

An hourglass-shaped graphic with a globe of the Earth inside. The top bulb is dark blue, and the bottom bulb is light blue. The hourglass is centered on the page.

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*Clean Water Act and Total Maximum Daily Loads (TMDLs)
of Pollutants*

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Abstract. Section 303(d) of the Clean Water Act requires states to identify waters that are impaired by pollution, even after application of pollution controls. For those waters, states must establish a total maximum daily load (TMDL) of pollutants to ensure that water quality standards can be attained. Implementation was dormant until states and EPA were prodded by lawsuits. The TMDL program has become controversial, in part because of requirements and costs now facing states to implement this 35-year-old provision of the law, as well as industries, cities, farmers, and others who may be required to use new pollution controls to meet TMDL requirements. In July 2000, EPA issued revisions to strengthen the program. The rule was widely criticized, and congressional interest was high. The 2000 rule did not go into effect, and in March 2003, EPA withdrew the rule to consider whether to issue an entirely new rule or other options; no timetable has been announced. Consequently, the program continues to operate under regulations issued in 1992. Congress has several options to address TMDL issues, which remain contentious, but whether it will do so in the 111th Congress is unknown for now.

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CRS Report for Congress

Clean Water Act and Total Maximum Daily Loads (TMDLs) of Pollutants

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Summary

Section 303(d) of the Clean Water Act requires states to identify waters that are impaired by pollution, even after application of pollution controls. For those waters, states must establish a total maximum daily load (TMDL) of pollutants to ensure that water quality standards can be attained. Implementation was dormant until states and EPA were prodded by lawsuits. The TMDL program has become controversial, in part because of requirements and costs now facing states to implement this 35-year-old provision of the law, as well as industries, cities, farmers, and others who may be required to use new pollution controls to meet TMDL requirements. In July 2000, EPA issued revisions to strengthen the program. The rule was widely criticized, and congressional interest was high. The 2000 rule did not go into effect, and in March 2003, EPA withdrew the rule to consider whether to issue an entirely new rule or other options; no timetable has been announced. Consequently, the program continues to operate under regulations issued in 1992. Congress has several options to address TMDL issues, which remain contentious, but whether it will do so in the 111th Congress is unknown for now.

Background

The Clean Water Act (CWA) contains a number of complex elements of overall water quality management. Foremost is the requirement in Section 303 that states establish ambient water quality standards for water bodies, consisting of the designated use or uses of a water body (e.g., recreational, public water supply, or industrial water supply) and the water quality criteria which are necessary to protect the use or uses. Through permitting, states or the Environmental Protection Agency (EPA) impose wastewater discharge limits on individual industrial and municipal facilities to ensure that water quality standards are attained. However, Congress recognized in the act that, in many cases, pollution controls implemented by industry and cities would be insufficient, due to pollutant contributions from other unregulated sources.

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Under Section 303(d) of the act, states must identify lakes, rivers, and streams for which wastewater discharge limits are not stringent enough to achieve established water quality standards, after implementation of technology-based controls by industrial and municipal dischargers. For each water body, states are required to set a total maximum daily load (TMDL) of pollutants at a level that ensures that applicable water quality standards can be attained and maintained. A TMDL is essentially a pollution budget, a quantitative estimate of what it takes to achieve state water quality goals, setting the maximum amount of pollution a water body can receive without violating water quality standards, including a margin of safety. If a state fails to do this, EPA is required to develop a priority list for the state and make its own TMDL determination. A TMDL is both a planning process for attaining water quality standards and a quantitative assessment of problems, pollution sources, and pollutant reductions needed to restore and protect a river, stream, or lake. TMDLs may address all pollution sources, including point sources such as municipal sewage or industrial plant discharges; nonpoint sources, such as runoff from roads, farm fields, and forests; and naturally occurring sources, such as runoff from undisturbed lands.

