



## Chesapeake Bay Program

*Science. Restoration. Partnership.*

### Climate Resiliency Workgroup Meeting

Monday, April 19, 2021; 1:30 PM – 03:30 PM

#### Meeting materials:

[https://www.chesapeakebay.net/what/event/climate\\_resiliency\\_workgroup\\_crwg\\_2021\\_meeting](https://www.chesapeakebay.net/what/event/climate_resiliency_workgroup_crwg_2021_meeting)

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

#### Action Items:

- The Climate Resiliency Workgroup (CRWG) and Modeling Workgroup (WG) will need to work with the Water Quality Goal Implementation Team (WQGIT) to determine whether the climate narrative format should be a one size fits all or separate documents for each jurisdiction. This includes discussing what is needed from the federal agency side. Tom will set up a meeting with CRWG, Modeling WG, and WQGIT representatives to clarify expectations for the narratives.
- The CRWG will communicate with NRCS to see if they have prioritized research regarding agricultural BMPS and climate change.
- The management strategy text will be altered to:
  - Ensure the baseline information will extend beyond indicators.
  - Define institutions as any organization which can increase capacity across the entire partnership including both governmental and nongovernmental organisations.
  - Reflect a lack of clear science in some areas and communicable science in others.
  - Indicate the CRWG identify habitat-specific vulnerability assessments.
  - Reflect the primary role of the CRWG within modeling, monitoring, education, and outreach as advising other groups who will primarily perform technical work
- Any changes to logic factors will need to be reflected in both the logic factor table and management plan.
- Request: CRWG members provide feedback regarding additional climate related information that could be added to the management plan appendices.

#### Decisions:

- It was decided that the CRWG will work on updating and refining the 7 existing climate change indicators to varying degrees and add a new Bay water temperature change indicator.
- The WG members decided that CRWG will follow more of an advisory role for climate-related modeling, monitoring, and local engagement/outreach/education efforts and coordinate with the workgroups who specifically work in these areas (Modeling WG, Integrated Monitoring Network WG, and Local Engagement Team). Language in the CRWG Management Strategy will reflect this.

## MINUTES

### **1:30 PM Welcome, Meeting Overview and Introductions, *Chair Mark Bennett (USGS)***

This meeting focused on the CRWG collaborative efforts with the WQGIT and Modeling Workgroup related to BMP climate resilience assessments and supporting the application of the TMDL climate change projections. Consensus on the CRWG logic and action plan and the management strategy was reached.

### **1:35 PM Changes in watershed processes and BMP performance with climate change, *Jeremy Hanson (Virginia Tech)***

Jeremy provided an update on the project, “STAC Synthesis: A systematic review of Chesapeake Bay climate change impacts and uncertainty: watershed processes, pollutant delivery, and BMP performance.” The findings from this review will help the CRWG and the WQGIT formulate a research agenda to address gaps in knowledge related to BMP efficiencies and climate change impacts. The completion of the final report is planned for September 2021.

- Jeremy Hanson asked the workgroup if they know of any additional key authors who he can add to his literature review. With regards to future climates, there may be more future analogs for the Bay with points south. He asked if this was accurate and if anyone knew what analogous areas for the next 100 years might be?
  - Molly Mitchell tried to answer Jeremy’s question regarding analogues. She said he might need to find experts and ask them what the most important characteristics are for a good analogue be it watershed size, or agricultural productivity or something else.
- Lew Linker said the PSC has required the CBP to have a WIP addendum by 2022 and at least have a narrative to go with it to get to 2025 with additional reductions. This report gives jurisdictions an idea of the loads and BMPs which are best able to help them as well as updated IDF curves. He asked if more can be done? This is a big problem and solutions need to evolve. Lew suggested expanding the analysis to cover what crops and systems will look like in the future based on southern analogues and how those will interact with BMPs.
  - Mark Bennet said the purpose of these studies is to frame the question and establish a research agenda. Mark commented that the PSC initially wanted to know what BMP efficiencies were under climate change but acknowledged this was a big lift. The Management Board (MB) has since asked groups to refine this question to define what BMPS have the most nutrient reduction and which BMPS have the highest associated uncertainty under future conditions. After this is understood then a research agenda can be formulated to communicate to partners and find additional information to answer these questions. The first step is to learn what the CBP doesn’t know.
- Lew Linker wanted to get to several of the top BMPs to deal with flow volumes and intensity to deal with runoff. He asked if this could be done? If nothing else he suggested providing

guidelines.

