Recommendations for Increasing the Effectiveness of Georgia's Total Maximum Daily Load (TMDL) Water Quality Program

A Report of the Georgia TMDL TAG
June 2007

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About the TMDL Technical Advisory Groups (TAGs)

The TMDL Technical Advisory Groups (TAGs) were initiated in 2000 by The Georgia Conservancy (TGC) and the University of Georgia River Basin Center (RBC) to stimulate an ongoing dialogue for using Georgia's TMDL program to restore the state's impaired waters. Diverse stakeholders including representatives of federal and state agencies, academic institutions, nongovernmental organizations and local and regional government entities participate in the TAGs, and have produced two previous white papers: "A Protocol for Establishing Sediment TMDLs" in 2002 and "Scientific Basis for Bacterial TMDLs in Georgia" in 2006.

A. Background on TMDLs in Georgia and the TMDL Implementation Survey

As enacted in 1972, the Clean Water Act requires both effluent-based standards for criteria water pollutants, implemented through the National Pollutant Discharge Elimination System program (NPDES), and the attainment of ambient water quality standards to assure that our surface waters meet the use designations (fishable, drinking water, etc.) assigned to them by the states. Each state must identify and prioritize those water segments not achieving their use designations and determine the maximum amount of a particular pollutant that the segment can accommodate (the total maximum daily load) to meet the standard. Depending on the source of the pollutant, a TMDL allocates that load among point sources (called waste load allocations) and/or non-point sources (called load allocations). Where the state fails to act, the Environmental Protection Agency (EPA) is obligated to do so.

Once a TMDL is approved, the US Environmental Protection Agency (EPA) and the state agency responsible for the NPDES program (in our case the Georgia Environmental Protection Division or EPD) must ensure that the amount of effluent allowed pursuant to the NPDES permits for point sources within that segment are consistent with the waste load allocation. There is no federal permit program covering non-point sources of pollution, however, so control of these sources is dependent on state or local government law or policy or voluntary activities.[4]

In 1996 the Sierra Club and other environmental organizations successfully sued the EPA for its failure to establish TMDLs for Georgia's impaired waters. EPA developed 124 TMDLs between the time the suit was filed and the issuance of a consent decree in October 1997. The consent decree specified that the remaining TMDLs would be established by EPA and the Georgia EPD over the next seven and one-half years. The TMDLs were to be prepared on a rotating basin schedule, with certain basins to be completed each year starting in 1999. The decree specified that all TMDLs were to be completed by 2004.

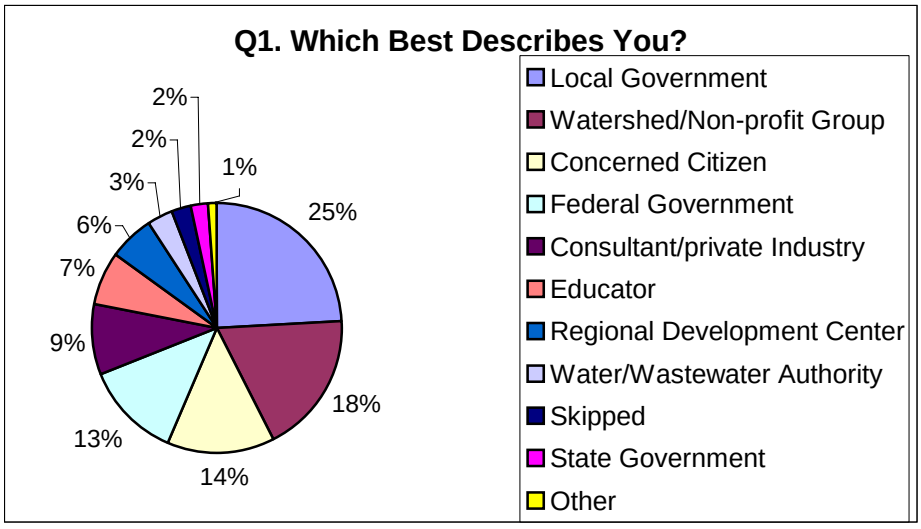
Compliance with the Court Order and subsequent Memorandum of Agreement with EPA precipitated the rapid development of over 1000 TMDLs—and the associated process, staff, procedures, and guidelines—with limited resources. EPD therefore developed an adaptive approach that integrated both the preparation of TMDLs and implementation plans for newly listed segments and the evaluation and revision of existing implementation plans within the rotating basin cycle. EPD has contracted out the development of TMDL implementation plans largely to the Regional Development Centers (RDCs) that provide planning assistance to Georgia's local governments.