The TMDL itself does not establish new regulatory controls on sources of pollution. However, when TMDLs are established, municipal and industrial wastewater treatment plants may be required to install new pollution control technology. States and EPA enforce the TMDLs through revisions to existing permits which include the pollutant limits and a schedule for compliance. For waters impaired by nonpoint source runoff, because there are no federal controls over these sources under the Clean Water Act, the primary implementation measures are state-run nonpoint source management programs coupled with state, local, and federal land management programs and authorities and financial assistance programs. For example, farmers and ranchers may be asked to use alternative methods in their operations to prevent fertilizers and pesticides from reaching streams. States may require cities to manage or control runoff from streets.

Implementation

EPA acknowledges that a vigorous TMDL program is needed because significant water quality problems persist in the nation's waters, more than 30 years after enactment of the CWA. TMDLs are one element of state water quality management programs. Other activities include standard setting, monitoring, permitting, and enforcement. Integrating them with the TMDL program is difficult because of factors such as different program purposes and schedules. Most states have lacked the resources to do TMDL analyses, which involve complex assessment in order to ascribe and quantify environmental effects for particular discharge sources. Baseline water quality monitoring data for the analyses (to identify impaired waters and pollution sources) is limited. EPA has both been reluctant to intervene in the states and has also lacked resources to do so itself. Thus, there was little implementation of the provision which was enacted in 1972. Only in 1992 did EPA issue regulations requiring states every two years to list waters that do not attain water quality standards and establish TMDLs to restore water quality.

Responding to the failure of both states and EPA to meet these requirements, however, environmental groups filed lawsuits in 38 states in the last few years. Environmentalists see implementation of Section 303(d) as important both to achieving the overall goals and objectives of the act and pressuring EPA and states to address nonpoint and other sources which are responsible for many water quality impairments

nationwide but have not been controlled up to this point. Of the suits tried or settled, 22 resulted in court orders requiring expeditious TMDL development by states or EPA.

The TMDL litigation falls into five general categories, according to EPA: (1) situations in which a state has failed to perform any Section 303(d) activities; (2) situations in which a state has engaged in some but insufficient activities to implement Section 303(d); (3) challenges to EPA's listing of impaired waters, TMDL approval decisions, or EPA's promulgation of TMDLs; (4) situations in which plaintiffs are using TMDL requirements to achieve other CWA objectives, such as forcing improved water quality monitoring programs; and (5) challenges to the substance or content of TMDLs.¹

Because of the lawsuits and existing requirements of the law, in August 1997, EPA issued interpretive guidance which for the first time called on states to develop long-term schedules for implementing TMDLs. Under that guidance, EPA directed states to establish TMDLs in order to meet water quality standards within 8 to 13 years.² Development of TMDLs is increasing (since 1996, states and EPA have developed more than 34,000), but many more remain to be completed. The most recent state 303(d) lists, submitted in 2004 and 2006, identified over 41,000 waterbodies as not meeting water quality standards, affecting more than 300,000 miles of rivers and shorelines and 5 million acres of lakes.

In August 1999, EPA proposed revisions to the TMDL regulations to clarify and strengthen the program. The key proposed changes included a new requirement for a more comprehensive list of impaired and threatened waterbodies; a new requirement that states, territories and authorized Indian tribes establish and submit schedules for establishing TMDLs; a new requirement that the listing methodologies be more specific, subject to public review, and submitted to EPA; clarification that TMDLs include 10 specific elements; a new requirement for an implementation plan in TMDLs; and new public participation requirements.

EPA's proposal had few strong supporters, for varying reasons. States, which would be directly affected by the proposal, criticized the burdens that new requirements would place on them. They are concerned that they lack the resources to meet tight deadlines for developing and implementing TMDLs. Further, states say that TMDLs should not necessarily be prioritized over and should be integrated with other elements of existing water quality management programs. Industry groups are greatly concerned about impacts of new pollution control requirements. But, municipal and industrial point source groups urge states and EPA to ensure that TMDL requirements do not fall disproportionately on their discharges, while possibly failing to address nonpoint source contributions to impaired waters. Farm groups and others with nonpoint discharges question EPA's authority to include nonpoint source pollution in the TMDL program. The forestry industry vigorously criticized potential impacts of the proposal. Environmentalists, who support the need for a stronger and more comprehensive TMDL

¹ For a summary of TMDL litigation by state, see information on EPA's website: [<http://www.epa.gov/owow/tmdl/lawsuit.html>].

