



Climate Resiliency Workgroup Meeting Minutes

Wednesday, February 17, 2021; 1:30 PM – 3:30 PM

Meeting materials

www.chesapeakebay.net/what/event/climate_resiliency_workgroup_crwg_february_2021_meeting

Actions

- Julie Reichert-Nguyen will incorporate feedback on the logic and action plan before March meeting.
- CRWG staff—follow-up with the Integrated Trends and Analysis team on being potential partner for the water temperature change indicator. Currently use Generalized Additive Model (GAM) for trends in water temperature
- CRWG staff—follow-up the Forestry workgroup about connecting extreme temperature indicator with their tree canopy indicator with the Climate Resiliency Workgroup (CRWG) acting as a liaison to data sources.
- Tom Butler—follow-up with the Modeling Workgroup (WG) to map out a plan of action in connecting model results with adaptation needs such as the 2025 climate change data for model runs.
- Julie Reichert-Nguyen and Mark Bennett will look over CRWG members' feedback on the adaptation actions and assess level of effort related to potential performance targets and means needed to take on such tasks.

Decisions:

- It was decided that for future climate change indicators the CRWG should be strategic in identifying partners and management application during indicator development.
- It was decided that there is a need to compile information on how indicator data is utilized by other workgroups.
- It was decided that the CRWG will focus more on adaptation over the next 2 years.
- It was decided that the CRWG will utilize existing partner organizational structures to engage in local scale climate projects.
 - Two such partnerships from this meeting were the CRWG's involvement in an UMCES blue carbon workshop as well as the VA coastal resiliency master planning framework prioritized list of projects.

Agenda

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

Goals of meeting:

- Confirm primary CRWG actions for 2021-2022 and performance targets for certain actions.
- Confirm climate change indicators to focus development on during the next 2 years.

Feedback from the last meeting on the work plan actions was incorporated into the current version of the Logic and Action Plan (LAP). Julie Reichert-Nguyen thanked Nicole Carlozo and Jason Dubow for their help drafting preliminary language for some of the LAP topics.

This meeting focused on: 1) identification of specific performance targets for certain actions where the workgroup indicated they are interested in working more on and 2) discussion on climate change indicators to be presented to the Management Board.

For the climate change indicators, Julie emphasized that the workgroup should focus on climate change indicators that have a management purpose. Julie notified the workgroup that she reviewed past work group (WG) discussions and identified climate change indicators where there are resources, cross WG support/management application. The discussion helped the CRWG leadership team prepare materials for the March Management Board (MB) meeting to report out which climate indicators the CRWG recommends the CBP Partnership focus on during the next 2-4 years.

1:35 PM Review Primary [Workgroup Actions and Identify Performance Targets](#), Julie Reichert-Nguyen (NOAA) & Mark Bennett (USGS)

[Materials](#): Revised actions summary table for workgroup to review.

[Requested Workgroup Action](#): Identify performance targets and which targets workgroup members can assist with.

The Climate Resiliency Workgroup members confirmed the primary actions for the next 2 years and helped identify more specific performance targets for actions missing these, including:

- Natural Infrastructure design plans
- Adaptation projects
- Technical assistance around adaptation from a capacity building perspective
- Defining our role in local engagement activities

Julie Reichert-Nguyen notified the workgroup that some of the management approaches were adjusted to demonstrate cross-workgroup collaboration and thanked Scott Phillips for his help in providing language for these approaches.

Discussion on Monitoring and Assessment Management Approach 1: Assess past and future trends of climate change in the Bay and watershed

