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Christopher G. Henry
University of Nebraska - Lincoln, chenry1@unl.edu

Thomas G. Franti
University of Nebraska - Lincoln, thomas.franti@unl.edu

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Henry, Christopher G. and Franti, Thomas G., "NF01-460 Total Maximum Daily Loads, TMDLs, for Surface Water Pollutants: What They Mean to Nebraska Agriculture" (2001). *Historical Materials from University of Nebraska-Lincoln Extension*. 1801.
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NF01-460

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Published by Cooperative Extension, Institute of Agriculture and Natural Resources, University of Nebraska-Lincoln

Total Maximum Daily Loads, TMDLs, for Surface Water Pollutants: What They Mean to Nebraska Agriculture

by Chris Henry, Extension Engineer, and Tom Franti, Associate Professor, Biological Systems Engineering

What is the TMDL Process?

A Total Maximum Daily Load (TMDL) is a written plan specific to a pollutant and a body of water that incorporates water quality monitoring data, exceedence frequency, sample time flow conditions, and the sources that may be contributing to the water quality problem. Its purpose is to identify pollution sources and propose a plan that will help achieve water quality standards for the body of water.

The Clean Water Act calls for the Environmental Protection Agency (EPA) to work with state agencies which in turn work with interested parties in an effort to develop TMDLs to clean up the polluted body of water. Water quality standards are set by states, territories and tribes. They identify the uses for each body of water, such as drinking water supply, contact recreation (swimming) and aquatic life support, and the water quality criteria to support that use.

TMDL
A Total Maximum Daily Load is an estimated amount of a given pollutant that can be allowed to enter a body of water without causing the water quality standards to be exceeded.

A TMDL can be described as a pollution "budget," designed to allow the polluted body of water to meet water quality effluent standards. It is the sum of the allowable loads of a single pollutant from all contributing point and non-point sources. A TMDL is also a way to allocate pollution loads to different dischargers in a defined area. The calculation includes a margin of safety to ensure that the water can be used for the designated purposes. The calculation also accounts for seasonable variation in water quality.

Where do TMDL's Apply?

Over 20,000 bodies of water across America have been identified as impaired. This includes over 5 million acres of lakes and 300,000 miles of river and shoreline. In Nebraska, TMDLs are required for 88 out of 114 sites, as listed by the Nebraska Department of Environmental Quality's (NDEQ) report to the EPA (Nebraska's 1998 303(d) List). A total of 216 impairments is listed; the most common ones

included pathogens, pesticides and nutrients (Table I). Considered by source of pollutant, the number one contributor is agriculture, followed by municipal non-point sources, natural sources and urban storm sewers (Table II).

As TMDLs are developed by the Nebraska Department of Environmental Quality (NDEQ), they will become available for public review. The NDEQ already has made public two TMDLs. One addressed sediment for Pawnee Reservoir in Lancaster County, and a second was for high coliform levels in the West Fork of the Blue River in South Central and Southeast Nebraska. These TMDLs have been reviewed and are being revised, but will not be finalized until approved by the EPA.

TMDL Calculation

TMDL = Pollutant Load Capacity of a Body of Water = Natural Pollutant Contribution (background) + Pollution Load (from all pollution sources) + Margin of Safety

The NDEQ is responsible for developing TMDLs. It will do this with the involvement of local Natural Resources Districts (NRD). Farmers, ranchers, citizens and other groups can most easily become involved in this step by working with the NRD. After a TMDL has been drafted it will be available for a 30-day public comment period. This is another opportunity for involvement in the process. Finally, after final EPA approval, an implementation plan will be developed. NDEQ plans to involve land owners, farmers, ranchers and other stakeholders in developing the implementation plan. This plan will be the blue print of actions needed to help meet the TMDL water quality goals.

Table I

Impairment	*Number of TDML's needed*	*Impairment*	*Number of TDML's needed*
Pathogens	58	BioDiversity Impacts	5
Pesticides	49	Chlorine	3
Nutrients	24	Unknown Toxicity	1
Ammonia	33	Turbidity	1
Dissolved Oxygen/Organics	18	Suspended Solids	1
Arsenic	17	Salinity/Total Dissolved Solids	1
Siltation	15	Copper	1

Table II

Top 4 Sources of Pollution in Nebraska

41%	Agriculture
26%	Muncipal Non-Point Sources
13%	Natutral Sources
7%	Urban Storm Sewers

What Can You Do?

The first step is to find out if a body of water in your area will require a TMDL. The impaired waters are listed on the EPA and NDEQ web sites given below. Most NRD offices will be aware of the TMDL situation in their area. Find out what the critical water quality issue is and what management practices help reduce the pollution potential.

You will need to answer these four questions:

- Does my watershed have an impaired body of water? (could be in a lake, reservoir, river, stream or stream segment)
- Is a TMDL required?
- Which impairment is listed? (there may be more than one which requires a TMDL)
- What is the probable source of the impairment?

If a TMDL already has been completed, then recommendations and probable sources have been identified. Next, assess your operation. Determine whether you are following the recommended practices to minimize your surface water pollution risk. Become involved with your local NRD and commodity organizations. The TMDL process is a cooperative effort between the NDEQ, NRDs and local citizens.

TMDL Background

The Clean Water Act, Section 303, establishes the water quality standards and TMDL program. The program requires that states develop a TMDL for each pollutant and body of water over a 5 to 15 year timeframe, with some bodies of water given a greater priority and addressed first. Priorities are based on the severity of the pollution and uses of the body of water. Special priority may be given to bodies of water that are drinking water sources and provide habitat for endangered species.

Changes to the National Pollutant Discharge Elimination System (NPDES) program will give EPA, in establishing a TMDL, the discretion to designate as point sources certain dischargers (or polluters) causing significant water quality impairment - therefore requiring an NPDES permit. Dischargers that may be designated include selected animal feeding operations, fish production facilities and timber harvesting operations.

The states are required every other April to submit a list of impaired waters to the EPA (303(d) List). For every impaired body of water, the state must develop a TMDL and outline the measures it will be taking to meet that TMDL. The states must report to the EPA why the site is impaired, what reduction in load is needed to meet water quality standards, and outline how they intend to accomplish the reduction in load.

The EPA is in the process of developing guidance documents to better help states comply with the TMDL rule. New guidance material will be issued in October 2001. To stay current with the ongoing changes, check EPA's web site regularly (see address below). For additional information see the NDEQ fact sheet "Nebraska Total Maximum Daily Load (TMDL) Program," (July 10, 2000). For a copy contact Pat O'Brien, TMDL coordinator, NDEQ, (402)471-3382.

For more information:
EPA Office of Water TMDL Program Site:
http://ianrpubsarchive.unl.edu/water/www.epa.gov/owow/tmdl/index.html

Nebraska Department of Environmental Quality:
http://ianrpubsarchive.unl.edu/water/www.deq.state.ne.us/

NDEQ Water Quality Division:
(402)471-2186
http://ianrpubsarchive.unl.edu/water/www.deq.state.ne.us/Programs.nsf/pages/WQD

File under: WATER RESOURCES MANAGEMENT
A-10,Water Quality
Issued May 2001