² This is a longer time frame than has been mandated as a result of some of the TMDL litigation. The schedules for TMDLs in lawsuits concluded by consent decrees and settlement agreements range from 4 years to 20 years; most call for a 10-year development schedule.

program, objected to the lengthy time periods in the proposal before water quality improvements are likely to occur. They have criticized the lack of aggressive implementation of a program that has existed in the law since 1972.

Congressional interest was high: by the time the final rule was signed in July 2000, 13 congressional hearings had been held, and a number of legislative proposals to modify the Clean Water Act or delay the rule had been introduced.³ EPA attempted to respond to the criticism with flexibility on some of the most contentious points. While the revised rule was undergoing final review, Congress adopted a provision in the FY2001 Military Construction/FY2000 Urgent Supplemental Appropriations Bill, stating that no funds may be used in FY2000 or FY2001 to “make a final determination on or implement any new rule relative to” the August 1999 proposal. Because President Clinton intended to sign the bill into law but opposed the TMDL provision, the Administration accelerated its review, allowing the EPA Administrator to sign it before President Clinton signed the appropriations bill on July 13 (P.L. 106-246). In the final rule, EPA acknowledged Congress’s action in the legislation and delayed the effective date of the rule’s changes until October 31, 2001. The text of the final rule was published on July 13, 2000.⁴

The final rule built on the existing regulatory program and added details, specific requirements, and deadlines requiring states to implement plans to clean up polluted waters. It retained key elements of the 1999 proposal for more comprehensive identification of impaired waters, schedules and minimum elements for TMDLs, and new public participation requirements. For some interested parties, what was most of interest was what was not included in the final rule. EPA dropped several provisions that were most controversial, including some potentially affecting agriculture and forestry. (See CRS Report RL30611, *EPA’s TMDL Program: Highlights of the Final Revised Rule*.) The Bush Administration announced in October 2001 that it would delay the effective date of the rule until May 2003, to allow for further review.

In March 2003, EPA withdrew the 2000 rule in order to consider initiating an entirely new rule or other options. Officials said that additional time was needed to decide whether and how to revise the program and that allowing the rule to take effect in May 2003 would disrupt the ongoing review. No further timetable was announced. As a result, current program requirements under the 1992 regulations and court-sanctioned TMDL schedules remain in place. One EPA view, widely reported, was that a new rule is not essential, because states are improving and will continue to improve the pace at which TMDLs are established, even under existing rules. Many environmentalists say that, short of retaining the 2000 rule, the best action would be to leave the 1992 rules in place, because, although flawed, those rules are preferable to a new rule that might weaken the program. Other stakeholders have urged EPA to adopt different strategies. States and many industries favor a new rule with greater implementation and enforcement

³ During the 106th Congress, hearings were held by the House Agriculture Committee; House Transportation and Infrastructure Committee; Senate Agriculture, Nutrition and Forestry Committee; and Senate Environment and Public Works Committee.

⁴ U.S. Environmental Protection Agency, “Revisions to the Water Quality Planning and Management Regulation and Revisions to the National Pollutant Discharge Elimination System Program in Support of Revisions to the Water Quality Planning and Management Regulation; Final Rules,” 65 *Federal Register* No. 135, July 13, 2000, pp. 43586-43670.

flexibility than either the 2000 rule or existing regulations. In mid-2002, EPA developed a draft revised rule which it informally circulated among interest groups and federal agencies for many months, but EPA has not proposed a new rule or indicated what future actions might be taken.

Issues for Congress

A number of issues and options for Congress are apparent.

