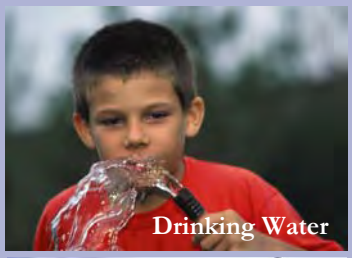
Understanding the Montana TMDL Process

Why Water Quality Planning Matters to You

Water Quality and You

Common Activities Requiring Good Water Quality


Drinking Water


Crops


Stock


Recreation


Fish and Aquatic Life

This pamphlet explains what Total Maximum Daily Loads (TMDLs) are and how they relate to water quality planning and water quality improvement.

Solving Water Quality Problems

The perception is that Montana rivers, streams and lakes are pristine, when in fact, a large percentage have water quality problems. These waters do not fully support one or more uses, such as agriculture, recreation, fish and aquatic life. The State of Montana sets standards to maintain water quality. Water quality problems are identified by comparing existing water quality to these standards. Rivers, streams and lakes that do not meet these standards are classed as impaired waters on a list, often referred to as the 303(d) list.

There is an ongoing water quality planning effort by the Montana Department of Environmental Quality (DEQ) to help solve these problems. A major component of this effort is the development of TMDLs.

What causes water quality problems?

Polluted waters are usually the result of a combination of activities rather than one single activity or person. Some sources of pollutants can be traced to a single point, such as the end of a pipe that discharges waste directly to a waterway (from a wastewater treatment plant, for example). However, the vast majority of water quality problems are the result of many

small contributions from a big area. Everything from soil erosion from fields and dirt roads to abandoned mines and homeowner activities can contribute to the problem.

You may be unknowingly contributing to poor water quality by applying too much fertilizer to your lawn or pasture, by removing vegetation from a stream bank, or allowing your animals to graze along a waterway without taking special precautions. In Montana, dispersed pollutant sources contribute an estimated 80-90% of water quality problems.

Consequences of Poor Water Quality

- Impacts economy by limiting the ability to use the water for agricultural, industrial, recreational and domestic purposes.
- Limits the ability of fish, wildlife and the aquatic life they depend on to thrive, decreasing opportunities for fishing and hunting.
- Diminishes recreational activities if water is unsafe for swimming or fish consumption.
- Can affect human health through contaminated drinking water and waterborne diseases.
- May affect aesthetic beauty of rivers, lakes and surrounding landscape. For example, water may no longer be clear if it is full of sediment or algae.

TMDL: What is it?

A TMDL (Total Maximum Daily Load) is the maximum amount of a pollutant a river, stream or lake can receive and still support all designated uses.

Some Common Water Quality Problems

Sedimentation

Algal Growth from Excess Nutrients

Increased Water Temperature from Lack of Shade

Metals from Abandoned Mines

The TMDL Development Process

Watershed

The total land area that contributes water to a river, stream or lake. A watershed is sometimes referred to as a basin or drainage.

A TMDL Analogy

The maximum load for a pollutant is like the maximum load for a bridge. If the load on a bridge exceeds safe levels, it can fail. In the same way, too much of a pollutant in a river, stream or lake creates a water quality problem.

What is being done to identify and solve water quality problems?

The TMDL development process is a problem-solving approach that results in a framework for water quality improvement. The MT DEQ is responsible for completing TMDLs.

In Montana, the geographic scale for this process includes the complete watershed area of contribution for a pollutant. A TMDL is developed for a single pollutant, such as a metal or sediment. A river, lake or stream may have multiple pollutants, each with its own TMDL. The State of Montana develops reports that may contain multiple TMDLs at a watershed scale.

During the TMDL process, waters are sometimes healthier than originally thought or healthy because of recovery from past polluting practices. These waters are taken off the impaired waters (303(d)) list and do not have a TMDL completed for that pollutant.

Steps in the TMDL Development Process

Each TMDL is somewhat different because impairments to natural systems of rivers, lakes and streams vary. The process of diagnosis, setting amounts of pollutant reduction and recommended strategies for repair is very similar, however.

What is the extent of the problem?

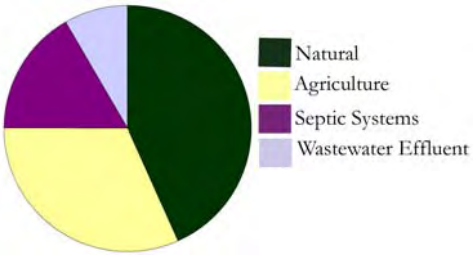
In order to fully evaluate the extent of the problem for each pollutant, a set of parameters

to characterize water quality is first identified. Then more detailed information focused on these factors is gathered. In addition, numeric targets are developed for many of these parameters. These represent compliance with the applicable water quality standard. The gathered information is compared to the targets to assess the severity of the problem.

