgroup members did not have much feedback on these two proposed science needs. Nicole mentioned there is interest in making existing gray infrastructure "more green," such as retrofitting with plants or oysters. Updating the science needs is an iterated process so workgroup members are welcome to bring up a science need in any meeting or send it to Julie so that it may be added to the master list.

2:30 PM      [Update on the Bay-wide Climate Resilience Scorecard project](#) – **Julie Reichert-Nguyen**
Julie will introduce the project team, share the draft project schedule, and review the identified purpose and targeted audience for the scorecard.
- **Does the identified purpose and targeted audience address the needs of the CRWG to track climate resilience progress?**

This project was awarded to RAND Corporation and is expected to end in November 2021 to address delays with the pandemic. Climate Resiliency Workgroup members currently on the steering committee is Elizabeth Andrews, Jim George, Melissa Deas, Julie Reichert-Nguyen, and Breck Sullivan. If anyone would like to join the committee, please reach out to Julie.

The purpose of the project is to:
- Identification of climate resilience metrics and methodology to track effectiveness of restoration and protection policies programs, and projects for inland and coastal areas
- Relate metrics to outcomes in the Chesapeake Bay Watershed Agreement in connection with stat and relevant local priorities
- Identification of opportunities to improve resilience that benefit natural resources and provide protection to inland and coastal communities
- Help target potential future resources to support climate resilience actions where needed

The targeted audiences include the scorecard end users which are the state governments and the CBP Partnership. The hope at the end of the project is for the state governments to implement the scorecard, and the Partnership will help track climate resilience progress and identifying where to target resources.

Julie asked the workgroup if the purpose of the scorecard will address the needs of the workgroup to track climate resilience. No workgroup members objected to the purpose listed in the slides.

Julie asked the workgroup if the state governments were the correct end users for the scorecard. Joel Carr said it looks good. Nicole Carlozo said she thinks it

will be very difficult to reach local governments at this scale, so a state audience may be the better approach.

Melissa Deas agreed that a state audience is a better approach than local, but they will need some incentives to get states to do it, so it is not just another progress tracking exercise. Julie said this is a very good point, and it is a discussion topic that can be brought forward to STAR and the stakeholder engagement meetings.

Sherry Witt asked if the scorecard would be updated annually. Julie commented that the timeline has not been confirmed because the project leads want to check the feasibility of implementation at the stakeholder engagement meetings with the end users.

**2:50 PM**     **Overview of FY20 GIT Funding Projects**
The following GIT Funding proposals were either supported by the CRWG or will incorporate climate change issues in the project. These presentations will inform the workgroup on some of the future work in the Chesapeake Bay Program tackling climate change and an opportunity to be a part of the project through steering committees.

**2:55 PM**     **[Synthesis of Shoreline, Sea Level Rise, and Marsh Migration Data for Wetland Restoration Targeting](#)** – **Megan Ossmann (CRC)**

The deliverables for this project are a compilation of metadata of available studies/data related to sea level rise, topography, shoreline condition, wetland area, and migration corridors (Demographic, economic). There will also be a pilot location to apply the synthesized information in an analysis for wetland restoration and conservation targeting at a fine-scale, incorporating decision-making in an area of interest. The list of available data sources and the final report on the analysis from the pilot analysis can serve as a guide for other local communities who want to complete a similar analysis and targeting of wetland restoration. Future projects could focus on an alignment of areas of high suitability for conservation/restoration with areas of high need for resiliency based on factors related to social vulnerability and diversity, equity, inclusion, and justice.

**3:05 PM**     **[Modeling climate impacts on submerged aquatic grasses (SAV) in Chesapeake Bay](#)** – **Brooke Landry (MD DNR)**

This project will be a follow up to a SAV synthesis project. The project did not take into account how climate stressors will impact their progress so this project will help determine SAV species and community-level tipping points under various nutrient loading and climate stressors interactions. The deliverables of the project will be a detailed report of model outcomes and potential SAV recovery trajectories under various climate change scenarios. It will also produce

a software application that allows users to explore and determine the relative impact of various stressors on future community-specific SAV abundance. There will be a steering committee for this project, and if CRWG members are interested in being a part of the committee to please contact Brook Landry (brooke.landry@maryland.gov)

**3:15 PM**      **[Planning for Clean Water: Local Government Workshops](#) – Laura Cattell Noll (Alliance for the Bay)**

Local government planners are a key audience to many of the outcomes, and currently the Local Leadership Workgroup is not set-up to engage this audience. Planners can be valuable 'teachers' for local officials. Hopefully, this project will jumpstart efforts to engage local planners. The project will convene three workshops for Local Government Planners to deepen CBP understanding of local planner priorities and increase understanding within local government planning staff. Laura mentioned that she knows climate resilience is an issue that local governments are concerned about so it will be incorporated into one of the workshops. She would also like to highlight the CRWG Scorecard in one of the workshops to promote the use of the metrics and the implementation of the scorecard.

Elizabeth Andrews asked if they have spoken with the VA Chapter of the APA too? Laura said they have not yet, but Eldon James is on my list of folks to reach out to!

**3:25 PM**      **Wrap Up**

**3:30 PM**      **Meeting Adjourn**

**Next Meeting:** Joint CRWG/Modeling/Urban Stormwater Meeting on December 9th 11 AM – 4:30 PM

**Participants:** Breck Sullivan, Mark Bennett, Jim George, Neil Ganju, John Denniston, Elizabeth Andrews, Lindsay Byron, Nicole Carlozo, Lena Easton–Calabria, Kat McClure, Lisa Wagner, Adrienne Kotula, Sherry Witt, Benjamin McFarlane, Melissa Deas, Katheryn Barnhart, Cassandra Davis, Joel Carr, Laura Cattell Noll, Brooke Landry, Julie Reichert-Nguyen, Angie Wei