

Update on Bay Assimilation Analysis for New York and West Virginia Special Cases

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Refining Assimilation Capacity Assessment

“[At the direction of the PSC] the Chesapeake Bay Program Partnership’s Modeling Workgroup and its Modeling Team at the Chesapeake Bay Program Office in Annapolis, in coordination with the Water Quality Goal Implementation Team, conducted further analyses of the Bay’s assimilative capacity and the projected nitrogen atmospheric deposition loads to the Bay’s tidal waters, as well as to the surrounding watershed by 2030, in order to fulfill the PSC decision of providing New York and West Virginia additional pounds as part of their draft Phase III WIP planning targets. These analyses were directed towards determining the total nitrogen and phosphorus loads to the Bay’s tidal waters which would still achieve all Chesapeake Bay water quality standards with the inclusion of a 6 percent restoration variance for Maryland’s CB4MH Deep Channel segment.”



Special Case Loads Required – New York

“As part of the 2010 Chesapeake Bay Total Maximum Daily Load (TMDL), EPA agreed to increase New York’s nitrogen allocation by 1 million pounds and their phosphorus allocation by 100,000 pounds. These increases in loads over New York’s original allocation determined through the Chesapeake Bay TMDL allocation methodology were based on the Partnership’s equity principles spelled out in the 2010 Chesapeake Bay TMDL. In the case of New York, their relative lack of population growth since 1985, when compared with the growth observed in the other six Chesapeake Bay watershed jurisdictions, was the source of their concern about the inequity in the original proposed 2010 Chesapeake Bay TDML allocations.”



Special Case Loads Required – West Virginia

“As part of the 2010 Chesapeake Bay TMDL, EPA agreed to increase West Virginia’s phosphorus allocation by 200,000 pounds. These increases in loads over West Virginia’s original allocation determined through the Bay TMDL allocation methodology were based on the Partnership’s equity principles spelled out in the 2010 Bay TMDL and the recognition that the headwater states do not directly benefit from a cleaner Bay....[however] West Virginia has long committed to the level of effort contained within its Phase II WIP.

Therefore, West Virginia DEP, with support from the Chesapeake Bay Program Office in Annapolis, has taken steps to translate its Phase II WIP, developed using the Phase 5 suite of models, into a similar level of effort under the Partnership’s Phase 6 suite of models. Based on these scenario analyses, West Virginia is willing to agree to a 1.5 million pound increase in its nitrogen Phase III planning target as a good representation of addressing its equity concerns originally expressed as part of the 2010 Bay TMDL.”



Sources of the Additional Special Case Pounds

“The sources of the additional pounds which have been added to New York’s and West Virginia’s original draft Phase III WIP planning targets can come from three sources:

- Additional Bay assimilative capacity to receive additional nitrogen and phosphorus loads and still achieve the states’ Bay water quality standards calculated beyond the initial estimate presented to the PSC at their December 19-20, 2017 meeting;
- Accounting for estimated reductions in atmospheric deposition of nitrogen to the tidal surface waters of the Bay...between 2025 and 2030; and
- Accounting for estimated reductions in atmospheric deposition of nitrogen to the Chesapeake Bay watershed between 2025 and 2030.”



Assimilative Capacity Additional Pounds

“The Modeling Team found that the Bay could withstand an additional 1 million pounds of nitrogen from the Potomac River watershed, 500,000 pounds of nitrogen from the Susquehanna, and 50,000 pounds of phosphorus from the Susquehanna River watershed and still meet water quality standards within the same 6% restoration variance (see table below). However, these additional loads did not add up to total loads the PSC committed to provide to New York and West Virginia.”

Source of Pounds	New York	West Virginia	Extra Available
Bay Assimilative Capacity Evaluation	500,000 N /50,000 P	1 million N	0
+ Atmos. Dep. to Tidal Waters by 2030	1 million N /100,000 P	1.18 million N	0
+ Atmos. Dep. to Watershed by 2030	-	1.5 million N	390,000 N



Atmospheric Deposition to Tidal Waters

“Airshed modeling performed by EPA shows that we can expect to see an additional 800,000 pound decrease in atmospheric deposition of nitrogen to the surface tidal waters of Chesapeake Bay by 2030 with the regulations currently in place . This reduction is in addition to what was already estimated to occur by 2025 and has been factored into the draft Phase III WIP planning targets agreed to by the PSC. However, these additional nitrogen load reductions cannot be directly translated to an additional 800,000 pound increase in a planning target because loads originating from different areas have different effects on dissolved oxygen in the Bay.”

Source of Pounds	New York	West Virginia	Extra Available
Bay Assimilative Capacity Evaluation	500,000 N /50,000 P	1 million N	0
+ Atmos. Dep. to Tidal Waters by 2030	1 million N /100,000 P	1.18 million N	0
+ Atmos. Dep. to Watershed by 2030	-	1.5 million N	390,000 N



Atmospheric Deposition to the Bay Watershed

“The same air emission reductions that result in nitrogen atmospheric deposition reductions for the surface of the Bay’s tidal waters will also reduce atmospheric deposition loads of nitrogen to the Bay’s watershed. By 2030, EPA estimates this will also result in further reduction of 800,000 pounds of nitrogen reaching the Bay. The atmospheric deposition reductions expected by 2030 is expected to reduce runoff loads from the seven jurisdictions as shown in the table to the right. These reductions are in addition to previously estimated 2025 reductions from air emission regulations and are in addition to management actions by the jurisdictions.”

State	Pounds N
DC	0
DE	20,000
MD	210,000
NY	40,000
PA	280,000
VA	220,000
WV	30,000
Total	800,000

Source of Pounds	New York	West Virginia	Extra Available
Bay Assimilative Capacity Evaluation	500,000 N /50,000 P	1 million N	0
+ Atmos. Dep. to Tidal Waters by 2030	1 million N /100,000 P	1.18 million N	0
+ Atmos. Dep. to Watershed by 2030	-	1.5 million N	390,000 N