

# **WATER QUALITY PROTECTION MEASURES IN THE US FOREST SERVICE**

## **Implications of the New Requirements for TMDL**

### **Introduction**

The Environmental Protection Agency (EPA) will soon publish two final rules that revise the current regulatory requirements for identifying impaired waters and establishing Total Maximum Daily Loads (TMDL) under the Clean Water Act (Section 303d): revisions to Water Quality Planning and Management Regulation (64 FR 46012); and revisions to the National Pollutant Discharge Elimination System (NPDES) Program and Federal Anti-degradation Policy (64 FR 46058) in support of the revisions at (64 FR 46012). According to the EPA, listing impaired and threatened waters and establishing TMDLs are fundamental tools for identifying remaining sources of water pollution and achieving water quality goals. The revised regulations will be issued this summer.

EPA's draft rules have been controversial for a number of reasons. State and Federal Land managing agencies, including the US Forest Service, are concerned that the proposed regulation seeks to regulate non-point source pollution, which is currently addressed in section 319 of the Clean Water Act, in the same manner as point source pollution under section 303d of the CWA and section 402 of the NPDES. Agricultural interests would also be significantly affected by the proposed regulatory changes. There are several issues that flow from the changes proposed in the draft regulations. USDA has commented on the draft regulations in considerable detail and has worked with EPA to resolve their concerns. The collaboration between agencies will be reflected in the final rule. The key areas of agreement and their implications are explored later in the document.

### **Background**

The Environmental Protection Agency is charged with the responsibility for maintaining and restoring the health of the Nation's environment, including its waterways. The Clean Water Act of

1972 is the primary instrument used by the EPA in carrying out this part of its mission. Since passage of the Act, EPA has expended the majority of its effort in controlling “point source pollution”. These efforts are widely acknowledged to have significantly improved water quality in the United States.

Comparatively speaking, “nonpoint source” pollution has been subject to relatively little regulatory attention by the states and EPA. Control of nonpoint source pollution depends on the use of Best Management Practices, as well as a number of other voluntary incentive programs. Nonpoint source pollution is aptly named in that determination of the source of a particular type of pollution, e.g., sedimentation is highly problematical. Sediment in a watershed is typically derived from a number of both natural and man made sources. The type and amount of sediment will also fluctuate depending on short-term climatic changes. Nevertheless, the “Sources of Impairment” 1998 303(d) list clearly shows why EPA feels it is now necessary to move to a more regulatory approach for non point source pollution (Figure One). Only 10% of the impaired watersheds in the United States are in this category because of point source pollution alone. An estimated 43% of the nation’s waterways are impaired by non point source pollution only, with the remaining 47% impaired from a combination of both point source and non point source pollution. Sedimentation leads the list of the top 15 impairments followed closely by nutrients and pathogens (Figure Two). This picture loses some of its coherency, however, when you look at the national map of Impaired Waters (Figure Three). States with very similar land use patterns and environment paint a very different picture of the impairment level of their waters. For example, the State of Washington shows little impairment of their watersheds while neighboring Oregon reports a high level of impairment for their watersheds. States are required to disclose the data, modeling and assumptions used in developing their list of impaired waters. The ranking depends on the best available information, and the quality and reliability will tend to vary from state to state.

In formulating its draft rule, EPA clearly states that their agency and the states have the authority to identify which U.S. waterways are polluted by runoff from urban areas, agriculture and timber

harvesting (non-point sources of pollution) and to identify and regulate the maximum amount of such pollutants that may enter a waterway using TMDL. This issue was recently litigated in California where the court ruled in favor of EPA. The court decision was issued on March 30, 2000.

Briefly stated, the court decision is as follows:

“In summary, the Clean Water Act called for a comprehensive set of water quality standards for every navigable river and water in America. For every substandard navigable river or water, Congress sought a determination whether the central innovation of the 1972 Act—technology-driven limits on effluent—would be sufficient to achieve compliance. If not, the river or water was required to go on a list of unfinished business and a TMDL calculation was required. The TMDL was to quantify the load improvements necessary to meet standards. If EPA disagreed with the state’s list or any TMDL as inconsistent with the purposes of the Act, then EPA was required to revise the list or the TMDL. No substandard river or water was immune by reason of its sources or pollution. The process was made just as mandatory for wild but ruined rivers as it was for urban-blighted rivers.

