

July 2004

## Improving Water Quality: TMDLs (Total Maximum Daily Loads)

Ohio is a water-rich state with more than 60,000 miles of streams and rivers. Maintaining and restoring these waters for drinking, recreation, agriculture and aquatic life is the fundamental goal of the federal Clean Water Act, and is important to Ohio's economy and quality of life. To ensure that these benefits continue well into the future, Ohio EPA works to improve waters that may be impaired.

### When is a stream impaired?

A stream is impaired when it does not meet the water quality goals that have been established for the stream. These goals are defined in Ohio's rules for water quality standards. A primary measure of a stream's health in Ohio is the condition, type and diversity of aquatic life, such as fish and aquatic insects. If the aquatic life is healthy, it is a sign that the stream is in good condition.

According to the Clean Water Act, each state must evaluate its waters and then summarize their condition every other year in a report to the U.S. Environmental Protection Agency. Part of the report lists waters that do not meet the goals, also known as the "303(d)" list. For any stream or lake on the list, the state must develop a plan to fix the problem. If a waterbody is successfully restored to water quality goals, it is removed from the 303(d) list.

### What is a TMDL?

For many water pollution problems, a key step in cleaning up impaired watersheds is the calculation of the **Total Maximum Daily Load**, or **TMDL**. The TMDL defines the highest

amount of a pollutant that can be present in a waterbody without violating water quality standards.

A **watershed** includes all areas that drain to a central surface waterbody. A watershed generally includes lakes, rivers, estuaries, wetlands, streams and surrounding landscape. Areas where water may flow into surrounding underground water, or aquifers, are also considered part of a watershed.

A TMDL takes into account all sources of pollution that may affect the watershed. Pollution can enter water through two sources:

- A **point source** is a specific point where pollutants enter the water, such as a sewer pipe that empties directly into a river. This type of pollution is easier to control.
- A **nonpoint source** cannot be tracked to a pinpoint location. It includes sources such as runoff from agricultural or urban areas, or air pollution particles settling on the water. Over the years, as point sources of pollution have been reduced, the impact from nonpoint sources has become our focus for cleanup. Nonpoint source pollution is harder to control.

More broadly, a TMDL is a water cleanup plan to restore a watershed so it meets water quality goals. A TMDL:

- includes a written, quantitative assessment of water quality problems and their sources, both point and nonpoint;
- specifies what amount of pollutants must be reduced to meet water quality standards;
- allocates responsibility to specific sources to reduce their pollutants; and



Researchers use a seine to collect aquatic life to help determine how many species live in this creek.

### Glossary

**impaired water** – Any waterbody that does not meet the state's water quality goals is considered weakened or impaired.

**TMDL** – (or **Total Maximum Daily Load**) The highest amount of any pollutant that can enter a body of water without exceeding the water quality standards established for it; TMDL can also refer to the water cleanup plan for impaired waters.

**watershed** – All areas that drain to a central surface waterbody (lake, stream or pond); generally includes lakes, rivers, estuaries, wetlands, streams and the surrounding landscape.

- provides a basis for taking actions to restore the watershed.

U.S. EPA must review and approve each TMDL before it is finalized.



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## How is a TMDL created?

The purpose of a TMDL water cleanup plan is to establish a science-based strategy for cleaning up impaired waters. A TMDL project measures the current condition of the watershed; compares it to the water quality goals for the watershed; determines what needs to be done to meet water quality goals; develops a strategy to reduce the pollution in the streams of the watershed; implements that strategy; and finally, monitors the progress toward the goal.

To complete this work, Ohio EPA scientists and engineers work with the public to decide what the TMDL will address and what the best possibilities are for cleanup. The TMDL process is flexible and works best when communities get together to understand and identify the problems in their watershed and participate in choosing their own solutions. Citizens are encouraged to get involved in water cleanup plans at the local level.

## What is Ohio doing now?

Ohio EPA has a goal of attaining water quality standards in 80 percent of Ohio streams by 2010. The Agency has been using a watershed approach to monitor Ohio's waters since 1990. Monitoring Ohio's watersheds on a rotating basis provides data on water quality conditions and provides a framework for future watershed

activities. Monitoring surveys typically measure the chemical, physical, biological and habitat conditions in the study area. Currently, 25 TMDL projects are underway in Ohio, covering about 20 percent of the state.

## How does a TMDL affect my community?

In working to find better ways to take care of our water resources, the State of Ohio is working closely with local watershed partnerships to identify actions they can take to improve water quality. Ohio EPA has long supported local watershed action planning as an effective approach to restoring Ohio's water resources in ways that are compatible with local interests. Each watershed is unique – geographically, politically and culturally – and local organizations are better equipped to identify community concerns and foster dialogue about possible solutions. Building local support for achieving water quality goals is more important than ever, as many of the remaining pollution problems are beyond the reach of regulatory programs.