Though the early plans were generic and limited to general assessments and compilations of existing and required management practices, continuous improvements

[4] EPA, *Developing Effective Nonpoint Source TMDLs: An Evaluation of the TMDL Development Process*, January 2007. Municipal storm water permits are required of local governments and industries of a certain size; yet these permits do not include specific effluent limits.

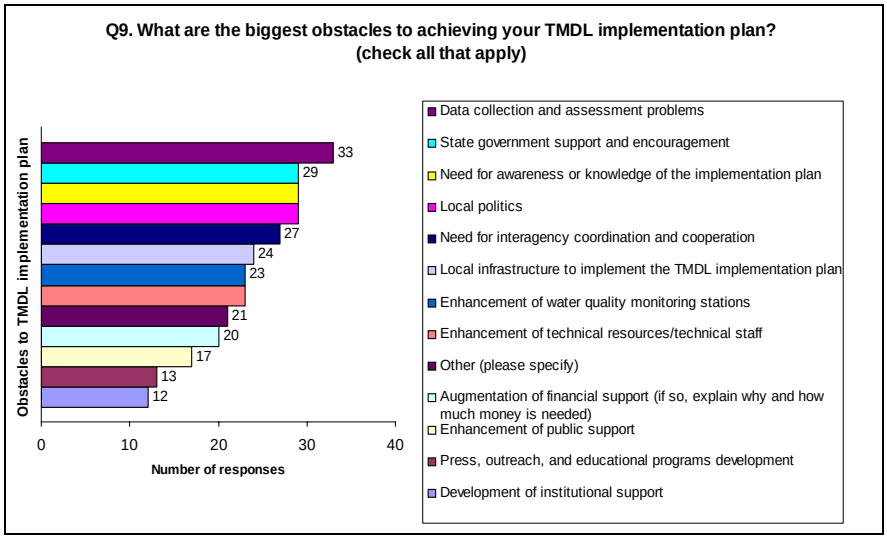
have been made in the process including EPD's development of guidelines regarding stakeholder participation, subsequent outreach, source assessments, and identification of and evaluation of the extent and adequacy of management practices. The agency's goal now is to refine the earlier plans to include the identification of specific local infrastructure improvements and management actions needed to achieve TMDL goals and to specify the responsibilities, commitments, resources (both those needed and currently available), implementation schedule, and monitoring needed to evaluate the management effects on water quality. Despite this progress, and the fact that the state can point to commendable implementation plans and restoration activities, there is widespread agreement that actions are needed to overcome systemic barriers limiting the effectiveness of the TMDL process.

In an effort to initiate movement in this direction, the TMDL TAG developed and sent out a survey to approximately 200 stakeholders who have been involved in Georgia's TMDL process. A total of 85 respondents completed the survey. They represented a variety of sectors including local, state, and federal government, watershed protection groups, consultants, educators, and water and wastewater authorities. The largest number of respondents represented local governments.