Which human activities are contributing to the problem? How much is being contributed?

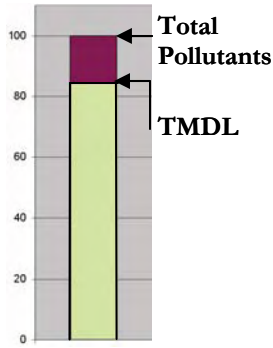
Human activities that contribute to pollutant loads are identified. The magnitude of contributions from source categories such as crop irrigation, septic systems, and wastewater treatment plants is quantified. As part of this effort, natural background pollutant loading is also quantified.

Example of Contributions to Pollutant Loads



What is the acceptable total load of pollutants?

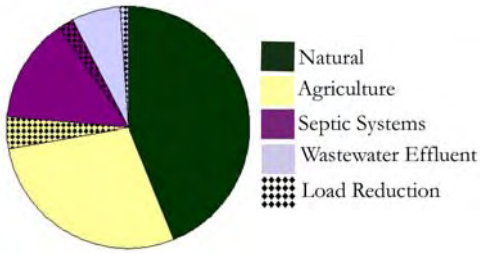
The maximum acceptable daily load (TMDL) is identified. Amounts of total pollutant loading above the TMDL need to be reduced in order to solve the problem.



How can this problem be solved?

The amount of reduction needed from each source category is determined to satisfy the TMDL. These are called the allocations. Determining allocations includes social and economic considerations and an assessment of overall feasibility. The goal is to develop a fair and reasonable suite of achievable allocations.

Allocation of Load Reductions



The TMDL Report

The results of these steps are incorporated into a final TMDL report. This provides a planning framework for additional local water quality protection and restoration projects.

Using the TMDL for Restoration

Public Input during TMDL Development

The public can:

- **Share knowledge of about existing and historical land uses, natural events, and workable approaches for reducing pollutant loading.**
- **Attend public meetings on TMDL development.**
- **Contact DEQ staff: become an "interested party" and track overall TMDL development progress in your area.**
- **Provide land access to streams so water quality information can be collected.**
- **Comment on TMDL draft.**

Notices of public meetings are posted on the DEQ web site and in local papers. Stakeholder organizations may also be interested in opportunities to provide more detailed technical input.

What to Expect from a Completed TMDL

A completed TMDL provides information on water quality problems and strategies to reduce pollutants by changing land and water management activities.

TMDL implementation is voluntary for most activities. A TMDL does not create new regulations, but may affect how existing regulations are implemented.

TMDL Implementation

DEQ Role in Implementation

The DEQ does not implement TMDL pollutant reduction projects for most activities, but can provide technical and financial assistance for stakeholders interested in improving their water quality. DEQ staff:

- Work with participants to use the TMDLs as a basis for developing locally driven, comprehensive Watershed Restoration Plans,
- Administer funding specifically earmarked to help fund water quality improvement and pollution prevention projects, and can help identify other sources of funds.

Watershed Restoration Planning

Voluntary Watershed Restoration Plans are locally developed by landowners, the public and other stakeholders, often with technical assistance from DEQ. The strategies and projects in the Watershed Restoration Plans are detailed and in alignment with local priorities.

Restoration: Putting the TMDL into Action

The plans incorporate detailed strategies and project plans to reduce pollutants and address broader pollution problems. Local social and economic considerations are incorporated.

Water quality restoration is an adaptive, creative process that allows everyone to be involved and active in decisions that affect their ability to use and enjoy Montana's waters.

Locally Driven Actions

Deciding how and when restoration projects are completed offers many opportunities for individuals and organizations to act:

- Conservation districts, DEQ, state and federal agencies and extension agents have informational materials that can help landowners manage and restore healthy land and water.

- Watershed groups and conservation districts are usually involved in water quality improvement and the TMDL process. Specific activities include training, implementation projects and volunteer water quality monitoring. Becoming involved with these activities can help improve overall water quality and conditions.

Successful, locally-driven projects have included streamside vegetation restoration projects that have limited sediments and nutrients from entering waterways and helped lower water temperatures to better support aquatic life. Pasture management projects have curbed invasive weeds and additional sedimentation from bank erosion and runoff.

Before and After: Restoration of streamside areas enhances cover and limits sediment and nutrient input.

Fenced water gap focuses stock access to river

Timber harvest management techniques can limit pollutant loading in streams

Examples of Activities that Contribute to Poor Water Quality

Many everyday activities can contribute to poor water quality and affect everyone's ability to use and enjoy the benefits of clean water. Correctly identifying problem sources that contribute to water quality problems is an important step toward water quality improvement.

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