Action 1.1 and 1.2—Utility of climate change indicators

- Julie stated that for future climate change indicators that the CRWG should be strategic in identifying partners and management application during indicator development.
- Jim George asked – is there CBP tracking data on coastal acidity? In particular as it relates to ocean acidification and climate change?
- Jim George is starting the process at looking at ocean acidification in MD. Four key parameters for assessing ocean/coastal acidification are pH, carbon dioxide partial pressure [pCO₂], total dissolved inorganic carbon [DIC], and total alkalinity [TA]. He suspects MD has pH and DIC.
- Julie Reichert-Nguyen shared that NOAA does have a project starting soon regarding oyster-specific ocean acidification thresholds with VIMS. Goal of project is to assess optimal carbonate saturation levels for healthy oyster populations. This will focus on oysters but will pull data sets to look at impacts of ocean acidification.
- Lew Linker shared that UMCES is working on pH for larval oysters. pH is done by monitoring and has a long-term record.
- Julie Reichert-Nguyen mentioned that ocean acidification was proposed as an indicator, but it needs a lot of work and partners would need to be identified. She suggested re-evaluating a potential ocean acidification indicator during the next round of the SRS review in 2 years.

Action 1.3—TMDL model climate change projections

- Julie Reichert-Nguyen suggested that the CRWG works with the Modeling Workgroup to map out a plan of action in connecting the model results with adaptation needs. She has provided preliminary contacts to help move actions forward.
- Kevin Du Bois asked whether this action item is about climate change effects to the additions of nitrogen, phosphorus, and sediment? Julie Reichert-Nguyen answered yes, but the model also looks at the effect of climate change on dissolved oxygen.
- Kevin Du Bois asked how this activity relates to the urban stormwater WG document regarding the impact of climate change to BMP function? New loads with reduced effectiveness? Should we include an action for this? Julie Reichert-Nguyen answered that further down there is an action on BMP climate resilience assessments and the collaborative efforts with the Urban Stormwater WG and the Water Quality Goal Implementation Team (WQ GIT).
- This action is aligned with targeting adaptation strategies with climate model results that would then relate to the BMP strategies. The CRWG needs to work with the modeling WG to flesh out next steps. CRWG and Modeling WG will need to think about how to bring information on climate projections and BMPs to target adaptation strategies. Not sure what this will look like yet.
- Lew Linker states that the Modeling WG is working with the Urban Stormwater WG to make current and future IDF curves for intensity of precipitation in urban regions, that's one front. Another front is a STAC synthesis of BMPs and their effective climate change response. This is led by Zach Easton, to make adaptive practices for climate change. The Modeling WG is working on the PSC's 2025 goal to assess climate change for 2035. There are many pieces and collaborative opportunities with the CRWG and Modeling WG welcomes future discussions.
- Dave Montali stated that in 2025 we will have to look ahead to 2035 and redo what has been done to date. There will be a need for guidance for precipitation, temp, and SLR changes. There will also be a need to have new Watershed and estuarine models as well as new BMP crediting. This will account for systems with older designs maybe being credited less. Systems designed with improved IDFs might get more credit. This is all in the framework for post 2025 Phase 7 modeling efforts.

- Scott Phillips stated that Mark Bennet wanted a placeholder to maintain support for the Modeling WG and WG GIT. Action 1.5 could cover more explicit things WQ GIT will need assistance with. He mentioned that these actions should likely be sequential.
- Lew Linker stated that CRWG is key for 2025 climate change assessments. SLR estimates through 2025 and up to 2055 were hugely important.
- Julie Reichert-Nguyen stated that the modeling and BMP actions are under different management approaches. She could see about restructuring actions to clarify the water quality standpoint. She stated that this action acts as a placeholder to incorporate the results from the climate model into planning for WIPs and BMP strategies to withstand the projected impacts and still reach WQ Goals in Chesapeake Bay.

Discussion on Monitoring and Assessment Management Approach 2: Work with CBP Goal teams to fill critical data and research gaps and improve understanding of climate change impacts and implications for selected outcomes in the Chesapeake Bay Watershed Agreement

Julie Reichert-Nguyen stated the CRWG's goal is to act in an advisory role to fill in critical gaps in information with other workgroups.

