



Total Maximum Daily Loads (TMDLs)

What You Need to Know

What is a TMDL?

A TMDL (Total Maximum Daily Load) is an estimate of the maximum amount of an impairing substance or stressor (pollutant) that a waterbody can assimilate without violating water quality standards. This total load includes pollutants that come from the end of a pipe (point sources), stormwater runoff and groundwater flow (nonpoint sources), and a "margin of safety" that

provides a cushion needed because of uncertainties associated with estimates. A TMDL also may include an allowance for future increases in pollutant loads due to changes in land use, population growth, and the expansion of business activity.

What are the benefits of TMDLs?

Maryland's cultural heritage is closely tied to its rivers, coastal waters and the Chesapeake Bay. The seafood industry, recreational activities and the quality of life for Maryland's citizens depend on the quality of our waters. Maryland's waters are currently managed through the use of "water-quality-based permits," which place limits on the discharge of wastewater to ensure receiving waters will remain "fishable and swimmable." The

Chesapeake Bay TMDL has defined upper limits on the amount of nitrogen, phosphorus and sediment that may go into the Bay. TMDLs formalize these procedures for setting upper limits on pollutants and will create a lasting framework to ensure clean waters for generations to come.

Why is Maryland developing TMDLs?

All states are required by the federal Clean Water Act to consider the development of TMDLs. Every two years, states must submit a prioritized list of waterbodies that do not meet water quality standards or will not meet the standards after all technology-based pollution controls

are in place. Technology-based controls, defined under the Code of Federal Regulations, 40 CFR 130.7(b)(1)(i-iii), are the basic pollution controls for point sources and nonpoint sources that are uniformly required by federal, state or local law.

What waterbodies are currently on the TMDL list?

In accordance with Section 303(d) of the federal Clean Water Act, the State develops a list of impaired waterbodies, commonly referred to as the "303(d) List," which is Category 5 of its "Integrated Report (IR) of Surface Water Quality." Category 5 of the IR identifies the impaired waterbodies and the impairing substances (e.g., nutrients, sediments, fecal coliform bacteria) for

which TMDLs should be developed. Across the State, there are approximately 134 watersheds that are impaired by one or more substances. Maryland's current approved IR is the 2024 IR. The U.S. Environmental Protection Agency (EPA) approved the 2024 IR on September 4, 2024.

What are the steps in developing a TMDL?

The first step in the TMDL process is to identify waterbodies that are impaired and should have TMDLs. This involves assessing existing water quality information collected by a variety of monitoring techniques. If the existing water quality information demonstrates that water quality standards are being met, a Water Quality Analysis (WQA) may be conducted. The WQA is used to support moving the waterbody from the “impaired” section to the “meets standards” section of the IR for the specified pollutant. If the data demonstrate that an impairment exists then TMDL development continues, using computer modeling. Computer modeling is used to estimate pollutant

loadings to the waterbodies and water quality impacts of the pollutant loadings under varying conditions, such as low stream flows. The modeling is used to estimate the amount of pollutants waterbodies can assimilate without violating water quality standards. Once this maximum pollutant load (TMDL) is defined, it must be allocated between point and nonpoint sources, accounting for a margin of safety and future allocation. The allocation will balance equity and cost considerations, and may involve innovative approaches such as trading between different pollutant sources. The public, affected dischargers, regional agencies, and local governments will be involved in the TMDL development process.

How do TMDLs fit into Maryland’s existing water quality efforts?

Many of Maryland’s existing efforts to protect and restore water quality will help the State meet its TMDL goals. Some examples include Maryland’s Watershed Implementation Plan (WIP) for the Chesapeake Bay, the Gunpowder Watershed Project, the Coastal Bays of the National Estuaries Program, the Baltimore Harbor Toxics Regional Action Plan, and a variety of pollution prevention efforts. The waters identified for TMDLs are also at the core of Maryland’s Clean Water Action Plan.

In many ways, Maryland’s ongoing effort to reduce nutrients entering the Chesapeake Bay has been very similar to a TMDL process. Stakeholders and researchers recognized water quality problems, set an achievable goal, and then identified specific controls for point and nonpoint pollution sources intended to achieve the goal. This is the essence of a TMDL.

How can TMDL goals be achieved?

A TMDL improves water quality when the pollutant allocations are implemented, not when a TMDL is established. When the State or EPA identifies a water quality impairment on Category 5 of the IR and then establishes the TMDL, we begin a water quality-based process to ensure that the TMDL is not exceeded.

Section 303(d) does not establish any new implementation requirements beyond those mechanisms that exist elsewhere in State, local, Tribal, or Federal law. These mechanisms include state and local permitting and regulatory authority, and efforts under the Chesapeake Bay WIP that are supported by technical and financial assistance. Maryland has one of the most comprehensive, multi-level, community-based estuary restoration programs in the country. We are committed to building on our existing efforts and believe that a

combination of voluntary commitments and regulatory procedures is the best course to take in Maryland. Additionally, programs exist that provide technical and financial assistance to control and allocate pollutant loads. Examples include cost share programs for nutrient removal at municipal wastewater treatment plants, low-cost loans from the State’s revolving loan program, grants for stormwater retrofits, cost share grant funds for stream restoration, agricultural cost share programs, agricultural technical assistance programs, and acid mine drainage remediation assistance.

For more information on Maryland’s TMDL Program, contact the Maryland Department of the Environment, Water and Science Administration at (410) 537-3884, or access MDE’s web page at www.mde.maryland.gov/tmdl.