- Jeremy Hanson said they will try and set up in terms of what BMPS might be the most likely to help but this comes down to differences in sectors, BMP funding and design.
- Lew Linker said he was hoping to get a list of the top 5 or 10 BMPs to address increased runoff. He asked if providing guidance is possible in this report?
  - Jeremy Hanson says they will try and set up the report by naming what practices might help the most but this is determined by the different practices and the scales at which they are implemented. There is only so far they will be able to go though.
    - Lew Linker suggested having a combination of conventional wisdom and new scientific knowledge from this report to provide some guidance for partners.
    - Mark Bennet and Julie Reichert-Nguyen said this is a start to get an idea of what the workgroup doesn't know.
    - Julie Riechert Nguyen said this work will be looked at in combination with the Urban Stormwater WG research to create a combined research agenda.
- Lisa Wainger asked if Jeremy expected to be able to assign degrees of uncertainty to each BMP or if the report was going to be more qualitative?
  - Jeremy Hanson said they will probably be limited to qualitative characterizations.
- Lisa Wainger said they should have an advisory group meeting to discuss the potential for quantification.

#### **2:05 PM Water Quality Goal Implementation Team (WQGIT) Climate Narrative Request, *Tom Butler (CRC)***

Tom outlined the current WQGIT request for the CRWG to help with translating and drafting language for the CBP Phase 6 climate model findings related to meeting the Watershed Implementation Plan (WIP3) targets in the 2022-2023 Milestone Reports. Discussion below.

#### **2:15 PM Climate Model Results for the Requested Narrative, *Lew Linker (U.S. EPA Chesapeake Bay Program Office)***

Lew discussed the Phase 6 modeling results, specifically looking at what the application of the Phase 6 Model to assess climate change in the Chesapeake watershed, airshed, and tidal Bay and estimated changes in precipitation, temperature, and tidal water hypoxia. Lew provided a preview of a potential template document for potential language for augmenting WIP 3 milestone reports in 2022-2023 regarding the model results. Request: feedback from the CRWG on how to best translate climate change findings into the 2022-2023 Milestone Reports.

- Lew Linker said the WIP 3 milestones are due Jan 2022 so they need to have a narrative by then to show the current understanding of 2025 and 2035 climate change estimates.
- Julie Reichert-Nguyen said the climate narratives could have visuals such as the graphs which Lew displayed. She brought up the idea suggested by the planning team to see if the WQGIT would be interested in separate narratives for each jurisdiction versus a one size fits all. She said we need to follow up with WQGIT to see which type of narrative they are looking for.
  - Dave Montali said we need to address if we want a one size fits all or separate document for each jurisdiction. He thought a single explanation will not work for a situation where each state needs to have a narrative in its milestone documentation. States were previously required to have a nutrient reduction table and the situation is

different now. The Modeling WG has allocation data on 2025 climate change but not for 2035. The milestones are focused on 2025 climate change and the work for 2035 climate change is not done. They will need to take 2035 numbers and subdivide by jurisdictions, but these numbers will change so states have no desire to allocate 2035 climate change numbers based on the current information. He stated that the narrative shouldn't talk about what the individual states will have to do by 2035 but can talk about a total Bay wide effect on climate change by 2035. He says there needs to be a clearly defined communication aspect. Will states have individual narratives or a larger stand alone white paper for the whole Bay? Dave thought the WQGIT wanted both specifics for each state and a stand alone paper.