## What can I do?

**Discover** your watershed:

- Learn more about the condition of your own watershed at [www.ohiowatersheds.osu.edu/](http://www.ohiowatersheds.osu.edu/)

- Learn more about the fish and other species that live in your watershed.



**Maintaining and restoring lakes and rivers for drinking, agriculture, aquatic life and recreation enhances the quality of life in Ohio.**

**Respect** your watershed:

- Carefully use toxics, such as pesticides, fertilizers, paint thinners and motor oil and dispose of them safely, not down a drain or storm sewer;

- Support stream monitoring and drain labeling programs.

**Nurture** your watershed:

- Prevent erosion by practicing conservation tillage, seeding or mulching bare areas and planting buffer strips with grass or trees between farm lands and nearby streams;



**Planting barrier strips of grass and trees between farmland and water sources helps prevent erosion**

## What are sources of “water impairment?”

<http://www.epa.state.oh.us/dsw/documents/fs2eas2000.pdf>.

- faulty septic systems;
- sediment, fertilizer and pesticide runoff from streets, farms and construction sites;
- changes in water flow or habitat;
- discharges from wastewater treatment plants and industries; and
- runoff from mining and logging activities.

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## Careful planning preserves wetlands, forests and floodplains

- Protect and restore streamside wetlands, forests and floodplains.

**Speak up** for your watershed:

- Start a local watershed interest group;
- Provide cleanup ideas to your local watershed group or county soil and water conservation district (SWCD) office;
- Know when and how to submit public comments on TMDLs and other watershed initiatives.

## Is there money available for local communities?

Ohio EPA works with the Ohio Department of Natural Resources (ODNR) and Ohio State University Extension to build local support and help bring money to watersheds around the state. Many water cleanup plans are nearing completion and include integrated TMDL efforts. State and federal funding sources include:

### • Clean Water Act “319” grants

Contact: Ohio EPA  
Division of Surface Water -  
319 Fund Coordinator  
P.O. Box 1049  
Columbus, OH 43216-1049  
<http://www.epa.state.oh.us/dsw/nps/319Program.html>

### • Environmental Quality Incentives Program (EQIP)

Contact: U.S. Department of Agriculture  
National Resources Conservation Service  
Steve Mozley, Acting National EQIP Manager  
202-720-1840  
<http://www.nrcs.usda.gov/programs/eqip/>

### • Conservation Reserve Program (CRP)

Contact: U.S. Department of Agriculture  
Farm Service Agency Conservation Reserve Program  
200 North High Street  
Federal Building, Room 540  
Columbus, OH 43215  
Phone: 614-255-2441  
<http://www.fsa.usda.gov/dafp/cepd/crp.htm>

### • Conservation Reserve Enhancement Program (CREP)

Contact: Ohio Department of Natural Resources  
Division of Soil & Water Conservation  
4383 Fountain Square Drive  
Building B-3  
Columbus, Ohio 43224  
Phone number: (614) 265-6610  
<http://www.fsa.usda.gov/pas/publications/facts/html/crep03.htm>

Call your local watershed coordinator to learn more about these funding sources for your community.



Ohio EPA, Ohio Department of Natural Resources and The Ohio State University work together to provide resources for watershed cleanups throughout Ohio

