

# **Total Maximum Daily Load (TMDL) and National Pollutant Discharge Elimination System (NPDES) Permit Training**

## ***Module 1: Understanding Total Maximum Daily Loads (TMDLs): A Primer for Permit Writers***

### **User's Guide (May 2013)**

The U.S. Environmental Protection Agency (EPA) has developed a 64-slide training module (approximately 2 hours for the self-guided module; 10 minutes to complete quiz) that provides an introduction to the Total Maximum Daily Load (TMDL) Program for National Pollutant Discharge Elimination System (NPDES) permit writers and other agency staff interested in understanding TMDLs. This module is the result of collaboration among EPA headquarters and EPA Region 10, with input from the other EPA Regions. This document provides key information on using this module.

This module can be used as a stand-alone training or in conjunction with EPA's other related training modules to provide a more in-depth training for TMDL and NPDES permitting staff. (The additional training modules are available at [www.epa.gov/npdes/tmdltraining](http://www.epa.gov/npdes/tmdltraining)). The goal of this module, and the overall training series, is to improve TMDLs and NPDES permits through cross-program education, as well as to promote frequent discussion and collaboration between the TMDL and NPDES programs.

*The material in this presentation should not be quoted or cited as official EPA policy.*

### **Intended Users and Target Audience**

This module is intended for use by EPA or state agency NPDES permitting staff (and new TMDL staff) who want to better understand the TMDL program.

### **Module Objectives and Summary**

Learning objectives for this module are as follows:

- Provide a basic understanding of the TMDL program
- Illustrate the technical steps in developing TMDLs
- Discuss typical approaches for developing TMDLs
- Highlight connection between TMDLs and NPDES permits.

The module begins by reviewing the definition of TMDLs and an explanation of what leads to TMDL development, specifically the use of water quality standards and monitoring to determine impairments. The module then addresses the Section 303(d) list of impaired waters and the five categories of an integrated report, highlighting the need for a TMDL. The rest of the module touches on the elements of the TMDL process, including data compilation and analysis, water quality target identification, source assessment, linkage analysis, approach selection, allocation analysis, reasonable assurance, monitoring,

and BMP planning. The module also briefly addresses translating wasteload allocations into NPDES permits, although this topic is the focus of the second module in the series. The module wraps up with emerging or evolving issues, as well as tips for engaging in the TMDL process. An optional quiz is available to gauge participants' understanding of the TMDL program after the training.

### **How to Use This Module**

There are two potential options for using this module: 1) as a recorded self-paced module or 2) as a live training (where it is possible to tailor the Powerpoint to the specific needs of the targeted audience). In both options, a follow-up discussion with staff on mutual issues of concern in both programs is encouraged. Each option is described below.

#### ***Recorded Self-Paced Module***

This module is available as a recorded presentation to enable participants to review the material on demand in a self-paced environment. Click on the link found at [www.epa.gov/npdes/tmdltraining](http://www.epa.gov/npdes/tmdltraining). When the module launches, tabs will appear on the left-hand side of the screen that allow the user to choose an outline, thumbnails, or notes view of the presentation, while the slides appear on the main screen. Users can pause or go back to a previous slide much like using a DVD player. Hitting the "UP ARROW" or "DOWN ARROW" will go back to the beginning of the previous slide or move to the beginning of the next slide.

#### ***Powerpoint Presentation for Use in Live Meetings***

In addition, this module is available as a Powerpoint presentation with slides and an associated script for use in live meetings. If necessary, a presenter can update the slide and script content to reflect regional or state specific TMDL issues. The recommended timeframe is approximately 2 hours for the presentation and 30 minutes for group discussion (see example discussion questions below). EPA and/or state staff may update and adapt the training module to reflect region-specific and state-specific issues and concerns, as well as incorporate new policy and legal considerations as they arise.

### **Discussion Questions**

After the presentation, the training facilitator can lead the participants in a discussion to further explore the training content. Potential discussion questions are provided below.