- Scott Phillips said we will have to ask the WQGIT what they prefer in a narrative be it a one size fits all or one for each jurisdiction. He further suggested having a WQGIT member present when writing the narrative.
- Dave Montali said it is not fair to talk about 2035 since the states want to wait for better tools to reassess the 2035 information. He didn't know what the results will be after this reassessment but was sure that states did not want to allocate nutrient reductions based on the current 2035 climate change nutrient estimates.
- Mark Bennet said this is similar to the 2017 decision they made focusing on a qualitative narrative since there was consensus that numbers would change with reassessments. This was the foundation for the initial table they provided as a narrative. He said for 2025 it is quantitative but for 2035 they have qualitative data.
  - Dave Montali agreed with everything said and thought there was a roadblock for what goes into the milestone being geared towards 2025. Regarding 2035 he felt there should be language that the assessments will be redone if the narrative uses quantitative language.
    - Scott Phillips agreed saying WQGIT input is necessary.
- Jessica Rodriguez said federal agencies needed climate language in their 2 year milestones. They don't know for 2025 how jurisdictions will allocate additional loads to federal agencies so they will need to find that out. She also said this would need to be determined for 2035 as well. She did not know if the expectation was for a one size fits all or a tailored narrative for federal narratives as well.
- Julie Reichert-Nguyen said Lew presented a good template for a narrative. She thought having a template with requirements for a narrative but also additional guidelines for how a jurisdiction could go beyond the basic requirements may be good to have. She said we have to have conversations with jurisdictions and the WQGIT. She asked Lew if he thought that might work?
  - Lew Linker said that would be fine; the approach of the narrative is that if state partners want to use narrative use it. They don't have to use it if they don't want to, but will likely have to include their own climate narrative. He said the WQGIT expects a recommendation for their May meeting. Folks from the WQGIT, Modeling, and CRWG should meet ahead of this meeting to gauge expectations.
  - Mark Bennet said this would be a good idea and that they should also include a federal partner as well.
  - Julie Reichert-Nguyen asks to have this set up as an action item to set up meetings before MAY.
- The 2025 climate change information can be quantitatively represented in the climate

narratives but 2035 information will be more qualitative since a reassessment will be occurring.

### **2:50 PM Management Board and Climate Action Team Update, Mark Bennett (USGS)**

Mark updated the workgroup on the Management Board's input on the climate change indicators and the BMP climate resilience effort and shared the overall objectives of the recently formed Climate Action Team.

- Mark Bennet said several items were discussed with the Management Board these included:
  - Indicators
    - It was decided that the CRWG will move forward with 7 indicators
      - 2 will move forward with methodology as is.
      - 3 current indicators will be modified to tie into other outcomes in the Chesapeake Bay Watershed Agreement
      - 2 others cannot be updated (data source no longer available), but the CRWG will work to find partners that can update these in the future.
      - A new Bay water temperature change indicator will be created
  - Need to follow up with NRCS on whether they are doing any research on ag BMP performance under changing climate conditions and how they are prioritizing this work.
- Mark Bennet said the Climate action team is made up of jurisdictional representatives from each jurisdiction to create an Executive Committee Directive regarding climate change. He saw this group as reinforcing climate as an important thing for the CBP and partners to tackle.

### **3:00 PM Review and Consensus of the CRWG's action plan and strategy, Julie Reichert-Nguyen (NOAA)**

Reached consensus on logic and action plan and management strategy with workgroup members.

[Materials: Revised logic and action plan and management strategy.](#)

- Julie Reichert-Nguyen said that the final SRS draft materials are due on April 30th.
- Julie Reichert-Nguyen said that she incorporated feedback into the work plan emphasizing coordination with the integrated monitoring network. It was decided that the CRWG does not have the capacity to lead monitoring program efforts but can identify climate factors and climate science monitoring needs and coordinate with the monitoring workgroups when needed.
- Julie Reichert-Nguyen said a suggestion from a previous meeting was to create smaller teams to specifically target actions. She discussed how this has happened organically so far but suggested that moving forward it would be best to pinpoint what these smaller teams would look like and potentially utilize CRWG meeting times to focus on smaller team efforts.
- Julie Reichert-Nguyen said the CRWG still has to complete the management strategy. She thanks Breck Sullivan for adding content to this management strategy. She asked several questions regarding what the WG wants to focus on in the management strategy.
  - Julie Reichert-Nguyen said the management strategy had text on forming a baseline but she wasn't entirely clear how CRWG was approaching this. She asked if the climate indicator effort was used for establishing the baseline?
    - Mark Bennet said the baseline is broader than indicators. He gave examples of the Modeling WG providing inputs into the model with CRWG vetting of the model inputs. Regarding other outcomes, he said there might not be indicators

