

Data Show Drop in Nitrogen, Phosphorus, Sediment Pollution to Chesapeake Bay

Computer simulations track partner progress toward clean water goals



Annapolis, MD — Today, the Chesapeake Bay Program announced a drop in estimated nitrogen, phosphorus and sediment pollution entering the Chesapeake Bay. Computer simulations show that pollution controls put in place by watershed jurisdictions between 2009 and 2015 have reduced nitrogen, phosphorus and sediment loads to the Bay by eight percent, 20 percent and seven percent, respectively. During the 2014 to 2015 reporting period alone, it is estimated these controls reduced nitrogen, phosphorus and sediment loads by three, three and four percent. Water quality modeling experts attribute this drop in estimated pollution loads to significant reductions of nitrogen and phosphorus in the wastewater sector, reductions in the atmospheric deposition of nitrogen as a result of the Clean Air Act and the increased implementation of agricultural conservation practices. Improved reporting and enhanced crediting of these practices have also generated a more accurate picture of the pollution entering rivers and streams from this sector.

These computer simulations show that [nutrient](#) reductions in the [wastewater](#) sector account for 41 percent of the Bay-wide nitrogen reductions and 38 percent of the Bay-wide phosphorus reductions that took place between 2014 and 2015. Indeed, many large municipal wastewater treatment plants are removing more nitrogen from effluent than it was previously thought technology would allow.

Our picture of agricultural conservation practices has also changed. Throughout the watershed, for example, states are reporting more conservation tillage—or crop residue left on fields in order to slow erosion and reduce runoff—on more acres. And experts and practitioners on the Chesapeake Bay Program’s [Agriculture Workgroup](#) have found that the implementation of nutrient management plans should result in greater nutrient reductions than previously estimated, meaning greater pollution-reducing credit for previously reported practices. Improved practice reporting and enhanced crediting of certain practices allow model simulations to show a more accurate picture of the reduction of pollution entering rivers and streams from the agricultural sector.

By incorporating the best available data into our computer simulations and pollution load estimates, we can more accurately track our partners’ [progress](#) toward their pollution-reducing goals. A more accurate picture of pollution in the watershed gives us a better understanding of the actions that are needed to restore water quality in our work toward an environmentally and economically sustainable watershed.

Facts

Each year, Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia and the District of Columbia report the steps they have taken to reduce the [nitrogen and phosphorus](#) and [sediment](#) entering rivers and streams. Our experts run this information through a suite of computer simulations, which generate [pollution load estimates](#) that show us how far our partners have come toward meeting the Chesapeake Bay’s [Total Maximum Daily Load](#) (Bay TMDL).

Computer simulations show that between 2009—the Bay TMDL baseline—and 2015:

- Nitrogen loads fell eight percent, from 283 million pounds in 2009 to 259 million pounds in 2015. The 2015 nitrogen load is 11 million pounds above the 2015 nitrogen-reducing target.
- Phosphorus loads fell 20 percent, from 19.2 million pounds in 2009 to 15.4 million pounds in 2015. The 2015 target to reduce phosphorus has been met, and phosphorus has been reduced further by 1.7 million pounds.

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- Sediment loads fell seven percent, from 8.675 billion pounds in 2009 to 8.035 billion pounds in 2015. The 2015 target to reduce sediment has been met, and sediment has been reduced further by 39 million pounds.

Computer simulations show that between 2014 and 2015:

- Nitrogen loads fell three percent, from 267 million pounds to 259 million pounds.
- Phosphorus loads fell three percent, from 15.8 million pounds to 15.4 million pounds.
- Sediment loads fell four percent, from 8.348 billion pounds to 8.035 billion pounds.

Practices are currently in place to achieve 31 percent of the nitrogen reductions, 81 percent of the phosphorus reductions and 48 percent of the sediment reductions necessary to attain applicable water quality standards as compared to 2009, the year before the U.S. Environmental Protection Agency (EPA) established the Bay TMDL. Through the [Chesapeake Bay Watershed Agreement](#), the Chesapeake Bay Program and its partners have [committed](#) to having 100 percent of the practices that would achieve all of the nutrient and sediment reductions necessary to meet the Bay's clean water goals in place by 2025, with those practices that would achieve 60 percent of the necessary nutrient and sediment reductions in place by 2017. Assuming constant progress over time, the EPA considers the achievement of 45 percent of necessary pollution reductions through 2015 to be on track.

These pollution load estimates, which are derived from land use and best management practice implementation, are just one in a suite of tools the EPA uses to evaluate whether jurisdictions are on track to meet the Bay TMDL and its two-year milestone commitments. The EPA also considers data and information on best management practice implementation, best management practice effectiveness and jurisdictions' progress toward putting programs in place to achieve pollution cuts. The EPA expects to release its evaluations of whether jurisdictions and federal agencies have met their 2014-2015 milestones and whether their 2016-2017 milestones are on track to achieve the partnership's clean water goals in June.

The Chesapeake Bay Program also uses [water quality monitoring data](#) to report the partnership's progress in attaining water quality standards and to examine trends in reducing nitrogen, phosphorus and sediment in the watershed.

Issues

Excess [nitrogen and phosphorus](#) and [sediment](#) impair water quality. Nitrogen and phosphorus can fuel the growth of algae blooms that lead to low-oxygen "dead zones" that suffocate marine life. Sediment can block sunlight from reaching underwater grasses and suffocate shellfish. Pollution reduction practices used in backyards, in cities and on farms can lower the flow of nitrogen, phosphorus and sediment into waterways.

Importance

The [indicators](#) discussed here present data on our partners' progress toward reducing the nitrogen, phosphorus and sediment entering rivers, streams and the Chesapeake Bay. These data provide local leaders with the science-based information they need to assess their pollution-reducing practices and adapt their management decisions as needed.

Jurisdictions' progress toward reducing nutrient and sediment pollution is a product of their work to meet the Chesapeake Bay [Total Maximum Daily Load](#) (Bay TMDL). Jurisdictions' [Watershed Implementation Plans](#) (WIPs) outline the strategies each will take to meet the Bay TMDL; these strategies are being implemented through a series of [two-year milestones](#). The U.S. Environmental Protection Agency (EPA) oversees progress toward these goals.

Quotes

“It’s encouraging to see that upgrades to wastewater treatment plants throughout the watershed have resulted in significant nutrient and sediment pollution reduction, even beyond that which we anticipated. Greater implementation of agricultural best management practices also has resulted in significant reductions. As welcoming as this news is, we still have a substantial way to go in getting additional reductions that will result in the achievement of our water quality standards.”

--Nick DiPasquale, Director, Chesapeake Bay Program

“This data shows wastewater treatment plants are doing their part to help clean up the Chesapeake Bay. At Blue Plains, we have committed more than \$1 billion in capital funds to this effort and exceeded our permit requirements. Since 2000, we have removed more than 144 million pounds of nitrogen that would have ended up in the Bay.”

--George Hawkins, Chief Executive Officer and General Manager, District of Columbia Water and Sewer Authority (DC Water)

“These results show that water quality practices work and that we can expect future reductions as we continue our significant investments in controlling pollutants from all major sources.”

--Molly Joseph Ward, Virginia Secretary of Natural Resources, and Chair, Chesapeake Bay Program Principals’ Staff Committee

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We Recommend:

- [ChesapeakeProgress: 2017 and 2025 Watershed Implementation Plans \(WIPs\) Outcome](#)
- [Chesapeake Bay TMDL: A Commitment to Clean Water](#)

Related News:

- [Data show drop in estimated nutrient, sediment loads entering Chesapeake Bay](#)