Action 1.4—Increase capacity to understand sea level rise (SLR) impacts to habitats and ecosystem services

- For 1.4a, Lew Linker stated that the workgroup might miss what happens when sea level rise and migration of shallow water occur. He asked the question what happens to nitrogen and phosphorus loadings when agricultural lands are inundated?
 - Julie Reichert-Nguyen stated in response that all the details for the project are not listed in the workplan. The project includes the selection of a pilot location to look at questions regarding adjacent land use.
- 1.4b was added based on CRWG members' feedback to invite experts to present at CRWG meetings on new research on SLR effects on habitats and ecosystem services.
 - Kevin Du Bois stated that an upcoming National Military Fish and Wildlife Assoc. Conf., taught by the Northern Institute of Applied Climate Science could act as a source of speakers.

Action 1.5—Support Water Quality Goal Implementation Team on BMP climate resilience assessments needed to update Watershed Implementation Plans

- Lew Linker asked if anyone has results from the Virginia Tech climate change BMP assessment? He stated that coordinating these results with the Urban Stormwater WG would be good.
 - Julie Reichert-Nguyen stated that this study should be under this action and may have been accidentally omitted due to edits, but will be added back in.
- Kristin Saunders asked if anyone knew whether the WQ GIT cross-referenced these efforts that connect the actions here with the actions in their logic and action plan?
 - Scott Phillips stated that the WIP 2025 logic and action plan does include: Factor 7: Climate Change Tracking

Action 1.6—Increase capacity to better understand increased precipitation and warming temperature on submerged aquatic vegetation (SAV)

- Julie Reichert-Nguyen stated that there is a GIT-funded project looking at synthesizing climate SAV models. The SAV workgroup may need advisory support on this project from CRWG experts.

Action 1.7—Promoting use of climate science data

- Julie Reichert-Nguyen stated that after assessing full time equivalent, the CRWG does not have enough capacity to complete the current actions. Julie Reichert-Nguyen stated that it will be important to identify which workgroups can support which actions to complete tasks with CRWG members acting as subject matter experts. Action 1.7 was not identified as a primary CRWG action, so it will be important to identify who from other workgroup can help.
- Scott Phillips stated the group should consider creating an action 1.8: to Enhance involvement of CBP partners to increase science capacity of CRWG. He states he is willing to work on building out this action. Such an activity would require reaching out to the EPA, ORD, etc. to help CRWG meet their needs.
 - Scott Phillips stated that Lee McDonnell could take a list like what is assembled here to EPA region 3 to get help with increasing capacity.
 - Julie Reichert-Nguyen agreed that getting additional resources from partners to complete climate actions is crucial.

Discussion on Adaptation Management Approach 1: Improve knowledge and capacity to implement and track priority adaptation actions

Julie Reichert-Nguyen stated the CRWG members indicated in the survey that they would like to focus more on the adaptation outcome over the next 2 years.

Action 2.1—Develop a methodology to track climate resilience progress

- Julie Reichert-Nguyen reminded the CRWG that this is an ongoing GIT-funded project that they endorsed in FY19. The CRWG will need to include how to implement the end product of this project when it becomes available.

Action 2.2—Assist stakeholders with “shovel-ready” design plans for adaptation project

- Julie Reichert-Nguyen stated that the CRWG leadership needs help with this item. What is the vision and potential performance targets for this action? A Mentimeter exercise was used to help identify potential performance targets.

MENTIMETER RESULTS

List ideas for performance targets under 2.2 Assist stakeholders with “shovel-ready” design plans for adaptation projects.

why not combine with 2.3?

CRWG could serve as a convener. CRWG could help coordinate among federal agencies, e.g., FEMA funding

Maybe another GiT-funded project?

Planting guidelines and best practices for construction would be helpful

Develop resource lists for identification of funding

Maryland Critical Area Commission staff I think have some of these design plans available now.

Siting in areas we have deemed vulnerable

Share successes of resilient designs

Assess for gaps hindering “shovel-ready” process. Eg. lack of contractors or limited native plant stock

List ideas for performance targets under 2.2 Assist stakeholders with “shovel-ready” design plans for adaptation projects.

Is there an opportunity to leverage funding for design plans with DoD REPI funds for construction to implement JLUS projects already vetted and prioritized by consensus with adjoining communities?