Once the TMDLs were prepared, they were intended to be applied to point and nonpoint sources differently. As to point sources, the TMDLs were to be taken into account in further restricting effluent, under NPDES permits, as authorized by Section 301(b) (1) (C). As to nonpoint sources of pollution, the TMDLs were to be incorporated into the continuing planning process of the states. This conferred a large degree of discretion on the states in how, and to what extent, to implement the TMDLs for nonpoint sources. A state could even refuse to implement a TMDL, eschewing best management practices if it wished, although to do so might provoke EPA to curtail or to deny grant money to the state. But as

to whether TMDLs were authorized in the first place for all substandard rivers and waters, there is no doubt. They plainly were and remain so today-without regard to the sources of pollution.” (Prosolino ruling-US District Court for the Northern District of California-March 30, 2000)

### **Overview of TMDL Requirements in the Draft Regulation**

Under the TMDL program, the states provide a listing of impaired watersheds to EPA and sets priorities for implementation of TMDL programs for their waterways.

A TMDL is a calculation of the maximum amount of a pollutant that a body of water can receive and still meet water quality standards, and an allocation of that amount to the pollutant’s sources. A TMDL is calculated for pollutants determined by the Administrator of EPA as suitable for such calculation (Federal Pollution Control Act as amended by the Clean Water Act, 1987). States, Tribes, territories and EPA have the responsibility to identify and set priorities for impaired watersheds. The TMDL is the sum of the Waste Load Allocation (WLA) for point sources, plus Load Allocation (LA) for non point sources, plus a load to allow a Margin of Safety (MOS) for a pollutant. The load allocation for non-point sources includes natural background levels and the margin of safety accounts for uncertainty. Operations in a watershed regulated by a TMDL that are determined to not be contributors to pollution, would be exempt from the permitting process. EPA has stated that they only expect to require permits from operators with a history of noncompliance. The draft regulation also proposed a system of “offsets” for polluted waterways.

### **Initial Concerns**

The publication of the draft regulations elicited strong reactions from states, other federal agencies and Congress. Many States believe that they have generally been successful in regulating forestry activities through Section 319 programs (National Association of State Foresters-Testimony submitted for the record, February 23, 2000). Three states, California, Washington and Oregon, have gone beyond voluntary compliance programs and have enacted state forest management practices regulations. From EPA’s perspective a key element of the

proposed changes is a process for defining needed control measures and assuring that the measures are implemented. In other words, moving from a “voluntary compliance process” to a “regulatory process”. Current state programs that have been proven to be effective are still acceptable under the proposed revisions. States will have the option of using TMDL to control pollution for silvicultural activities only where: the operation includes a “discharge” of storm water from a discrete conveyance and the state permit authority determines that the operation is a “significant contributor” of pollutants or is contributing to a violation of the water quality standard. The states and federal land managing agencies have expressed concerns that the cost analysis for implementation submitted with the draft regulations seriously underestimated the costs for implementation for these changes. The State Foresters see the proposed permitting process as a disincentive for landowners. EPA asserts that the permits will only be required for “bad actors”.

On May 1, 2000 USDA and EPA published a joint statement addressing the agricultural and silvicultural issues raised in the draft regulation. This statement was the result of negotiations between the two agencies over the winter of 1999-2000. The joint statement was also submitted as part of EPA’s testimony in front of the Senate subcommittee on May 6, 2000. The joint statement and EPA’s testimony outline four areas of agreement between the two agencies that will result in changes to the final regulations.

*1. State and Local Governments lead TMDL development*

The Clean Water Act assigns the states a primary role in reducing pollution within their jurisdictions. Changes to the draft regulation reinforce the states position and recognizes the role of local citizens in designing solutions to water quality problems. These changes include:

- Eliminate the requirement that States give top priority to development of TMDLs for certain types of impaired waters;
- Eliminate the requirement for identification of “threatened” waters. Only watersheds that are actually “impaired” will be listed by the States;

- Lengthen the time period for States to develop periodic lists of impaired waters from two years to four years;
- Grant states up to 15 years to develop TMDLs and compliance plans for their impaired waters;
- Do not impose a deadline for attainment of water quality goals; and
- Drop the proposal to require new discharges to polluted waters to obtain “offsets” for new pollution.

