

# **Report for 2001MD1201B: Maryland TMDLs and Nonpoint Source Pollution - Summer Student Project -**

There are no reported publications resulting from this project.

Report Follows:

**SEPTEMBER 7, 2001 SUMMER RESEARCH PROGRESS REPORT**  
**WATER RESOURCES RESEARCH CENTER**

“Progress and Prognosis: A Status Report on the Ability of Maryland’s Total Maximum Daily Load (TMDL) Program to Reduce Nonpoint Source Pollution to meet the State’s Water Quality Standards”

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## **Introduction**

The TMDL Program is an insufficient mechanism for Maryland to employ to reduce nonpoint source pollution. Because Section 303 (d) of the 1972 Clean Water Act (CWA) does not give the federal government authority to regulate nonpoint sources, Maryland’s TMDL Program has decided not to regulate nonpoint sources either.

Maryland does address nonpoint source pollution in a variety of ways and the Maryland Office of the Chesapeake Bay Program is presently developing significant policy and programmatic infrastructure to increase their nonpoint source pollution reduction activities. Currently, the state regulates nonpoint sources via the CWA’s National Pollutant Discharge Elimination System (NPDES) permits for municipal storm water systems, construction sites, forest areas, and wetlands. Maryland’s voluntary agricultural best management practices (BMPs) have been successful at reducing agricultural nutrient pollution and the state’s 1998 Water Quality Improvement Act (WQIA) establishes an unprecedented regulatory authority over farmers. Finally, nearly all 66 wastewater treatment plants (WWTPs) with discharge over 0.5 million gallons per day (MGD) have designed or are already operating Biological Nitrogen Reduction (BNR) systems under a 1995 voluntary agreement with the Maryland Department of Environment.

The researcher modified her summer project to focus specifically on nitrogen nonpoint source pollution and to compare the effectiveness of both the TMDL Program and the Chesapeake Bay Program at reducing nitrogen pollution. The conclusion of this report will summarize what she found.

## **What Was Done**

Over the summer, the researcher conducted her investigation by analyzing various hallmark reports, holding interviews, and participating in appropriate meetings. The researcher analyzed the following documents that have helped shape the nitrogen reduction efforts in the state: Maryland’s Tributary Strategies for Nutrient Reduction: A Statewide Summary. By MDE, DNR, MDA, MDOSP, Maryland Governor’s Office, UMD. March 1995. Maryland’s Tributary Teams 1999 Annual Report; Charting out Course. By Maryland’s Tributary Teams. December 1999. Maryland’s Interim Nutrient Cap Strategy. By Maryland Nutrient Cap Workgroup. March 2001. Status Report on Development and Implementation of Nutrient Management Plans. Office of Resource Conservation, Maryland Department of Agriculture. March 2001. Assessing the TMDL Approach to Water Quality Management. By the National Academy of Sciences Research Council. June 2001. Chesapeake Bay Program Nutrient Subcommittee Meeting Minutes at [www.chesapeakebay.net](http://www.chesapeakebay.net)

Interviews with the following persons were conducted to clarify the various nitrogen reduction policies and implementation efforts occurring in Maryland: Chesapeake Bay Foundation: Chuck Fox, Senior Policy Advisor (now MDNR Secretary); Kim Coble, Maryland Senior Scientist; David Anderson, CBF Attorney. Chesapeake Bay Program: Richard Batiuk, Associate Director for Science; Tom Simpson, Nutrient Subcommittee Chair. Maryland Department of Agriculture: Royden Powell, Assistant Secretary, Office of Resource Conservation. Maryland Department of Environment: Rich Eskin, Acting Deputy Director of Technical and Regulatory Services Administration and Steve Luckman, Director of the NPDES Division. Maryland Department of Natural Resources: Sherman Garrison, CWA Section 303(d) Manager. Maryland Tributary Strategies Teams Program: Danielle Lucid, Director; Sean McGuire, Southern Maryland Teams

Coordinator; Ginger Klingelhofer-Ellis, Lower Western Shore Team Chair and Anne Arundel County: Environmental and Planning Services Administrator. Nutrient Management Plan: Patricia Steinhilber, Coordinator. Wastewater Treatment sector: Cy Jones, Regional and Regulatory Affairs Group Leader, Maryland Association of Municipal Wastewater Agencies (MAMWA); Earl Ludy, Supervisor, Prince Anne Wastewater Treatment Plant. Washington Area Council of Governments: Ted Graham, Water Resources Program Director.