## For more information, contact:

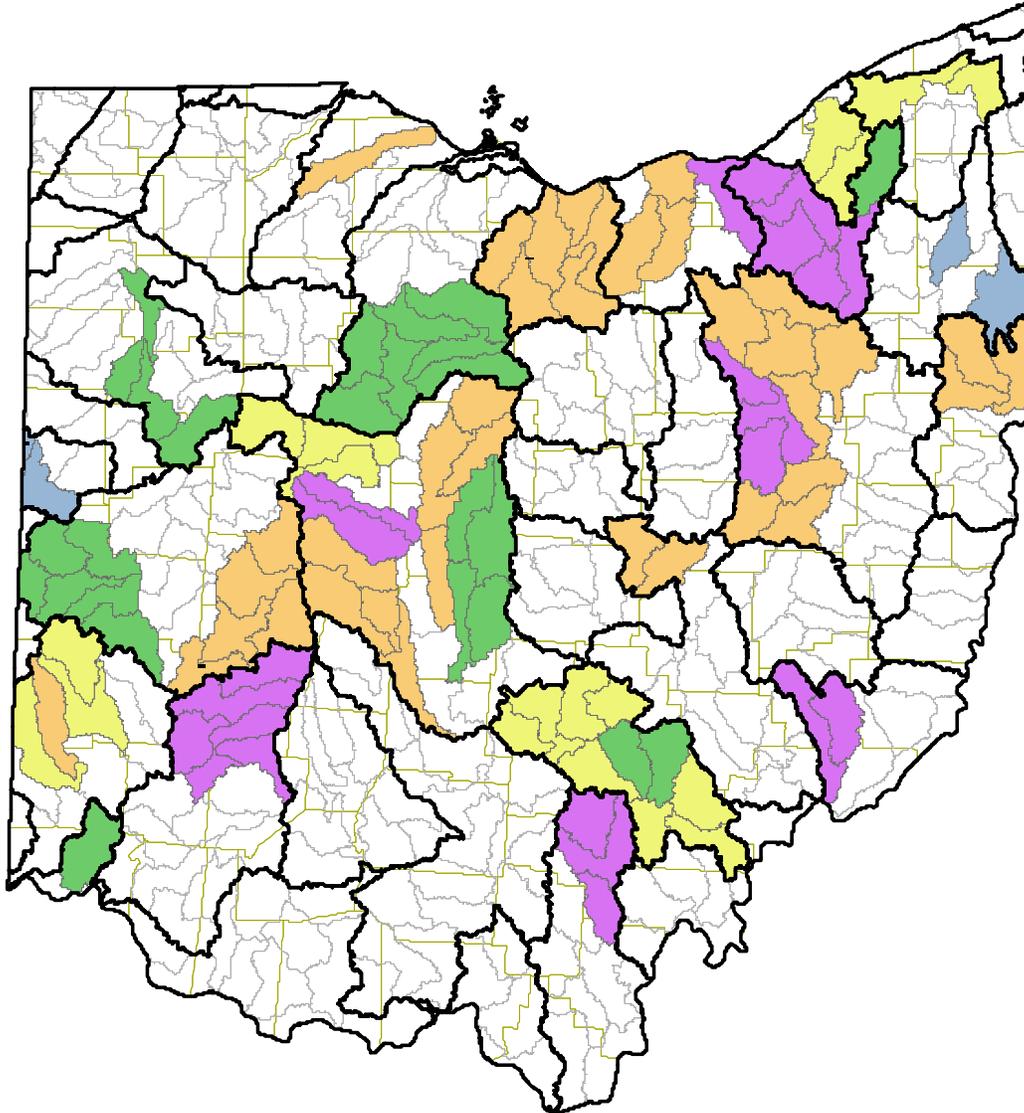
Ohio EPA  
Division of Surface Water  
122 South Front Street  
P.O. Box 1049  
Columbus, OH 43215  
(614) 644-2001

## On the World Wide Web visit:

[www.epa.gov/OWOW/TMDL/](http://www.epa.gov/OWOW/TMDL/)  
[www.epa.gov/OWOW/watershed/](http://www.epa.gov/OWOW/watershed/)  
[www.epa.state.oh.us](http://www.epa.state.oh.us)  
[www.epa.state.oh.us/dsw/index.html](http://www.epa.state.oh.us/dsw/index.html),  
see 2002 Integrated Report  
[www.dnr.state.oh.us/soilandwater/watershedprograms.htm](http://www.dnr.state.oh.us/soilandwater/watershedprograms.htm)  
[www.ohiowatersheds.osu.edu/](http://www.ohiowatersheds.osu.edu/)

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## TMDLs In Progress



Division of Surface Water  
BAW 10/20/03

### TMDL Status

- Approved by U.S. EPA and being implemented- *Middle Cuyahoga, Sugar, Plum Creek (Rocky), Upper Little Miami River, Bokes, Raccoon, Mill (Scioto), Lower Cuyahoga, Duck Creek*
- Nearing Submittal to U.S. EPA; some implementation proceeding- *Mill (Ohio), Upper Cuyahoga, Stillwater, Sunday Creek, Monday Creek, Upper Auglaize, Big Walnut Creek, Upper Sandusky*
- Development Phase- *Black, Big Darby Creek, Vermillion, Huron River, Sevenmile Creek, Upper Tuscarawas, Wakatomika Creek, Olentangy River, Mad River, Toussaint Creek, Old Woman Creek, Little Beaver Creek*
- Assessment Phase- *Chagrin River, Grand River, Hocking River, Scioto River (headwaters), Twin Creek, Fourmile Creek*
- Federal TMDLs- *Wabash River, Mahoning River (pathogens)*