### *2. Reducing Agricultural impacts on water quality*

Although the two major forms of agricultural runoff, return flows from irrigation, and agricultural stormwater discharges, are exempt from NPDES permit requirements and treatment as point sources, the USDA and agricultural interests were concerned that the draft regulations signaled a move away from the traditional definition of nonpoint source pollution and strategies for reducing pollution through voluntary compliance and use of Best Management Practices (BMP). The two agencies agree that voluntary programs are preferable and that the water quality improvements made by farmers through Federal conservation programs, or on their own initiative, will be given due credit in TMDL development. EPA proposes that States have the flexibility to allocate pollution load reductions between point and nonpoint sources as they consider appropriate and are not required to allocate pollution reductions to specific categories, such as agriculture, proportionate to their contribution to impairment.

### *3. Controlling water quality impacts of silvicultural operations*

USDA was also concerned about EPA’s proposal to allow States, and in some cases EPA to issue NPDES permits when needed to correct water pollution problems arising from forestry operations. “Forestry operations” in this context means timber harvest activities, associated road construction, site preparation and replanting. The main concern is with even-age management

practices, however, unevenage management requiring extensive road and skidding networks would also be included in this category.

EPA has agreed to a modified approach that grants States flexibility in designing their TMDL program. Further, given that existing federal law requires forestry operations on National Forest System lands to be conducted consistent with water quality requirements, operations on public lands will be exempt from NPDES authority. This approach guarantees that no NPDES permits will be required for private land forestry operations for five years. During that time EPA will work with USDA and the public to develop guidance for States in developing BMP programs for the protection of water quality. States that develop acceptable BMP programs will not be required to issue NPDES permits for forestry operations. States will be further encouraged to grant operators that implement BMP requirements in good faith an exemption from any directly enforceable State water quality standards. Only if a State fails to develop an acceptable BMP program after five years, will the State or the EPA have the discretion to require NPDES permits in some limited cases. In any case, a NPDES permit would require implementation of BMPs, as opposed to the implementation of numerical effluent goals. Operations that are not required to get a NPDES permit will not be subject to citizen or government enforcement action under the Clean Water Act.

*4. States have identified a need for increased funding to support more complete assessment of the condition of waters and the development of TMDLs for polluted waters. EPA has developed estimates of the overall cost of the TMDL program that will be available when the final rule is published. The President's FY 2001 budget increases funding for State implementation of TMDL program by \$45 million as well as other increases for water quality related funding.*

### **Current Forest Service Policy**

On August 3, 1999 the Forest Service issued a document entitled "Policy and Framework for Developing and Implementing Total Maximum Daily Loads (TMDL) in forest and Range land

Environments. This guidance was issued in partial fulfillment of the Clean Water Action Plan and was coordinated with EPA and with the Bureau of Land Management (BLM). The policy directs the field to work cooperatively with state and federal agencies and other local landowners to develop TMDL load allocations. It explains the difficulty inherent in establishing TMDLs for nonpoint source pollutants and the importance of using best management practices and developing monitoring protocols.

Although the August 3, 1999 letter predates the agreements made between EPA and USDA in their joint statement, the guidance it contains is grounded in existing law and policy. As such, it provides a useful framework for a discussion of the imminent implementation policy issues posed by this new generation of water quality regulation.

The policy framework issued to the field contains three components: regulation and guidance, scientific and technical, and adaptive management.

### **Regulation and Guidance**

The states and tribes have the primary responsibility for developing and maintaining the list of impaired waters, establishing TMDLs, and compliance plans for those waters. EPA reviews these documents for technical adequacy and to ensure that they provide for “reasonable assurance” of implementation. The role of the Forest Service in this process is to participate along with other landowners in developing the TMDLs and implementation plans, “...*within the limits of its available funding, personnel and authorities*” (emphasis added). Further, the Forest Service has the expertise to assist private landowners and the State in the development and validation of Best Management Practices for forestry operations. Under existing guidance, many forests have been using some form of watershed assessment as an intermediate tool in project development. Forests are also required to maintain a database for impaired segments, the Watershed Improvement Needs Inventory, which should also contain some preliminary indication of the cause of the impairment. Forests have also been monitoring BMP implementation with a qualitative assessment of effectiveness. These monitoring efforts are reported to the regions and

the Washington office on an annual basis. Realistically, the comprehensiveness of these efforts is entirely dependent on annual appropriations and, to some degree, the management emphasis on individual forests. Nevertheless, the Forest Service does have the opportunity to assume a leadership role in the reduction of non-point source pollution because of its expertise and experience in watershed planning and, in fact, it is in our organizational best interest to assume that role.