GIIT project to develop decision matrix or process for selecting best practices

Matchmaker between climate conservation corps talent and local need

Create a citable document that groups writing grants can refer to in order to show that there's support for their adaptation project/their idea is in line with our objectives

- Nicole Carlozo suggested to combine 2.2 and 2.3—Assist with capacity-building activities that support the implementation of priority climate adaptation projects—since they are related to one another (2.2 could be a performance target under 2.3).
- Jim George stated there is a good chance federal funding for resilience projects will likely be coming. Joe Biden has created a civilian climate core (CCC) and the CBP could offer to be a pilot in terms of the CCC concept which has the idea of boots on the ground type projects.
 - Julie Reichert-Nguyen asked if the CRWG would coordinate that effort?
 - Jim George stated this would be a collaboration between Workgroups, the Management Board, and the Principal Steering Committee and thinks it is important.
- Jason Dubow provided a link for resilience plans provided by the Maryland Critical Area Commission <https://dnr.maryland.gov/criticalarea/Pages/efforts.aspx>
- Kevin DuBois stated the Department of Defense (DOD) works with surrounding communities on climate resiliency. He wondered if we could leverage money for shovel ready plans and combine this with DOD funds.
 - Julie Reichert-Nguyen stated it would be a clear target to examine these types of programs.
 - Kevin DuBois stated the VA coastal resiliency master planning framework focuses as a part of this initiative culminating in Oct 2021 with a prioritized list of projects in VA to move forward on.
 - Julie Reichert-Nguyen stated that she will follow-up with Kevin to see how this could be incorporated as a performance target for the CRWG to pursue.
- Mark Bennet stated a need to look through these responses and group them based on level of effort and define what actions the WG can take to move these forward (GIT-funding versus other means).
- Nicole Carlozo agreed that the workgroup should focus on increasing capacity for local jurisdictions to then carry out this work. She stated that the group would need to develop some type of process that could then be replicated in other areas.
- Katie Brownson states that Northern Institute of Applied Climate Science (NIACS) has compiled menus of adaptation strategies for different ecosystems and objectives. She asked if the workgroup would be trying to take something like this and provide more specific guidance? <https://forestadaptation.org/adapt/adaptation-strategies>.
 - Julie answered that is what we are trying to sort out for the performance targets. If the CRWG wants to go in the direction of developing and providing guidance, then this could be a GIT-funded project.
- She states the workgroup will have to think through and reword action 2.3 and identify preferred performance targets that can help build capacity to implement adaptation projects. She liked the idea of combining actions 2.2 and 2.3 so she will put some thought into that and then send this out to the WG.
- Julie Reichert-Nguyen stated that it may be premature for the next 2 years to hold an adaptation training workgroup until the other targets are met in identifying partners and better understanding which priority adaptation actions the workgroup wants to focus on.
- Jim George stated this capacity building could also be targeted in a DEIJ way.

MENTIMETER RESULTS FOR ACTION 2.3

List ideas for performance targets under 2.3 Assist with capacity-building activities that support the implementation of adaptation projects.

Share successes of resilient designs from partners in the watershed

develop tool for scoring the resiliency of projects

Action 2.4—Blue Carbon and crediting

- Jason Dubow stated UMCES is working on a blue carbon workshop which was delayed due to COVID. Peter Goodwin is the President and he can connect Julie with him or Dave Namaze?
- Julie Reichert-Nguyen stated this would be great. She is trying to get information into a digestible format for the incoming intern. Julie will reach out to establish a connection and get involved. She has identified Kristin Saunders as a potential contact making these connections after the intern completes a literature review. Kristin stated that she is available to help.

Action 2.5—Climate resilience data to local governments

- Breck Sullivan is available to help with the local government workshop and connecting climate resilience activities
- Julie stated that Breck and her are helping with reviewing the educational modules, but could use more help. Katie Matta after the meeting volunteered to help with the review.

