Chesapeake Bay Program Climate Narrative

May 21, 2021

In December 2020, the Chesapeake Bay Program's Principals' Staff Committee (PSC) decided to offset impacts from climate change (Attachment A) during the period 1995 through 2025 by asking the seven watershed jurisdictions (Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia, and the District of Columbia) to have additional nitrogen and phosphorus nutrient pollutant reduction practices in place across the watershed by 2025 (Attachment B). This decision was previously approved by the Management Board (MB) in October 2020 and the Water Quality Goal Implementation Team (WQGIT) in February 2020.

The PSC, MB, and WQGIT reviewed modeling scenarios to provide insight on how climate change will impact the Chesapeake Bay watershed in the future. Scenarios were run for the years 2025, 2035, 2045, and 2055, showing the impacts from different competing climatic influences, e.g. sea-level rise, temperature change, etc. The overall assessment predicts that future climate change impacts will continue and accelerate over the near-term, increasing the need for additional pollutant reduction efforts.

In a forward looking move the PSC took these findings into account and decided that, "Jurisdictions are expected to include a narrative in the 2022-2023 Milestones that describes the current understanding of 2035 climate change conditions." The PSC also indicated that the narrative (Attachment A, 3rd bullet) could be as straightforward as, "Preliminary estimates for the climate impact through 2035 indicate a doubling of the 2025 load effect. The effect of climate change on our ability to meet the Bay's water quality standards is a significant and increasing concern." The partnership jurisdictions can, of course, add as much detail and specificity to the narrative as they think warranted and appropriate.

Along those lines, a more detailed narrative for the 2022-2023 Milestones could recap that the offset of climate change impacts for the 30-year period of 1995 to 2025 on the Chesapeake living-resource-based water quality standards required an additional reduction of five million pounds of nitrogen and a little more that half a million pounds of phosphorus (Attachment B). In comparison, the 10-year period between 2025 and 2035, also has an estimated additional reduction of five million pounds of nitrogen needed to offset the impacts of climate change, i.e. the same estimated load reduction in less than half the time. Beyond 2035, the estimated rate of five million additional pounds of nitrogen reduction is needed for each subsequent decade. While the partnership will continue to refine its climate modeling and assessment framework to update the 2035 estimates with new airshed, watershed, and tidal Bay models in 2025, some level of sustained effort will continue to be needed after 2025 to offset climate change impacts to Chesapeake Bay water quality.

When the 2035 estimates are reassessed in 2025 by the partnership, the estimates will be improved by updated tools, methods, and data, as well as a shorter projection into the future for impacts such as temperature, precipitation, and sea-level rise. The partnership also expects that an improved capability to assess shallow tidal water and open water designated uses will be

available by this time. Additionally, revisions to the water quality standard may be considered, which would impact attainment assessments.

Revisions to the airshed, watershed, and tidal Bay models for the 2025 application of the suite of models to assess 2035 climate change will be done by the Chesapeake Bay Program's Modeling Workgroup, along with input from a myriad of workgroups across the partnership as well as other experts. The results will be presented to the WQGIT in 2025, and at that time, the group will explore all available and practical approaches in allocating additional pollutant loads while pursuing consensus-based implementation recommendations.

Attachment A:

Principals' Staff Committee December 17, 2020 Meeting's Actions and Decisions

Climate Change Final Decision

The PSC reached consensus, with EPA deferring to the jurisdictions, on a final set of recommendations for how the partnership will evaluate climate change for 2025 and 2035, and on numeric targets and allocations for 2025 due to climate change. Specifically, they approved the following:

- The 2020 update to the 2025 climate load allocations based on the latest modeling assessment.
- Jurisdictions are expected to account for additional nutrient and sediment pollutant loads due to 2025 climate change conditions in a Phase III WIP addendum and/or 2-year milestones beginning in 2022.
- Jurisdictions are expected to include a narrative in the 2022-2023 Milestones that describes the current understanding of 2035 climate change conditions, to the effect that: "Preliminary estimates for the climate impact through 2035 indicate a doubling of the 2025 load effect. The effect of climate change on our ability to meet the Bay's water quality standards is a significant and increasing concern."
- In 2025, the Partnership will consider results of updated methods, techniques, and studies and revisit existing estimated loads due to climate change to determine if any updates to those 2035 load estimates are needed.

The full set of recommendations to the PSC, including the specific call to continue efforts to improve understanding of the science and refine estimates of pollutant load changes due to 2035 climate change conditions, may be accessed by clicking here: Recommendations

Note: The updated climate change *narrative language* is being developed by the climate resilience and communications workgroups. The narrative is not needed until submission of 2022-2023 Milestones on 1/15/22.

Note: New York (Jim Tierney) requested that the record reflect that future allocation decisions regarding the 2035 climate load should factor in fairness and equity.

Attachment B:

PSC approved 2020 update to the 2025 climate change load targets. Units in thousands of pounds.

Jurisdiction	**Total Nitrogen 2025 Climate Change Load Target**	**Total Phosphorus 2025 Climate Change Load Target**
District of Columbia	7.0	1
Delaware	39,000 lbs.	3
Maryland	1,142,000 lbs.	111
New York	399,000 lbs.	44
Pennsylvania	1,811,000 lbs.	95
Virginia	1,589,000 lbs.	337
West Virginia	0 lbs.	9
Total	**4,986 thousand pounds**	**599 thousand pounds**