- but still have baseline information.
  - Julie Reichert-Nguyen agreed to rewrite language in the management plan to reflect the broad nature of this baseline.
- Julie Reichert-Nguyen said that “institutions” were broadly referenced in the management strategy and she was unsure what was meant by this? She had gotten feedback from Laura Cattell Noll who suggested that these might be referring to local government planners. Julie referenced page 6 of the current management strategy and said we should consider being more specific.
  - Scott Phillips thought the way it was worded is broad and might mean CBP partners as well as local governments to increase capacity.
  - Mark Bennet said this should not exclude nongovernmental groups (NGOs).
  - Julie Reichert-Nguyen - NOAA Federal stated that she can modify language to emphasize increasing capacity across the entire partnership including both governmental and nongovernmental organizations.
  - Breck Sullivan noted that any changes made to the management strategy need to also be represented in the logic and action plan.
- Julie Reichert-Nguyen - NOAA Federal said there was a statement referring to a lack of clear good science in many places throughout the management strategy. She asked if the WG meant that we had good science that needed to be translated into decision making? If so she wanted to revise the language to reflect that.
  - Mark Bennet said it's both. He said in some cases there is a lack of science but in others there is good science but it needs to be utilized by the program which is a heavy lift. It's a two part effort for science and incorporation into program dissemination effort.
  - Scott Phillips said instead of, "lack of clear science," state, “there are still uncertainty for aspects of climate change science.”
  - Julie said she will take Scott’s wording from the chat and also capture the different aspects (uncertainty and translation).
- Julie Reichert-Nguyen said there was language describing the CRWG as playing a formal role in climate vulnerability assessments. She asked if this is still the case?
  - Scott Phillips and Nicole Carlozo wondered if we wanted to be specific about vulnerability assessments for certain outcomes or topics rather than general vulnerability assessments? This included identifying habitat-specific assessments.
    - Mark Bennet said that's how this was initially intended; to relate to specific outcomes internal to the CBP. He added that many vulnerability assessments are meant to be specific even to the GIT level.
- Julie Reichert-Nguyen said there were several places where language was modified to better capture the role of CRWG in both modeling and monitoring efforts. The CRWG will collaborate and act in an advisory role in developing these.
- Julie Reichert-Nguyen - NOAA Federal said there was a section on page 18 which indicated the CRWG would lead targeted education and outreach. She asked if we wanted to take an approach similar to model/monitoring since CRWG doesn’t have the capacity to lead climate engagement and education efforts? The CRWG can coordinate with education and engagement teams but didnt know if members had a desire to make this similar to the wording of the model/monitoring language? Members agreed to use the same strategy as with modeling and monitoring.
- Julie Reichert-Nguyen said there is time to review this work plan after meeting but they needed comments by this Friday.
- Julie Reichert-Nguyen explained the first 20 pages are the management strategy while the last

30 are appendices. She asked for WG members to send her any updates on climate adaptation efforts that could be added to Appendix B. She suggested that, in the future, we should look into existing databases that track adaptation efforts to include efforts across the CBP partnership.

- Julie Reichert-Nguyen said she will make the modifications mentioned in the meeting today and will try to have all changes done by the end of the week.

#### PARTICIPANTS:

Breck Sullivan, Tom Butler, Julie Reichert-Nguyen, Bill Bradley, Nicole Carlozo, Lewis Linker, Jake Solyst, Katie Brownson, Ashley Gordon, Jackie Specht, Debbie Herr Cornwell, Jessica Rodriguez, Taryn Sudol, Benjamin McFarlane, David Wood, Jim George, Scott Phillips, Mark Bennett, Jeremy Hanson, Cassandra Davis, Gopal Bhatt, Kate McClure, Adrienne Kotula, David Flores, Katie Matta, Molly Mitchell, Elizabeth Andrews, Dave Montali, Zhaoying Wei, Kristin Saunders, Lisa Wainger, Lena Easton-Calabria,