Action 2.6—Local Engagement Efforts

- Julie Reichert-Nguyen stated the CRWG has expressed lots of interest in this action, so she wanted to get performance targets from WG members. Julie stated that ideally, we need some CRWG members to help with these types of activities since we have limited CRWG staff capacity.
- Kevin Du Bois asked if anyone knew if there was a tracking of agriculture acres engaged in regenerative farming practices?
- Kristin Saunders stated
- Julie Reichert-Nguyen stated we need to see if this is something which could be a capacity building exercise. She asked if Laura Cattell Noll was here for the first question related to the local engagement team?

- Kristen Saunders responded for Laura and stated that one of the things she heard from the MB meeting is that there are already efforts that states are engaged in with active local engagement to provide technical support about WIP implementation or specific outcomes. It would help the local engagement team to know if there are ongoing efforts the state or counties are already convening (e.g., standing meetings) that we can tap into rather than inventing new pipelines to feed information into. Plugging into existing delivery structures would be easier than starting from scratch.
 - Julie Reichert-Nguyen stated this sounds great, she stated the workgroup can potentially incorporate flooding into local engagement needs and natural green infrastructure supporting other cobenefits such as habitat restoration.
 - Jason Dubow stated we shouldn't forget federal patterns with resources like the EPA climate change adaptation resource center. He stated we should use EPA connections to utilize these existing networks.
- Additional feedback was given through Mentimeter.

MENTIMETER RESULTS

Performance targets under 2.6 Coordinate with the CBP Comm & Engagement Team to help with climate action items related to local comm & engagement.

combine with 2.3 - or, what other objectives are you seeking to achieve?

work with communication teams on messaging needs regarding the priority adaptation outcome actions, obstacles to success, lessons learned, and innovative solutions identified as a result of 2.3

Also, can we build upon EPA's Climate Change Adaptation Resource Center (ARC-X) effort?

Follow-up on past LGAC - Alliance for Chesapeake Forums on a) Workforce Development and b) Flood Mitigation. Could tie into the 2.2 & 2.3 workplan items

Support citizen science as an engagement strategy?

Action 2.7—Consult on cross-GIT climate change projects

- Julie Reichert-Nguyen stated she will email folks individually who expressed interest in projects and see if people are interested in advising on these projects.

Actions 2.8 and 2.9—Related to Implementing the SRS Process

- Julie Reichert-Nguyen stated that actions 2.8 and 2.9 are SRS and workgroup administrative-related tasks which will be discussed further in future meetings.

Action 2.10—Prepare for new federal and state climate initiatives and emerging issues related to the Chesapeake Bay climate resilience needs

- Julie Reichert-Nguyen stated that this is a placeholder to check in with the new administration federal offices to see if any changes are made regarding climate policy.
 - Katie Brownson, stated that it is probably captured in 2.10.c, but there should be the inclusion of identifying opportunities to advance CRWG work through new federal/state climate initiatives as they arise.
- Sally Claggett stated she is sorry to join late, and asked if there was anything in the Work Plan that references the background work needed from CRWG for the prospective Water Warming STAC workshop?
 - Scott Phillips stated in response that the STAC water temp workshop is included under item 1.2

2:40 PM Review and confirm which [climate indicators](#) the workgroup can support based on current resources and cross-workgroup utility, Julie Reichert Nguyen (NOAA)

The Climate Resiliency Workgroup confirmed which climate change indicators the CRWG can support based on current resources that have cross-workgroup utility for assessing resilience progress related to Watershed Agreement outcomes.

[Materials: Status of climate change indicators presentation.](#)

[Requested Workgroup Action: Agree on indicators to suggest to the Management Board that the workgroup can support.](#)

- Julie Reichert-Nguyen and Mark Bennett stated that given the resource intensive nature of climate change indicators, the CRWG needs to make sure that they have a management purpose and partner support.
- Julie Reichert-Nguyen went over which climate change indicators the workgroup should suggest to the Management Board for the CBP to focus on based on cross-workgroup utility and support. She asked if anyone has a strong opinion if any from the list should be removed or others added?
 - Scott Phillips stated they looked good. He identified the integrated trends and analysis team (ITAT) who will be an area of extra support for the Bay water temperature change indicator.
 - Breck Sullivan stated ITAT has data available at multiple depths including surface and the tidal trends that they release each year is for surface:
https://www.chesapeakebay.net/channel_files/42015/wtemp_s_annual_85to19_flow.pdf