Among the barriers identified by survey respondents:

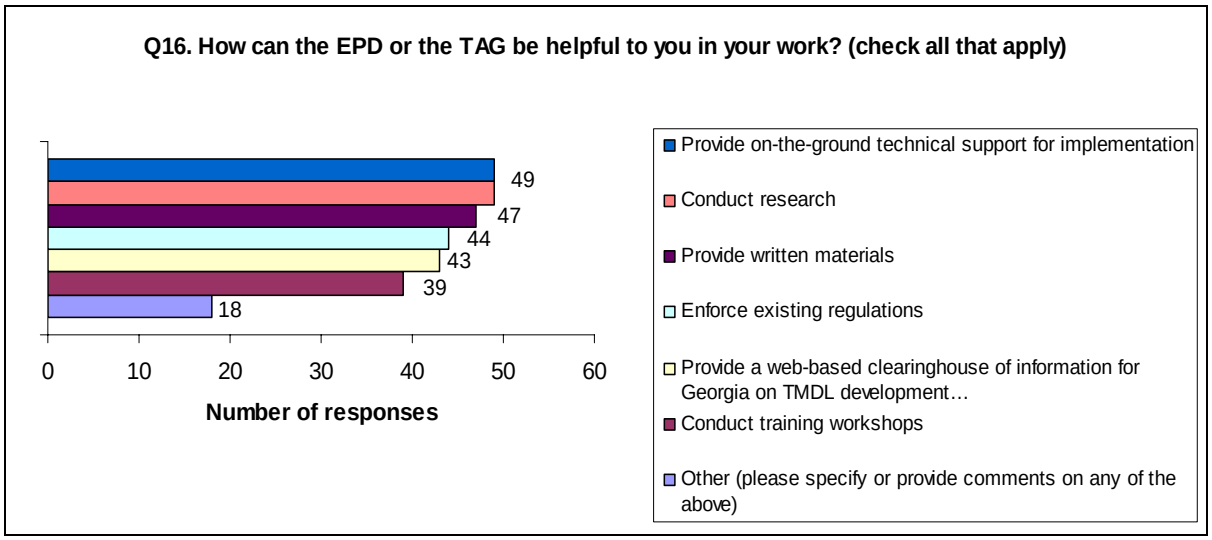
- Lack of clarity regarding what entity/ies is/are responsible for restoring impaired waters and consequences for failing to do so.
- Lack of standardized data collection and monitoring for establishing TMDLs and subsequent evaluation.
- Lack of tools and training required to conduct a quantitative assessment to identify sources of impairment and develop an optimum suite of management practices to achieve targeted load reductions.
- Limited resources to fund activities at all levels of the TMDL process from monitoring to planning to technical assistance to actual restoration itself.
- Current standards for specific constituents such as fecal coliform may be inappropriate or unrealistic and may preclude many segments from achieving water quality standards.



The respondents recommended a suite of measures to improve the TMDL process. The most common requests were for:

- On-the-ground technical support for implementation (49%);
- Additional scientific research regarding both the sources of pollutants as well as the efficacy of suites of management practices to reduce pollution loading (49%);
- Written materials regarding TMDL implementation issues (47%);
- Enforcement of existing regulations (44%);
- Provision of a web-based clearinghouse of information on TMDL development and implementation (43%); and
- Training workshops.

Respondents also spoke of the need for increased inter-agency cooperation and coordination as well as incorporation of a watershed approach in reducing pollutants. They repeatedly said that multi-agency funding commitments will be necessary to implement these recommendations, and suggested that funding of such commitments at the local level would be more likely if the consequences of failing to restore impaired waters are made clear to key stakeholders.



The needs identified by the Georgia respondents surveyed are very similar to those of national respondents polled by EPA pursuant to its January 2007 report, *Developing Effective Nonpoint Source TMDLs: An Evaluation of the TMDL Development Process*. The recommendations stemming from that report are for EPA to help:

1) Improve the availability and quality of data directly related to non-point and storm-water-related sources;
2) Broker other sources of federal funds in support of non-point source and storm-water TMDLs;
3) Determine content gaps in case study information and regional guidance and prioritize delivery of these materials;
4) Engage additional stakeholders in TMDL development and implementation;
5) Encourage development of detailed TMDLs and support development of implementation plans and follow-up monitoring; and
6) Make TMDL information more accessible and readily available to stakeholders.

It is critical to explicitly include EPA in discussions about the Georgia TMDL program as EPA may already be posed to address, through staff assignments or funding, some of the issues identified as most pressing in the state.