### **Scientific and Technical**

If the strength of the TMDL process is its emphasis on watershed-level planning with stakeholder involvement, its well-known weaknesses center on the overall lack of scientifically reliable models for assessing nonpoint source pollution. The overall concept of a TMDL is to assign a “load allocation” to those who are contributing to the problem. The most common water quality variables of concern for forests and rangelands are sediment, temperature, and nutrients. As pointed out in the August 3, 1999 letter and in numerous other nonagency assessments of TMDL, published scientific studies and professional experience have shown that assignment of “load allocations” will be difficult to do in a scientifically credible way. It is also difficult to establish the linkage between application of a BMP, or a suite of BMPs, and a measurable reduction in impairment in a short period of time.

These are not new issues. Management direction to the field has been to use relative risk assessment models to assess and disclose cumulative watershed effects and to apply BMPs and other special protection measures as warranted and necessary to comply with the Clean Water Act and the disclosure requirements in NEPA. This direction is continued and amplified in the August 3, 1999 letter.

Time will tell whether this will be a technically and legally sufficient approach for project planning. One particular concern here is project planning in a listed impaired watershed prior to development of the implementation plan. If the goal is “no further impairment” then it could be

argued that no activities should take place until the implementation plan is developed for that watershed. This has already happened on the Lolo National Forest in Montana. In essence, the poorly demonstrated linkage between BMPs, and reductions in nonpoint source pollution is a significant point of legal vulnerability for EPA, the states, and land management agencies.

### **Adaptive Management**

The framework states that we will use the results from implementation, effectiveness, and validation monitoring to work cooperatively with the states and EPA to improve Best Management Practices and water quality standards. This will include long-term trend monitoring that will distinguish between natural/background sources, past land management sources, and effects from current land use practices. Such monitoring will require a long-term financial commitment on the part of the agency.

Inventory and monitoring is currently funded out of annual appropriations. Most forests are hard pressed to keep up with implementation and effectiveness monitoring. Validation monitoring is rarely done at the regional or forest level due to lack of resources. Validation monitoring is essentially research. It generally requires funding and expertise well beyond an individual unit's capacity.

### **Recommendations**

National Forests and grasslands are one of the primary providers of clean water for the United States. As such we have an opportunity to assume a leadership role in cooperation with the states and EPA to address non-point source pollution. It is in our best interest to join with these entities to design TMDL programs that improve water quality, are scientifically well-designed and defensible, and which can provide reasonable assurances of long-term implementation and monitoring, as the law requires. To do so the agency should consider the following:

1. A focused research effort that establishes the linkage between best management practices and reductions in non-point source pollution. This research should be jointly funded by EPA and USDA agencies.
  
2. Cooperative watershed management responsibilities are currently shared among State and Private Forestry and National Forest Systems. The current programs should be reviewed to ensure that the agency is covering its bases and that there is no duplication of roles and responsibilities. The guidance provided in the August 3, 1999 letter is very good but should be clarified so that each level of the organization understands its responsibilities in the TMDL process.
  
3. The interval between identification of impaired waters and the TMDL action plan is troublesome. The TMDL policy and framework provides some suggested language for use in NEPA documents. The language relies on Dissmeyer (1994) and other research, but may not withstand a serious challenge. USDA should seek a joint agreement with EPA on interim management for impaired watersheds.
  
4. "Reasonable assurance" for long-term monitoring is difficult under an annual appropriations budget, especially when looking at monitoring over a twenty-year time span. Long-term monitoring commitments are necessary however, to demonstrate scientifically valid reductions in non-point source pollution. The obvious model for providing long-term funding for a resource is found in the Knutsen-Vandenberg Act. Although "trust fund" arrangements have fallen into disfavor in recent years, the fact remains that long-term resource commitments require long-term reliable funding. The states have taken EPA to task for not recognizing the significant funding impacts of TMDL implementation and EPA has promised to provide additional funds. The agency needs to evaluate how it will fund the long-term commitment implicit in water quality monitoring as it is outlined in the August 3, 1999 policy framework for TMDL.