Finally, the researcher attended the following meetings to gain an insider's view of the nitrogen reduction policy development and programmatic implementation activities: Nutrient Trading Workshop by Chesapeake Bay Program's Nutrient Trading Committee (6/14/01), Tributary Strategy's Development Workgroup Meeting (7/18/01), Chesapeake Bay's Nutrient Subcommittee Meeting (7/25/01).

## **Conclusions**

### **Limitations of Maryland's TMDL Program to Reduce Nitrogen Pollution**

As Maryland's TMDL Program can only regulate point sources and point sources only contribute about 20% of the state's nitrogen pollution, the TMDL Program cannot effectively address the 80% of nitrogen pollution that comes from nonpoint sources. The TMDL Program for nonpoint sources, thus, can only state that is receiving "reasonable assurance" from the activities of the Bay Program and the WQIA for implementing the nonpoint source load allocations. Unfortunately, no formal communication or collaboration is occurring between the three programs to ensure that nitrogen reductions from the Bay Program and the WQIA activities are reducing nitrogen by the amount specified in the TMDL or even occurring in the TMDL plan sub-watershed area. The researcher concludes that employing only a regulatory approach will not help solve the nitrogen problem in Maryland's portion of the Bay because the TMDL regulatory approach, to date, has fostered a negative professional atmosphere and results in only minimal reduction efforts.

### **Strengths of Maryland's TMDL Program to Reduce Nitrogen Pollution**

After four years of existence, Maryland's TMDL program is a step closer towards fulfilling the CWA's 303(d) program. NPDES permits for four WWTPs have expired and the TMDL Program has successfully rewritten three of those four NPDES permits to include, for the first time in the state, load limits on nitrogen to reflect the TMDL waste load allocation. Only one plant (Princess Anne, Somerset County) is suing MDE to prevent them from including a nitrogen limit in their NPDES permit. Additionally, MDE's TMDL Program is finally starting to work cooperatively with the Bay Program on point source TMDLs. In August, MDE notified the 66 WWTPs discharging over 0.5 MGD of the Department's intention to write NPDES permits, in the future, that reflect the Bay Program's Tributary Strategy Goals for Nitrogen Loads. Finally, the TMDL Program did help pass a strong Chesapeake Bay Agreement. The threat of a Bay-wide TMDL was sufficient for the four states and the District of Columbia to take the Agreement very seriously. The TMDL threat fostered tremendous political collaboration and technical thoughtfulness in designing an Agreement that would warrant removal of the Bay from the Impaired Waters List in ten years.

### **Limitations of Maryland's Involvement in the Chesapeake Bay Program to Reduce Nitrogen Pollution**

The primary limitation of the Maryland Office of the Chesapeake Bay Program is the lack of sufficient funds to carry out the existing nitrogen reduction programs to accomplish the present goals. Furthermore, significantly more funds will be needed in ten years to reduce nitrogen pollution beyond the current goals as even larger nitrogen loads are expected from a growing Bay population. The attempts by the Chesapeake Bay Foundation to put an \$8.5 million price tag on the Bay's clean-up efforts is noteworthy but the Bay Program has missed several opportunities to procure that funding. As the Program finalizes their new water quality standards and divides the nutrient reduction loads amongst tributaries and sources, progress may be slowed by lawsuits seeking to maintain the loads as voluntary options rather than enforceable requirements.

### **Strengths of Maryland's Involvement in the Chesapeake Bay Program to Reduce Nitrogen Pollution**

The Maryland Office of the Chesapeake Bay Program is by far the most progressive and well-established program to carry out the 2000 Bay Agreement. Maryland's 10 Tributary Teams established a stakeholder approach to the development and implementation of the Agreement. Additionally, the blended approach of employing both voluntary and regulatory programs to carry out the Bay Agreement allows each state's environmental, natural resource and planning agencies to work together in a positive atmosphere and encourages them to put aside political, geo-physical and cultural differences to solve the excessive nitrogen problem. The result of this unprecedented level of cooperation is a massive overhaul of existing inadequate and inaccurate water quality standards of each state. The Bay Program is currently adopting three "living resources" criteria (dissolved oxygen, chlorophyll a, and water clarity) that will be used to establish bay-wide water quality standards, from which tributary loads will be developed and then divided by sector and, finally, by source. This thoughtful and slow and steady approach is the best mechanism to helping waterbodies in Maryland and the rest of the Chesapeake Bay become significantly less nitrogen polluted.