- **Do nothing at this time.** EPA had hoped that its regulatory proposals would achieve improvements to the TMDL program and not require legislative changes to the Clean Water Act, since the outcome of the legislative process is uncertain. Since withdrawal of the 2000 rule in 2003, stakeholders have been awaiting future EPA decisions.
- **Strengthen the current program.** Environmentalists have long sought to strengthen the program, and some favor amending the act to: impose clear deadlines on states and EPA to carry out Section 303(d), as there are no deadlines in current law; make clear that EPA has a non-discretionary duty to act if a state fails to do so and define what EPA actions would follow; and ensure that states periodically update lists of impaired waters, so that implementation evolves as water quality conditions change.
- **Provide flexibility or limit the program.** The need for flexibility to develop and implement TMDLs is a key issue for states and industry. Many favor policies that would not commit them to specific timeframes for establishing and implementing TMDLs, but instead call for schedules to reflect the availability of sound science and resources. Water quality data are so limited, particularly concerning nonpoint sources, that many fear that TMDL decisions will be based on unsound information and will impose unneeded or inappropriate control mandates. The Government Accountability Office reported in 2000 that inconsistent monitoring, data collection, and listing procedures used by states to identify impaired waters have hindered efforts to develop effective TMDL programs (*Water Quality: Key EPA and State Decisions Limited by Inconsistent and Incomplete Data*, GAO-00-54).
- **Clarify the program's impact on nonpoint sources.** Nonpoint sources (both urban and rural) cause or contribute to water quality impairments throughout the United States. Section 303(d) currently does not specify whether TMDLs should cover nonpoint sources, but EPA's long-standing interpretation is that nonpoint sources of polluted runoff should be included, along with point sources. EPA's interpretation was upheld in a key court case (*Pronsolino v. Marcus*, 91 F.Supp.2d 1337 (N.D.Cal 2000) *aff'd*, *Pronsolino v. Nastri*, 291 F.3d 1123 (CA9 2002)). To limit TMDL implementation only to point sources would likely impose disproportionate requirements on cities and industries, which have been the traditional focus of the CWA's regulatory requirements. The 2000 rule explicitly included nonpoint source-impaired waters in the program.

Farming and forestry groups contend that other non-regulatory CWA programs are directed at nonpoint source pollution, and they were concerned that EPA intended to regulate their activities through permits. They favor excluding nonpoint sources from TMDLs, so that they do not bear the costs of implementation and pollution controls. EPA acknowledges that it lacks regulatory authority over nonpoint sources and only can influence their activities through use of grants and funding.

- **Consider the resource question.** Both EPA and states face significant financial and technical challenges, and costs of the TMDL program have been particularly controversial. The agency projected that the incremental cost of the 2000 rule to states would be about \$23 million per year, but states argued that costs would be higher. States use a portion of CWA grant funds (Section 106) for TMDL development, along with numerous other water quality management activities, including standard setting, permitting, and enforcement. Since FY2001, appropriations for these grants have averaged \$196 million per year.
- **Further study and analysis.** EPA's FY2001 appropriation bill, P.L. 106-377, required studies by the National Academy of Sciences (NAS) and EPA on the scientific basis of the program and on the costs to states and businesses of implementing the TMDL rules. The NAS report, issued in June 2001, concluded that scientific knowledge exists to move forward with the program but recommended certain types of changes, such as utilizing iterative, adaptive implementation and revision, as scientific data and information improve. EPA's review of the 2000 rule since 2001 was at least partly to consider how to respond to those recommendations. EPA issued a draft report on program costs (including the 2000 rule) in August 2001, estimating that average annual costs to states and EPA of developing TMDLs could be \$63-\$69 million, while implementation costs for pollutant sources could be between \$900 million and \$4.3 billion per year, depending on states' actions.

Finally, the attention to the TMDL program raises challenging questions about the quality of the nation's waters. After 35-plus years of implementing the CWA, EPA and states acknowledge that a substantial portion of the nation's waters still are impaired or threatened by pollution. The most recent national inventory of water quality reported that nearly 40% of surveyed water bodies remain too polluted for fishing, swimming, and other designated uses.⁵ Yet those numbers only represent rivers, streams, and lakes actually surveyed by state monitoring programs — typically about one-third of all waters. The TMDL assessments developed by states yield more precise water quality information and identify large numbers of waters requiring additional measures before water quality standards are attained. How the Obama Administration will address these issues is unknown for now. Additional congressional oversight of these issues is likely.

⁵U.S. Environmental Protection Agency, Office of Water, *The National Water Quality Inventory: Report to Congress, 2002 Reporting Cycle*, Washington, October 2007, EPA-841-R-07-001. Report is available at [<http://www.epa.gov/305b/2002report/>].