- Kristin Saunders stated she wondered if there is a need to develop an indicator to measure the impact of this workgroup's work - not in this workplan but in the future?
- Mark Bennet stated we need to determine how often the indicators need to be updated with the corresponding workgroups.
 - Scott Phillips agreed with Mark that change in the indicators listed is relatively slow, so could be every 3-5 years for updates.
- Nicole Carlozo asked if the forestry workgroup had interest in the extreme temperature indicator from an urban tree canopy perspective? Sally Claggett stated she would say yes and to follow up via email.
- Kristin Saunders asked what would be an important next indicator if resources and capacity were available?
 - Mark stated CRWG doesn't have resources for the 6 presented. The first question is where the workgroup gets the resources to manage the 6 already identified.
 - If there are other workgroup resources to help with indicators, then refining the existing high temperature extremes indicator to better connect with the tree canopy indicator efforts related to Environmental Justice would be a worthwhile next indicator to work on with the Forestry Workgroup.
- Dave Montali stated the Modeling WG is looking at bullets for the Modeling WG to focus work on. They are interested in change from the mid-90s to 2035-45-55. They will have a need for inputs during the 2nd half 2024.
- Kristin Saunders asked Dave and Lew, is there anything missing from this list that would be necessary to support shallow water modeling?
 - Lew Linker agreed, SLR effects need to be revisited. The modeling WG will go ahead with stream temperature change, tidal bay water temperature change. They compute these well but want corroboration. They want to have a clear understanding that they don't monitor everywhere, and some temperature effects might be in shallow water areas. These updates can be used as an input or corroboration, the more data the better.
- Jason Dubow was not sure how realistic it is to develop a salinity indicator as it related to different fish species?
- Julie Reichert-Nguyen stated the integrated trend analysis team from UMCES is looking at salinity, this could be pursued in the future. ITAT is looking at nitrogen, phosphorus, flow, total suspended sediments, dissolved oxygen, which could be connected to indicators.
- Jason Dubow asked if the CRWG would oversee data?
 - Julie Reichert-Nguyen stated that the CRWG would need a partner to oversee data.
- Mark Bennet stated if salinity has a high level of interest then the CRWG can point people towards research on salinity regardless of if this is an indicator or not.
- Scott Phillips stated that the action plan (1.1 and 1.2) should be revised to reflect efforts for (1) how often indicators should be updated, and who will do it
- Julie Reichert-Nguyen stated this list of 5 needs to be structured as indicators. She stated this list is not the final list but that there must be an identified utility and resources for all indicators.
- Julie Reichert-Nguyen stated that if anyone has strong objections to any of the 5 being presented to the Management Board then to please email her and Mark before Feb 25th.

3:20 PM Wrap Up, Julie Reichert-Nguyen & Mark Bennett

- Julie Reichert-Nguyen and Mark Bennet stated they will review action items identified during the

meeting and discuss the next steps.

3:30 PM Adjourn

Next Meeting: Monday, March 15, 2021, 1:30 - 3:30 PM

ATTENDEES:

Marisa Baldine, Lew Linker, Julianna Greenberg, Breck Sullivan, Sally Claggett, Susan Julius, Mark Bennet, Jennifer Starr, Gopal Bhatt, Sean Corson, Molly Mitchell, Katie Matta, Kevin Du Bois, Melissa Deas, Elizabeth Armistead Andrews, Taryn Sudol, Labeeb Ahmed, Jim George, Allison Breitenother, Susan Larcher, Dave Montali, Katie Brownson, Scott Phillips, Kate McClure, Ashley Gordon, Jason Dubow, Nicole Carlozo, Matt Konfirst, Laura Cattell Noll, Adrienne Kotula, Kristin Saunders, Jessica Rodriguez, Julie Reichert-Nguyen