## References

Alsup, William

2000 Order on a Cross-Motion for Summary Judgment regarding authority of the Environmental Protection Agency under the Clean Water Act to list substandard rivers and waters and to issue TMDLs for them. United States District Court for the Northern District of California No. C 99-0828 WHA.

Banzhaf, William H.

2000 SAF Comments on EPA's Proposed Rules for TMDL and NPDES Programs. Letter to EPA dated January 11, 2000. Available at [www.safnet.org](http://www.safnet.org).

Boyd, James

2000 The New Face of the Clean Water Act: a critical review of the EPA's Proposed TMDL Rules. Discussion paper 00-12, Resources for the Future. Available at [www.rff.org](http://www.rff.org).

2000 Unleashing the Clean Water Act: the Promise and Challenge of the TMDL Approach to Water Quality. Resources (139) Spring 2000. Available at [www.rff.org](http://www.rff.org).

Brown, Amie

2000 EPA's Proposed Water Quality Rules Could Affect Silvicultural Activities. Analytical paper for the Society for American Foresters. Available at [www.safnet.org](http://www.safnet.org).

Environmental Protection Agency

1999 40 CFR Part 130. Proposed Revisions to the Water Quality Planning and Management Regulation; proposed rule. Federal Register Notice: Monday, August 23, 1999.

2000 Testimony of Carol Browner, Administrator. Before the Committee on Agriculture, Nutrition, and Forestry, United States Senate, February 23, 2000. Available at [www.epa.gov](http://www.epa.gov).

2000 Joint Statement of the Department of Agriculture and the Environmental Protection Agency Addressing Agricultural and Silvicultural Issues within EPA Revisions to TMDL and NPDES Rules, May 1, 2000. Available at [www.epa.gov](http://www.epa.gov).

2000 Testimony of J. Charles Fox, Assistant Administrator for Water. Before the Committee on Environment and Public Works, United States Senate, May 6, 2000. Available at [www.epa.gov](http://www.epa.gov).

2000 Letter to the Honorable Robert Smith, Chairman, Committee on Environment and Public Works, United States Senate, withdrawing the silvicultural portion of the proposed TMDL rule for further public comment, June 8, 2000. Available at [www.epa.gov](http://www.epa.gov).

Helperin, Alex N.

2000 Overview of the Clean Water Act's Total Maximum Daily Load ("TMDL") Provision. Outline of presentation at California Watersheds 2000: the TMDL Challenge. April 3, 2000, Sacramento, CA.

National Association of State Foresters

2000 Testimony submitted for the record by the National Association of State Foresters. Before the Senate Agriculture Committee, oversight hearing on EPA's Proposed Water Quality Regulations, February 23, 2000.

Salisbury, Dennis L.

2000 Stemple Creek Total Maximum Daily Load and Attainment Strategy. Paper presented at California Watersheds 2000: the TMDL Challenge. April 3, 2000, Sacramento, CA.

United States Department of Agriculture

1999 Letter to Carol M. Browner, Administrator, with commented on the Proposed Revisions to the Water Quality Planning and Management Regulations, October 22, 1999.

United States Department of Agriculture-Forest Service

1999 Policy and Framework for Developing and Implementing Total Maximum Daily Loads (TMDL) in Forest and Rangeland Environments. Letter to Regions dated August 3, 1999.

United States General Accounting Office

1999 Water Quality: Federal Role in Addressing—and Contributing to—Non point Source pollution. GAO/RCED-99-45 Report to the Chairman, Subcommittee on Water Resources and Environment, Committee on Transportation and Infrastructure, House of Representatives.

United States Senate

2000 S.2417 a bill to amend the Federal Water Pollution Control Act to increase funding for state nonpoint source pollution control programs, and for other purposes. Introduced April 13, 2000. Available at <http://thomas.loc.gov>.

Whitlock, Wayne M.

2000 Clean Water Act TMDLs in California: Reconciling Federal TMDL Requirements with California's own water quality protection program. Updated paper originally published in California Environmental Law Reporter, August 1999.