After studying the results of the state survey and obtaining additional information, the TMDL TAG developed a list of specific recommendations for the Georgia TMDL program. This list was shared with participants at the TMDL TAG workshop at the March 2007 Georgia Water Resource conference and further refined with their input as follows.

B. Specific Recommendations of the TAG

1. Assessment and Monitoring

A. Create a new Monitoring TAG or focus group to assist EPD in identifying the best approaches to monitoring given the current level of funding. This could coincide with the Metro District's 5-year review of its Watershed Management Plan. Some issues this TAG would consider include:

1) Sample at fewer sites (Metro regulations require a sampling site for a given number of residents), pick sites so that they represent typical watersheds, and use automated sampling combined with United States Geological Survey (USGS) gauge stations for flow.

2) The watersheds encompassed by these sites should become the focus for more extensive modeling and possible bacterial source tracking for fecal coliform listed streams depending on the severity of the TMDL violation (partially supporting vs. not supporting its designated use).

3) Integrate citizen monitoring into the TMDL process to identify sources of pollution, using Alabama's citizen monitoring efforts and training as a model. Facilitate the use of certified UGA labs and wastewater treatment plant labs to process citizens' samples.

B. Assure continued funding of the USGS Gauge stations. Long-term monitoring is used to determine the trends in water quality. This requires good measurement of flow as well as water quality the sampling of large streams and rivers. Due to annual variability in flow and noise in water quality data, only long-term monitoring will be able to detect improvement in water quality. USGS gauge stations are ideal sites for this type of monitoring.

C. For delisting streams, use the same hold time for refrigerated bacteria samples as are used to list streams (i.e. up to 24 hours instead of the current 6 hours).

2. Infrastructure and Coordination

A. Reconvene and expand EPD's TMDL Technical Advisory Committee and charge it with the task of enhancing integration and coordination of TMDL implementation among related organizations.

To achieve the restoration of Georgia's impaired waters, a comprehensive and coordinated effort is imperative. In addition to EPA and EPD in their roles as both regulators and funders, essential players include the US Department of Agriculture and the Natural Resources Conservation Service, the Georgia Forestry Commission, the Georgia Department of Agriculture, the Georgia Department of Community Affairs, the Soil and Water Conservation Commission, the Association of County Commissioners and the Georgia Municipal Association, the University of Georgia, the RDCs, and nongovernmental organizations working on water quality issues. EPD is already working closely with many of these organizations on TMDL implementation issues; however, collaborations between these groups are valuable and should be continued and strengthened. The benefits of collaboration at the state level should then serve as a model for additional local collaboration.

B. Develop procedures, guidelines and funding for TMDL implementation plan revision to support and encourage local infrastructure and management actions needed to achieve water quality goals identified in the TMDL implementation plans. Procedures and guidelines should include provisions regarding responsibilities, commitments, estimates of costs, description of available resources and where additional sources will be generated, a schedule of actions, and description and assurance of future monitoring to evaluate the management effects on water quality. Time and resources provided by EPD for implementation plan development and implementation will need to be increased significantly to enhance the TMDL program in Georgia.

C. Designate the EPD Assistant Branch Chiefs as the primary coordinators for the TMDLs and the TMDL Implementation Plans for listed waters in their basins.

D. Continue to evaluate the status of TMDL implementation plan on the rotating basin cycle and compare with associated changes in water quality. Annually evaluate the extent of compliance and associated changes in water quality for the scheduled basin group, recommend changes needed to improve implementation, and prepare an annual report including this information.

E. Increase emphasis on targeted support and implementation of locally endorsed TMDL Implementation plans. This should include outreach to news agencies by local watershed groups and other stakeholders.

F. Post all TMDL implementation plans, revisions and status reports on EPD's website.

G. Identify and report success stories as well as lessons learned from periodic evaluations of implementation activities. Local watershed groups and other stakeholders should encourage news agencies to cover these stories.

