



## Total Maximum Daily Loads: Water Quality Improvement Plans

The federal Clean Water Act requires states and tribes to restore and maintain the chemical, physical, and biological integrity of the nation's waters and to adopt water quality standards necessary to protect fish, shellfish, and wildlife while providing for recreation in and on the waters whenever possible.

Water quality standards are designed to protect, restore, and preserve water quality in areas designated for specific uses. Uses have been designated for most, but not all, water bodies within Idaho.

[Section 303\(d\) of the Clean Water Act](#) establishes requirements for states and tribes to identify and prioritize water bodies that do not meet water quality standards. Currently, DEQ is required to conduct a comprehensive analysis of Idaho's water bodies every two years to determine if they meet water quality standards. This analysis is published and submitted to the EPA in Idaho's Integrated Report. Idaho must develop a water quality improvement plan, called a total maximum daily load (TMDL), for those water bodies not meeting water quality standards. A subbasin assessment (SBA) is the first step toward developing a TMDL.

### What is a TMDL?

Simply put, a TMDL is a pollutant budget. A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards. This budget is expressed in terms of loads: the amounts of pollutants added to a water body during a given time or per a volume of water. For example, a load allocation to a water body might be 5 kilograms of phosphorus per day from a given source.

A TMDL budget takes into account loads from the following sources:

- **Point:** A point source is a single, identifiable, localized source of pollutants. Point sources are typically associated with industrial discharges, municipal waste treatment facilities, and confined animal feeding operations. The effects can be directly traced to a particular source or facility (a "point"). Point source pollutants can often be measured at an outfall or pipe.
- **Nonpoint:** A nonpoint source is a diffuse source of pollution. It includes, among other things, the cumulative effects of fertilizers and pesticides that farmers and homeowners may use; oil that is carelessly poured down storm drains; and various land use practices including urban development, agriculture, and forestry. Due to the state's rural nature, most pollution in Idaho is nonpoint source.

- **Natural Background:** Natural background conditions exist when there is no measurable difference between the quality of water now and the quality of water that would exist with no human-caused changes in the watershed. Some pollutants are naturally occurring and must be factored in to the total pollutant budget.

The load assigned to point sources is called a wasteload allocation; the load assigned to nonpoint sources is called a load allocation. The budget is balanced at the point where water quality standards are just being met and loads are allocated among all the various sources. Like keeping money in the bank for a rainy day, some of the budget is set aside as a margin of safety. And like cash flow in a business, the pollutant budget must take into account the seasonal or cyclic nature of pollutant loads and the receiving water's capacity so a temporary exceedance does not occur.

The TMDL budget can be summarized as follows:

Load capacity = margin of safety + natural background + wasteload allocation + load allocation  
= TMDL

The equation is written in this order because it represents the logical order in which a TMDL is developed. First, the load capacity is determined. The load capacity is the quantity of a pollutant a water body can receive over a given period without causing violations of state water quality standards. Then the load capacity is broken down into its components. After the necessary margin of safety and natural background, if relevant, are quantified, the remainder is allocated among pollutant sources (i.e., the wasteload allocation and load allocation). When the breakdown and allocation are complete, the result is a TMDL, which must equal the load capacity.

In addition to being a pollutant load, "TMDL" also refers to the written, quantitative assessment of water quality problems and contributing pollutant sources. DEQ has the authority and the responsibility to ensure that TMDLs are completed and submitted for EPA approval. On tribal lands, EPA is likely to lead TMDL efforts with considerable help from the state, tribes, and other agencies. EPA has the responsibility to approve or disapprove all TMDLs. If EPA formally disapproves a state TMDL, it is obligated under the Clean Water Act to issue a new TMDL within 30 days.

## **What is a Subbasin Assessment?**

A subbasin assessment is the first step in developing a TMDL or recommending removing a water body from the list of impaired waters in the Integrated Report. Conducting the assessment entails analyzing and integrating multiple types of water body data, such as biological, physical, chemical, and landscape data. A subbasin assessment describes the affected area, the water quality concerns, the status of beneficial uses of individual water bodies, the nature and location of pollutant sources, and past and ongoing pollution control activities. Its main purpose is to determine the causes and extent of the impairment when water bodies are not attaining water quality standards.

While a subbasin assessment is not required by the Clean Water Act, DEQ completes the assessment to ensure impairment listings are up to date and accurate. The subbasin assessment is usually part of the TMDL document but may be prepared separately.

## **TMDL Implementation Plans**

An implementation plan is a document guided by an approved TMDL that provides details of the actions needed to achieve load reductions, outlines a schedule of those actions, and specifies monitoring needed to document action and progress toward meeting water quality standards.