

New England's Total Maximum Daily Load (TMDL) Program

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This fact sheet provides an overview of the national and New England regional TMDL programs.

What is a Total Maximum Daily Load or TMDL?

EPA issued regulations - known as the TMDL regulations - in 1985 and 1992 to implement Section 303(d) of the Clean Water Act (CWA). A TMDL is developed for a pollutant (or group of pollutants) in a waterbody (or group of waterbodies in a watershed) listed on a state's 303(d) list of impaired waters. A TMDL is the sum of the pollutant loads from point and nonpoint sources of pollution that a waterbody can receive and still meet state water-quality standards (WQSs). In the TMDL calculation, loads from point sources such as industrial or municipal discharge pipes are called "wasteload allocations", and loads from nonpoint sources, such as agricultural runoff and septic systems, are called "load allocations". The TMDL calculation includes a margin of safety (MOS) to account for uncertainty in the TMDL calculation. The calculation also includes consideration of seasonable variation in water quality, as well as important assumptions, such as future growth, made in developing the TMDL.

What is the 303(d) List of Impaired Waters?

Under Section 303(d) of the CWA, states, territories, and authorized tribes (referred to as "states" below) are required to develop, and update every two years, lists of waters - rivers, lakes, coastal waters and estuaries - that are impaired or threatened by one or more pollutants. Impaired waters are waters that do not meet WQSs even after

point sources of pollution have installed required levels of pollution control technology. In addition to listing impaired waters, each state prioritizes TMDLs for development.

States must consider "all existing and readily available information" when developing their lists. Along with the list, each state submits a listing methodology to EPA. At EPA's request, states must provide "good cause" for not including or removing a water from the list.

Why are TMDLs important?

Developing TMDLs is an important step in solving water-quality problems. A TMDL provides (1) analysis and estimates of pollutant loadings from all significant point and non-point sources, (2) a link between pollutants sources and their impacts on water quality, (3) an allocation of allowable pollutant loads among sources, (4) identification of control actions for achieving WQSs, and (5) an opportunity for public participation.

Who is responsible for developing TMDLs?

States are responsible for developing and submitting TMDLs to EPA for approval. EPA is responsible for completing any TMDLs that are disapproved. In some cases, EPA may develop a TMDL if requested by one or more states.

What are the requirements of a TMDL submittal?

1) Descriptions of the waterbody, pollutant(s) of concern, point and

nonpoint pollutant sources, and the priority ranking of the waterbody.

2) Description of the applicable water quality standards and numeric water-quality target.

3) Assessment of the waterbody's loading capacity for the applicable pollutant(s). This includes a description of methods used to establish a relationship between the water-quality target and the pollutant sources, and commonly includes a description of critical environmental conditions.

4) Establishment of "load allocations" (LAs), which identify the portion of the loading capacity allocated to nonpoint sources, including atmospheric deposition and natural background.

5) Establishment of "wasteload allocations" (WLAAs), which identify the portion of the loading capacity allocated to point sources

6) Description of a margin of safety (MOS) to account for uncertainties in the loading analysis.

7) Assessment of seasonal variation (climate and streamflow) on the ability of waterbody to meet WQSs.

8) EPA encourages states to develop monitoring plans for TMDLs to assess progress in meeting TMDL goals.

9) EPA encourages states to develop TMDL implementation plans, which include reasonable assurances that nonpoint source loading reductions will be achieved.

10) Each state must provide for public participation consistent with state requirements.

How are TMDLs implemented?

A TMDL can only improve water quality if implemented. This means specific actions should be taken to control and manage point and non-point sources consistent with the TMDL.

EPA Region 1, in partnership with states, has a record of success in reducing point-source pollution. Millions of federal dollars have been spent to upgrade wastewater treatment facilities, and to issue and enforce National Pollution Discharge Elimination Systems (NPDES) permits.

The NPDES permit program, which now includes stormwater discharges in most urban areas, is the primary mechanism for achieving the loading limits for point sources established in a TMDL. Nonpoint sources are typically controlled through voluntary federal, state, and local programs that promote use of Best Management Practices (BMPs), such as fences to keep animals out of streams or stormwater diversion or treatment systems. Many of these programs receive federal funds through the CWA Section 319 program.

What is happening in New England?

The EPA Region 1 Office of Ecosystem Protection (OEP) has devoted much effort to building a team to implement the region's TMDL program. The team draws support from EPA's Water Quality Unit, State Units, and Office of Regional Counsel. Team members work together to help states prepare approvable 303(d) lists and TMDLs.

Highlights of TMDL activities in New England include:

Connecticut

Connecticut has achieved large reductions in nitrogen loading into Long Island Sound (LIS) since completion of a \$14.5 million sewage treatment plant retrofit program for 15

coastal communities as part of the LIS nitrogen removal program. This phase seeks a 58.5% reduction goal in nitrogen levels entering LIS over the next 15 years. In addition to the LIS TMDL, CT has completed TMDLs for lakes and streams for a variety of pollutants.

Rhode Island

Rhode Island has completed a number of TMDLs for bacteria derived mostly from stormwater sources. The state has also developed several TMDLs for waterbodies that cross state boundaries, such as the Runnins and Kickemuit River watersheds. Development of these TMDLs required significant coordination with MA DEP and EPA.

New Hampshire

New Hampshire has traditionally focused its TMDL program on rivers impacted by point sources. More recently, the state has expanded its TMDL efforts to address bacteria sources to estuaries. In addition, the state has preliminary plans to develop TMDLs for acid-rain impaired lakes.

Massachusetts

Massachusetts has developed many TMDLs for lakes and rivers impaired by nutrients, as well as waters impacted by bacteria. MA watershed groups are actively involved in the TMDL process. A notable effort underway is the Charles River Basin TMDL, which involves development of a 3-D hydrodynamic model. This TMDL will be the basis for requiring reductions in nutrient loadings from stormwater and other sources, and, possibly, for reductions in thermal loadings from a power plant.

Maine

Maine began its TMDL efforts with a focus on rivers impaired by point sources. The state then developed efficient procedures for producing

many nutrient TMDLs for lakes. The state's current focus is on developing TMDLs for rivers and streams impaired mainly by nonpoint sources. The state works to actively include watershed groups in its TMDL process.

Vermont

In late 2002, Vermont completed phosphorus TMDLs for nine lake segments of Lake Champlain. This project involved significant coordination with EPA Regions 1 and 2, and with the New York DEC. Vermont has also completed several sediment TMDLs for rivers impaired by sediment deposition. The state is currently developing TMDLs for lakes impaired by acid rain.

How can citizens get involved?

Citizens can become involved in assessing waterbodies by starting or joining watershed, lake, or river associations. These groups can provide opportunities to monitor water quality, to identify pollution sources, and to identify possible control actions. Increasingly, data gathered by volunteers using proper Quality Control/Quality Assurance (QA/QC) procedures is being used by states in developing their 303(d) lists of impaired waters.

Citizens can also review draft TMDLs, typically posted on state environmental agency websites, and attend public meetings.

For more information on the TMDL program, please contact Mel Cote (617-918-1553) or Alison Simcox (617-918-1684) of EPA's Region 1 Office of Ecosystem Protection, or visit the EPA TMDL webpage at www.epa.gov/OWOW/TMDL.