H. Evaluate and recommend options for funding and installing local watershed coordinators to foster and support coordinated stakeholder implementation of management practices and activities to restore and protect local waters.

3. Technical Support/Information Clearinghouse

A. Coordinate sources of existing technical support, make their availability known to all of the entities involved in the development of TMDL implementation plans, and develop new sources of technical support where needed.

Almost half of the respondents to the TMDL survey said that technical support was what they needed most to be successful in implementing TMDL implementation plans. Major needs are for the importation and local adaptation of simplified procedures and models to conduct a quantitative assessment and source identification, evaluation and cost of optimum suites of management practices and activities needed to achieve targeted load reductions for a watershed, training for potential users, and documentation of successful applications of suites of nonpoint management practices which have led to water quality improvements. The following specific technical needs should be addressed:

1) Use workshops and conferences to convene RDC staff and others charged with developing TMDL implementation plans to exchange ideas, strategies, and approaches on a periodic basis. Target these efforts for maximum impact; for example one might focus on urban issues while another focuses on rural issues. The focus may or not be pollutant-based depending on the need.

2) Develop a suite of workshops that can be presented on request to local groups working on a specific TMDL implementation plan. Workshops ought to cover issues such as how to establish TMDL implementation plan stakeholder teams that are inclusive of neighborhood and local watershed groups and their data, how to go about identifying specific sources and management strategies that address those particular sources and other issues identified as high priority by the RDCs. The State should consider making these workshops available via web cast or phone conference to maximize the outreach and education potential. This technology would allow the participation of multiple groups, would assist RDC's with education, and would facilitate the most efficient use of the state authorities time. For example, a program on

identification of bacteria sources could be broadcast to multiple locations around the state on a given evening. Following the broadcast, this web cast would be archived online and other local work groups could use it at future meetings.

3) Provide training for local government staff and elected officials on the connection between TMDLs, land use regulations, stormwater regulations, and permitted wastewater discharges.

4) Develop and distribute detailed information (e.g. effectiveness, cost, legal constraints, models) regarding a suite of proven management measures that communities can select from to include within their plans and other targeted educational materials.

5) Convene a workshop to teach local technical staff how to delineate and characterize a watershed using readily available Geographic Information System (GIS) data from the web and from EPD. GIS is critical to successful TMDL implementation because it is only after a listed stream is located within a watershed can the responsible entity/entities begin to identify stakeholders, pollutant sources, or landuse for that stream. While EPD does delineate the TMDL watersheds for modeling purposes, in most cases the scale of those watersheds is not as detailed as a city government might need to identify pollutant sources.

B. Develop and post a web site that includes technical and GIS information needed to develop and execute effective TMDL implementation plans. Where possible, provide links from EPD's web site to existing sites, such as the TMDL Clearinghouse at the Center for TMDLs and Watershed Studies at Virginia Tech (www.tmdl.bse.vt.edu) and the Center for Watershed Protection (www.cwp.org). In addition to the website links, provide state-specific material and resources. Link this website to EPD's.

C. Develop a process for data collection, prioritization and sharing (including sharing on the website), and addressing issues of database compatibility.

4. Funding

A. Identify and procure the financial resources necessary to restore Georgia's impaired waters. Some user fees may require amendment of the state constitution to protect accompanying trust funds. Options that should be considered include effluent and stormwater discharge fees, illegal septage fines (see State Senate Septage Disposal Study Committee's recommendation), tax on fertilizers, tax on transfer of car titles, and tax on bottles and cans.

B. Share information about funding sources currently being used to restore waters at the local government level (i.e. Gwinnett County's use of the general fund, stormwater utility, wetland bank, buffer bank, and GEFA's low interest loans for nonpoint source pollution).

5. <u>Regulatory Authority</u>

A. Begin exploring the use of incentives to insure TMDL implementation such as preference for related Federal and State loans and grants, and tax breaks and relief.

B. In the event voluntary compliance and incentive options are not effective in compelling restoration of the states' waters, explore regulatory options such as those adopted by North Carolina, Florida, and Pennsylvania.