1. What are the major causes of water quality impairment in your EPA region/state? What are the typical sources associated with them?
2. What are the typical TMDL technical approaches used for these impairments used in your EPA region/state? If so, how are point sources typically represented? (both traditional point sources and regulated stormwater)
3. For impairments that do not have applicable numeric criteria (e.g., nutrients, biological impairments), how are TMDL water quality targets typically determined and expressed? How do these affect the expression of WLAs?

4. How does your EPA region/state address future point sources in TMDLs? Does that approach need to be revised?
5. What process (if any) does your EPA region/state have for reopening a TMDL in the event of a new point source or new information on a source's impact? If there is no process, does one need to be developed?
6. What is your EPA region/state's process when new information is uncovered during the NPDES permitting process which changes the assumptions that underlay the WLA calculations? If there is no process, does one need to be developed?
7. Does your EPA region/state have a template for the type, amount and level of detail of information needed to satisfy Reasonable Assurance requirements? If not, should one be developed?

### Associated Resources

For further information on the TMDL development process, participants can review the following resources:

USEPA (U.S. Environmental Protection Agency). 1991. *Guidance for Water-Quality-based Decisions: The TMDL Process*. EPA 440/4-91-001. U.S. Environmental Protection Agency, Office of Water, Washington, DC. [www.epa.gov/OWOW/tmdl/decisions/](http://www.epa.gov/OWOW/tmdl/decisions/).

USEPA (U.S. Environmental Protection Agency). 2002. *Guidelines for Reviewing TMDLs Under Existing Regulations Issued in 1992*: [www.epa.gov/owow/tmdl/guidance/final52002.html](http://www.epa.gov/owow/tmdl/guidance/final52002.html)

USEPA (U.S. Environmental Protection Agency). 2005. *TMDL Model Evaluation and Research Needs*. EPA/600/R-05/149. U.S. Environmental Protection Agency, Office of Research and Development, National Risk Management Research Laboratory, Cincinnati, OH. [www.epa.gov/nrmrl/pubs/600r05149/600r05149.htm](http://www.epa.gov/nrmrl/pubs/600r05149/600r05149.htm).

Grumbles, B.H. 2006. *Establishing TMDL "Daily" Loads in Light of the Decision by the U.S. Court of Appeals for the D.C. Circuit in Friends of the Earth, Inc. v EPA, et al., No. 05-5015, (April 25, 2006) and Implications for NPDES Permits*. Memorandum from Benjamin H. Grumbles, Assistant Administrator. U.S. Environmental Protection Agency, Office of Water, Washington, DC. [www.epa.gov/owow/tmdl/dailyloadsguidance.html](http://www.epa.gov/owow/tmdl/dailyloadsguidance.html).

USEPA (U.S. Environmental Protection Agency). 2007. *An Approach for Using Load Duration Curves in the Development of TMDLs*. EPA 841-B-07-006. U.S. Environmental Protection Agency, Office of Water, Office of Wetlands, Oceans, and Watersheds, Washington, DC. [www.epa.gov/OWOW/tmdl/duration\\_curve\\_guide\\_aug2007.pdf](http://www.epa.gov/OWOW/tmdl/duration_curve_guide_aug2007.pdf).

USEPA (U.S. Environmental Protection Agency). 2007. *Options for the Expression of Daily Loads in TMDLs (Draft)*. U.S. Environmental Protection Agency, Office of Wetlands, Oceans and Watersheds, Washington, DC. [www.epa.gov/owow/tmdl/draft\\_daily\\_loads\\_tech.pdf](http://www.epa.gov/owow/tmdl/draft_daily_loads_tech.pdf).

USEPA (U.S. Environmental Protection Agency). 2007. *Water Quality Trading Toolkit for NPDES Permit Writers*. U.S. Environmental Protection Agency, Office of Wastewater Management, Washington, DC. <http://water.epa.gov/type/watersheds/trading/WQTToolkit.cfm>

Center for Watershed Protection's website on the Simple Method: [www.stormwatercenter.net](http://www.stormwatercenter.net). Click By Category. Information on the Simple Method is included in the Impacts of Urbanization category.