TMDL Program Progress Report

The Virginia Department of Environmental Quality monitors the state's rivers, lakes and tidal waters for pollutants every year to determine if the public can use them for swimming, fishing and drinking. If pollution amounts are too high, the waters cannot support their designated uses and fail to meet Virginia water quality standards. These waters are considered "impaired."

Since 1999, DEQ has developed plans, with public input, to restore and maintain the water quality of the impaired waters. These plans establish a "total maximum daily load," or TMDL, for the impaired waters. A TMDL represents the total amount of a pollutant a water body can contain and still meet water quality standards. DEQ also develops a TMDL implementation plan and works with partners to reduce pollution to the level required by the TMDL.

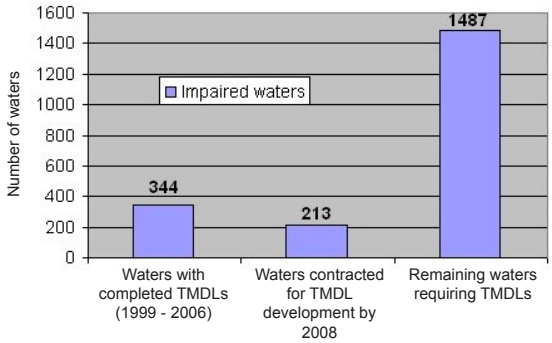
Through a consent order, a federal court established a schedule for TMDL development in Virginia through 2010 for waters identified as impaired since 1998. For other waters, DEQ schedules the development of TMDLs within eight to 12 years of finding the waters impaired. In 2007, DEQ in cooperation with the Department of Conservation and Recreation and the Department of Mines, Minerals, and Energy released a report that describes the progress of TMDL development, implementation plans and the application of best management practices in Virginia's TMDL program.

Progress and future goals

TMDL development

The Virginia TMDL program has successfully met the demands of a rigorous development schedule. The program completed 344 TMDLs from 1999 to 2006, and more than 200 have been contracted for completion by 2008. There are 1,487 waters remaining on the impaired waters list that will require a TMDL.

Status of TMDL development for impaired waters



To develop a TMDL, the state considers:

- Naturally occurring concentrations of pollutants in the impaired waters.
- Pollution from fixed locations, such as a pipe or ditch (point sources).
- Pollution sources without a single point of origin, such as agricultural activities and urban areas (nonpoint sources).
- Seasonal variations.

Implementation plans

Once a TMDL has been completed, it is submitted to the U.S. Environmental Protection Agency for approval. DEQ then develops a TMDL implementation plan. The plan describes ways to reduce pollution levels in the stream, and includes a schedule of actions, costs and monitoring. The TMDL program has completed 19 implementation plans covering 60 TMDLs and has scheduled 17 implementation plans covering 47 TMDLs for completion by 2008. Completion of implementation plans for the remaining 1,937 waters will be dependent upon available funding and staff.

Implementation plans		
	Number of plans	Number of TMDLs covered
Completed	19	60
Scheduled	17	47

Best management practices

The program and its partners work to achieve a TMDL by reducing pollution according to the best management practices established in the implementation plan. Best management practices are effective and practical ways to prevent or reduce pollution from nonpoint sources to ensure water quality. They could range from repairing septic systems and establishing storage areas for animal waste to planting vegetation.

The improvements in water quality in the North River, Middle Fork Holston River, the Willis River and the Blackwater River are due to best management practices. The watersheds of these streams are mostly rural and dominated by nonpoint pollution sources, such as agricultural activities. In most watersheds, local soil and water conservations districts or the Virginia Department of Conservation and Recreation have taken the lead in overseeing the implementation of the best management practices. To determine the success of the practices on water quality, DEQ monitors the impaired streams.

The following table gives an overview of the watersheds and the progress made in each.

Water quality improvement in four watersheds		
Watershed/ Location of area covered by implementation plan	Pollutant source	Water quality improvement
North River/Rockingham County	Agricultural, nonpoint	Some improvement
Middle Fork Holston River/ Washington County	Agricultural, nonpoint	Moderate improvement
Blackwater River/ Franklin County	Agricultural, nonpoint	Some improvement
Willis River	Agricultural, nonpoint	Some improvement

Many voluntary and government-funded best management practices are used throughout the watersheds. In the North River watershed more than 100 best management practices have resulted in water quality improvements. Three of the four targeted tributaries of the North River have reduced bacteria levels because of best management practices, which included reforesting land, improving septic systems and installing fencing along waterways. In addition, the North River, which was not directly included in the implementation plan, has had no bacteria violations in the past two years.

The implementation plan has also had additional benefits. Although the plan for the watershed was designed to reduce bacteria, several of the required agricultural and residential best management practices have improved sediment and nutrient pollution in the watershed. For example, vegetated buffers along stream banks reduce sediment and nutrient transport into the stream. When tested for nutrients, most of the sites in the watershed showed a trend of less nutrient pollution in the waterways over time.

Challenges

PCB chemicals (polychlorinated biphenyls), mercury and water pollution associated with abandoned mine lands are emerging issues for Virginia's TMDL program.

In 2006 DEQ and its partners began public meetings about TMDLs for the South River and the South Fork Shenandoah River and for the Potomac River and its tidal bays. Fish with elevated levels of mercury are found in the South River and the South Fork, and fish in the Potomac waters have high levels of PCBs. Identifying sources and determining how the pollutants move throughout the ecosystem are two significant challenges in establishing TMDLs for these waters. Because most of these pollution releases happened in the past, these issues are complex. However, there could be more current sources of PCBs due to new erosion of contaminated soils or leaks from machines that were recently phased out.

Pollution and sediment used to drain into Ely Creek in Lee County (top). Now water quality in the stream has improved due in part to a wetland that was constructed to the left of the stream (bottom).

Considerable progress has been made in reclaiming abandoned mine lands, but challenges still exist. Although about 13,000 acres of abandoned mine lands have been restored, there are more than 50,000 acres that remain. Many of southwestern Virginia's impaired waterways will not improve until these lands can be reclaimed. Alternative sources of funding and approaches to stream restoration performed through reclamation of abandoned mines or remining need to be implemented. The program will continue to evaluate the effectiveness of remining and cleaning up abandoned mine waste piles.

Funding and future needs

Despite the challenges, DEQ projects that, assuming level funding sources and accurate estimates, the agency will be able to meet the consent order schedule and complete the development of the TMDLs required by 2010. Because there are no new authorities for enforcing TMDLs, it has been Virginia's expectation to implement TMDLs using existing programs and funding sources. Existing resources include permits from DEQ and the Virginia Department of Mines, Mineral and Energy that limit discharges to state waters. These programs are utilized when stream impairments are attributed to a permitted facility. For non-permitted activities, Virginia's approach has been to use incentive-based programs such as the Virginia Agricultural Cost Share Program and the State Revolving Loan Fund. Virginia also offers dedicated funding for the implementation of best management practices in watersheds with approved implementation plans.

The information provided in the annual report on Virginia's TMDL program will help to identify strategies that will ensure continued success. The report is available on the DEQ website at www.deq.virginia.gov/tmdl.