

# Watershed Implementation Plan

## (WIP) Sediment Planning Targets

The 2010 Chesapeake Bay Total Maximum Daily Load (Bay TMDL) is in place to ensure the Bay and its tidal rivers maintain a healthy water quality by setting limits on the amount of nutrients (nitrogen and phosphorus pollution) and sediment that flow into it. Each of the six watershed states – Delaware, Maryland, New York, Pennsylvania, Virginia and West Virginia – and the District of Columbia recently developed roadmaps called Phase III Watershed Implementation Plans (WIPs) to guide them in meeting their pollutant reduction goals by 2025. Sediment allocations under the Bay TMDL were established differently than those for nutrient pollutants due to scientific evidence supporting the greater importance of reducing nitrogen and phosphorus loads entering the Bay.

### How does sediment harm the Bay?

In addition to nitrogen and phosphorus, excess sediment is also a leading factor in the Bay's poor health. Major sources of sediment in the Bay watershed include eroding land and stream banks from upstream and eroding shore and coastlines in tidal areas.

Sediment is made up of loose particles of sand, silt and clay that can be carried long distances in flowing water. Sediment often floats in the water instead of settling to the bottom, giving the water a cloudy appearance.

Cloudy water prevents sunlight from reaching underwater grasses and other plants that grow on the bottom of the Bay's shallow waters. These underwater plants die without sunlight, which harms young fish and shellfish that use them for shelter. Because elevated levels of nitrogen and phosphorus fuel algae growth that clouds the water further, it is important to control these pollutant levels to keep the Bay healthy.

### How is sediment managed under the Bay TMDL?

While the Bay TMDL sets allocations for sediment loads, scientific and technical findings note that reducing nutrient pollutants yield greater progress towards meeting water quality standards. The Chesapeake Bay Program measures Bay water quality standards through water clarity, chlorophyll *a* (a measure of algae growth) and dissolved oxygen. Sediment loads under the Bay TMDL specifically address issues related to water clarity in the Bay and its impact on underwater grasses.



*An eroding stream bank along Codorus Creek, PA, carries sediment downstream. (Photo Credit: Chesapeake Bay Program)*



*Cloudy, sediment-filled water travels down the Susquehanna River, MD. (Photo Credit: Chesapeake Bay Program)*

## How are the target pollution loads determined?

The Phase III WIP planning targets were developed using a methodology similar to that used to develop the 2010 Bay TMDL allocations. Targets were set using the updated Phase 6 Watershed Model, which has been refined and contains more data than the previous version. The improved modeling tools offer additional insight on how nutrient and sediment loads have changed as pollution control measures have been implemented across the watershed.



### Sediment targets set for each state-basin.

| State-Basins     | Sediment Targets |
|------------------|------------------|
| DC Potomac       | 35.8             |
| DE Eastern Shore | 23.5             |
| MD Eastern Shore | 2585.1           |
| MD Patuxent      | 370.4            |
| MD Potomac       | 1692.5           |
| MD Susquehanna   | 101.8            |
| MD Western Shore | 2526.8           |
| NY Susquehanna   | 518.0            |
| PA Eastern Shore | 28.9             |
| PA Potomac       | 316.9            |
| PA Susquehanna   | 1866.3           |
| PA Western Shore | 0.3              |
| VA Eastern Shore | 368.1            |
| VA James         | 1752.4           |
| VA Potomac       | 1630.2           |
| VA Rappahannock  | 1247.2           |
| VA York          | 803.6            |
| WV James         | 10.9             |
| WV Potomac       | 492.1            |

## How is sediment addressed in the WIPs?

Many of the best management practices put into place to address nitrogen and phosphorus pollution, including cover crops, conservation tillage and stream restoration, also help reduce sediment pollution. Updated nitrogen and phosphorus targets for the Phase III WIPs were set in 2018, and sediment targets in late 2019, following the evaluation of each jurisdiction's Phase III WIP.

The management actions identified by each watershed jurisdiction in their respective Phase III WIPs to meet nitrogen and phosphorus targets were run through the Phase 6 suite of modeling tools to evaluate the potential sediment reductions. These results formed the basis for the sediment targets.

These sediment loads were adjusted proportionally to account for modeling results that exceeded or fell below the Phase III WIP nitrogen and phosphorus targets. An additional 10% margin of error was added to the calculated Phase III WIP sediment target in each major state-basin (i.e., common watershed areas within each state).

## What if pollution loads are not reduced by 2025?

The Chesapeake Bay Program will provide as many resources as possible to help the jurisdictions meet their Phase III WIP planning targets by 2025. Potential federal actions may occur if jurisdictions do not meet their targeted pollution reductions; however, any federal actions will be guided by common sense, the best available information and a shared goal to restore the Chesapeake Bay.

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