

## Total Maximum Daily Loads, CAFOs, & the Clean Water Act

*A TMDL is the calculation of the maximum amount of a pollutant allowed to enter a waterbody so that the waterbody will meet and continue to meet water quality standards for that particular pollutant. A TMDL determines a pollutant reduction target and allocates load reductions necessary to the source(s) of the pollutant. (US EPA, 2022).*

The theory underlying TMDLs is that the level of pollution in a body of water can be measured; all the sources can be identified, and the amount of pollution from each source can be rationed so that the total load that enters the water body does not make water unsafe for fish, for human consumption, for industry, or for recreation.

Pollutants enter surface waters (rivers, streams, lakes, bays, inlets) from: 1. point sources such as wastewater treatment plants (WWTPs), factories, and concentrated animal feeding operations (CAFOs) or from 2. non-point sources such as runoff from storm water & water that drains from irrigated agriculture. When the pollution comes through a pipe it is relatively easy to measure and control. Non-point sources are more difficult.

In recent years the range of pollutants has broadened to include temperature, total dissolved oxygen, total dissolved gas, and pH. These pollutants can be measured in the water, but it is near impossible to directly allocate an amount to any specific source. For this reason, some TMDL plans rely on narrative assessment of best management practices (BMPs) designed to protect the water (for example the amount of streamside shade that cools the water).

TMDLs are one of several tools in the Clean Water Act (CWA) that the Environmental Protection Agency (EPA) can use for water protection. Under the CWA states must assess all surface waters and assign a rating. Polluted surface waters are placed in category 5 on what is called a 303(d) list. In theory the states must then develop TMDLs to bring category 5 waters back to a safer category. Development of TMDLs has been slow due primarily to lack of funding and resources. There are thousands of category 5 waters on state 303(d) lists that have gone for years without TMDLs and will likely not have TMDLs in the near future. The CWA does not require states to develop implementation plans for TMDLs.

Category 1 – Meets standards for parameter(s) for which it has been tested

Category 2 – Waters of concern

Category 3 – Waters with no data available

Category 4 – Polluted waters that do not require a TMDL because:

4a. – Has a TMDL approved and it is being implemented

4b. – Has a pollution control program in place that should solve the problem

4c. – Impaired by a non-pollutant such as low water flow, dams, culverts Category

5 – Polluted waters that require a TMDL (the 303[d] list)

Numerous environmental groups began suing the EPA over TMDLs in the 1990's and this compelled a renewed interest in using this tool. In 2010, given the failure of voluntary and local interventions to address degradation of Chesapeake Bay, the EPA embarked on a giant TMDL project to restore that national treasure: “specifically, the TMDL set Bay watershed limits of 185.9 million pounds of nitrogen, 12.5 million pounds of phosphorus, and 6.45 billion pounds of sediment per year.”

CAFOs are classified as point sources of water pollution. This includes production areas (pens, corrals, barns, composting areas, feed storage, and wastewater storage ponds), as well as cropland where manure is applied as fertilizer. Wasteload Allocations (WLAs) for CAFOs are supposed to be included in National Pollutant Discharge Elimination System (NPDES) permits for CAFOs that are enforced by the states, except Idaho, Massachusetts, New Hampshire & New Mexico.

Typically, NPDES permits for CAFOs are described as no-discharge permits, which implies that CAFOs do not discharge to surface waters. There is a huge exception for unusual stormwater events. A permitted CAFO is excused from discharges that occur during storms, floods, etc.

In fact, modern CAFOs do discharge a lot through leaking, poorly lined wastewater storage ponds (WSPs); tile drains; composting operations; emissions to the ambient air and atmospheric deposition; and groundwater interactions with surface waters. NPDES permits frequently fail to address and quantify these discharges. State regulators are too quick to say that CAFOs have nutrient management plans and therefore adhere to best management practices and do not pollute.

To illustrate the problem, consider this example from the Nooksack Valley in Washington State where bacterial pollution of surface waters has resulted in closure of shellfish beds for decades. The Nooksack River Watershed Bacteria Total Maximum Daily Load Submittal Report states under Loading and Waste Load Allocations:

*There are three WWTPs in the watershed. All discharge directly into the Nooksack River. The target at Brennan will be used to set permit limits. Therefore the WWTPs are assigned a wasteload allocation of zero.*

*There are two dairies under the NPDES dairy general permit in the Nooksack watershed. There are 16 dairies in the Nooksack watershed that will be under the dairy general permit within a month. The permit only allows those discharges caused by chronic or catastrophic storm events prompting an overflow from facilities designed for a 25-year, 24-hour storm event. Federal requirements adopted by reference in the permit prohibit discharges that would cause an exceedance of water quality criteria. Therefore, the waste load allocations for these streams will remain at zero. The implementation of the Washington State Dairy Nutrient Management Act may result in other dairies being covered by the NPDES Dairy permit and also receiving a wasteload allocation of zero.*

This is just a paper exercise. The Nooksack River Watershed continues to show high levels of bacteria, but authorities claim that the major sources do not discharge. After over 20 years, there are still only two permitted CAFO dairies in the watershed.