

tion of the methodology used to collect data and the relationship between changes in sources of pollution and the quality of the water in the receiving stream or lake. This relationship is usually predicted through the use of **water quality models** which are computer simulations of the physical, biological, and chemical processes that occur as the pollution is assimilated, or processed, by the receiving waterbody.

5. **Margin of Safety** – Water quality models are based on certain assumptions. These assumptions introduce uncertainties in the results of the model. A margin of safety is required to account for these uncertainties. Some water quality models are very simple and require very little observed data or use “literature values.” These types of models require a higher margin of safety. Other models are more complex and require large amounts of observed data. These types of models require a much smaller margin of safety.
6. **Loading Allocations** – The total pollutant load must be allocated, or assigned, to the various sources of pollution identified during the TMDL process. In the case of a single source of pollution, this process is simple. When there are a multitude of stakeholders, the load allocation process can become much more complex.

How Do I Develop a TMDL?

TMDL work is largely funded through federal grants. Due to the nature of the grants, private firms are not typically the direct recipients of these grants. Therefore, most TMDL work conducted by private practitioners is done under contract with ODEQ.

The staff of the Watershed Planning Section of the ODEQ Water Quality Division maintains a list of likely TMDL projects that are matched to prospective

contractors based on experience and expertise.

After consultation with the Watershed Planning Section, TMDL project proposals may be submitted and must include:

- the goals of the project
- the geographic scope of the project
- the pollutants to be addressed in the project
- the data required to complete the project
- the methods used to develop the TMDLs
- the cost and milestone estimates.

More Information, Please

More details regarding the TMDL process and how to develop a TMDL project in partnership with ODEQ can be found in the Oklahoma Total Maximum Daily Load Practitioners Guide, which is available on the ODEQ website,

www.deq.state.ok.us

Other useful documents include:

- Oklahoma Integrated Water Quality Report www.deq.state.ok.us/WQDNew/305b_303d/index.html
- Oklahoma Continuing Planning Process www.deq.state.ok.us/WQDnew/pubs/2002_cpp_final.pdf
- Oklahoma Water Quality Standards (Oklahoma Administrative Code Title 785, Chapter 45) www.owrb.state.ok.us/util/rules/pdf_rul/Chap45.pdf

A list of helpful contacts at various government agencies and universities is included in the Practitioners Guide.

For more information contact:

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Oklahoma TMDL Program



The Oklahoma TMDL Program

This pamphlet answers the questions:

- What is a TMDL?
- When are TMDLs Necessary?
- Who Can Develop a TMDL?
- What are the Required Elements of a TMDL?
- How Do I Develop a TMDL?

What is a TMDL?

TMDL stands for **Total Maximum Daily Load** and is an approach to water quality management that identifies and assesses the impact of pollution on waterbodies. **The goal of a TMDL is to identify how much pollution can safely be accepted by a river, stream, or lake and still meet water quality standards.**

For waterbodies that are shown not to meet water quality standards, a TMDL establishes how much these sources of pollution must be reduced in order to attain these standards.

When are TMDLs Necessary?

TMDLs are required by the federal Clean Water Act on waterbodies whose quality is not suitable for uses such as fishing, swimming, or drinking. Waterbodies that do not attain their beneficial uses are considered impaired.

Waterbodies that do not attain their beneficial uses are considered impaired

Impaired waterbodies require a TMDL to determine what reductions are necessary to attain these uses.

Impairment is often determined by comparing monitoring data to water quality standards to see if there is a violation of the standards.

A comprehensive assessment of Oklahoma's lakes, rivers, and streams is performed every two years. The results of this assessment, along with the methods used to

determine impairment, can be found in the Integrated Water Quality Assessment Report and is available on the Oklahoma Department of Environmental Quality (ODEQ) website <www.deq.state.ok.us>.

Waterbodies are placed in one of five categories according to how well they meet their beneficial uses. These range from Category 1, in which all uses are met, to Category 5 waterbodies, in which one or more uses are considered impaired. Category 5 waterbodies require a TMDL and make up the State's "303(d) list," named after that section in the Clean Water Act that requires such a list.

More information about the TMDL program and the 303(d) list can be found in the Oklahoma Continuing Planning Process (CPP) document, also available on the ODEQ website.

Who Can Develop a TMDL?

Anyone can develop a TMDL, as long as the required elements are met and the methods of conducting the study meet United States Environmental Protection Agency (EPA) standards.

ODEQ is the lead agency for the TMDL program in Oklahoma

Although anyone can conduct a TMDL, ODEQ is the lead agency for the TMDL program in Oklahoma and conducts the review and approval process for TMDLs before sending them to EPA.

Other organizations that are routinely involved with the TMDL process in Oklahoma include the Oklahoma Water Resources Board (OWRB) and Oklahoma Conservation Commission (OCC). OWRB is responsible for developing the State's water quality standards but is also responsible for a large-scale monitoring effort known as the Beneficial Use Monitoring Program (BUMP). OCC also conducts its own extensive water quality monitoring program. Other organiza-

tions involved in the TMDL process include the Oklahoma Corporation Commission,

The key to conducting successful TMDL work in Oklahoma is communication

Indian Nations Council of Governments, Association of Central Oklahoma Governments,

Oklahoma State University, and the University of Oklahoma.

Also, ODEQ routinely contracts with private environmental firms ranging from large, nation-wide firms to the smallest local firms to conduct TMDL work in Oklahoma.

The key to conducting successful TMDL work in Oklahoma is communication. ODEQ encourages regular communication among contractors, stakeholders, and itself.

What are the Required Elements of a TMDL?

There are six required elements of a TMDL:

1. **Problem Definition** – A description of the location and scope of the project area and a list of waterbodies and pollutants being addressed.
2. **Endpoint Identification** – The desired condition or goal to be met by the project, usually linked to a specific water quality standard, such as level of dissolved oxygen, or concentration of organic material.
3. **Source Analysis** – A list of the type, magnitude, and location of all sources of pollutants causing the impairment. Types of sources may include **point sources**, such as waste discharges from municipal or industrial wastewater treatment plants; **non-point sources**, such as storm water runoff from parking lots, construction sites, and agricultural fields; and naturally occurring background pollution, such as that contributed by wildlife.
4. **Linkage Between Sources and Receiving Water** – A detailed descrip-