

# Nutrient Total Maximum Daily Loads

STATE OF MICHIGAN, DEPARTMENT OF ENVIRONMENTAL QUALITY

*Nutrient Framework to Reduce Phosphorus and Nitrogen Pollution*

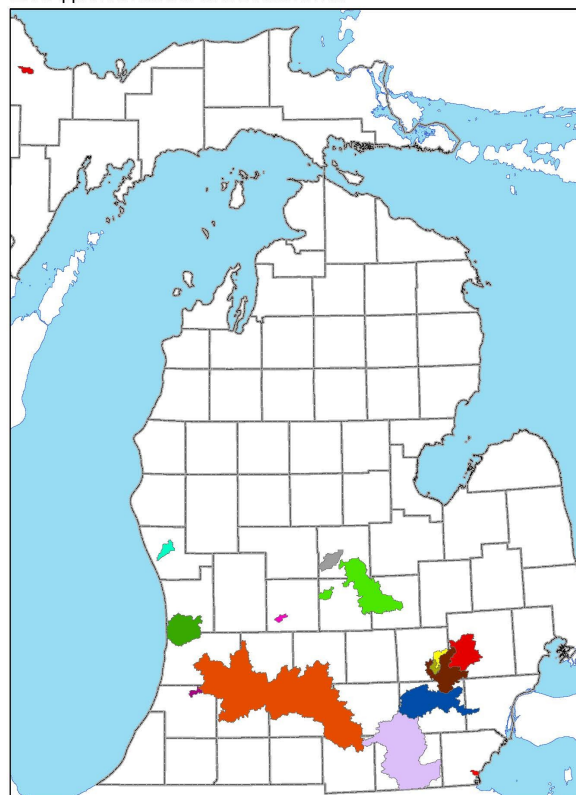
When a lake or stream does not meet Water Quality Standards (WQS), a Total Maximum Daily Load (TMDL) is developed to determine the maximum daily load of a pollutant that a water body can assimilate and meet WQS. This load is then allocated to point source discharges, nonpoint source discharges, and a margin of safety reserve (to account for technical uncertainties). The WQS relating to nutrients states that “nutrients shall be limited to the extent necessary to prevent stimulation of growths of aquatic rooted, attached, suspended, and floating plants, fungi, or bacteria, which are or may become injurious to the designated uses of the surface waters of the state.”

TMDL development is a public process that works best with the involvement of all affected parties. This is particularly important during the discussion on allocation and implementation issues. Participation by local communities and landowners leads to more representative TMDLs that can be readily implemented, which can lead to faster improvements in water quality.

Following development of a draft TMDL, the document is noticed for public comment. After appropriate modifications are made in response to public comments, the TMDL is sent to the U.S. Environmental Protection Agency for approval. Upon approval, the state is required to implement the TMDL so the water body will meet applicable WQS. The TMDL is implemented through existing programs, such as the National Pollutant Discharge Elimination System permits for point source discharges and nonpoint source control programs, to achieve the necessary pollutant reductions for meeting the goal established in the TMDL.

Through 2013, 15 TMDLs have been written to address nutrient impairments in Michigan waters (Figure 1 and Table 1). In Michigan, total phosphorus (TP) is most often the nutrient causing nuisance plant-based WQS impairments and most of nutrient TMDLs address TP loads. The TP TMDLs add up to a total reduction of approximately 150,000 pounds of phosphorus per year.

EPA Approved Nutrient TMDL Watersheds



Note: There are no nutrient TMDL watersheds in the far western UP. Rippe, 10/14/2013

Figure 1. Nutrient TMDL watersheds in Michigan.



Nuisance plant conditions in Peet Creek, Clinton County, 2007.

# Nutrient TMDLs (continued)

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The Lake Macatawa and Lake Allegan TMDLs were among the first to be completed in Michigan and called for phosphorus loading reductions of over 80,000 and 40,000 pounds, respectively. There have been significant efforts underway to meet these goals in both of these watersheds. Millions of state, federal, municipal, and private funds have been spent to reduce phosphorus loading to these lakes. The nutrient concentration targets that are in each TMDL are now integrated into the Water Resources Division's Measures of Success. Neither water body is meeting its in-lake phosphorus concentration target, but the Division is committed to regular monitoring of these water bodies to continue to assess their nutrient status.



Baker Creek in Gladwin County, 2007. This stream discharges to a TMDL water body.

All of Michigan's TMDL documents can be viewed by following a link on the bottom of the Department of Environmental Quality's [TMDL Web site](#).

Table 1. Michigan phosphorus and nitrogen TMDLs. The current TP load is the current load when the TMDL was written and the TMDL load on this table is the amount of phosphorus that can be added to the system in a year to ensure that WQS are met.

Water Body	County	Pollutant	HUC	TMDL Year	Current TP Load (lbs/yr)	TMDL TP Load (lbs/yr)
Bear Lake	Muskegon	Phosphorus	4060102	2008	3,387	1,458
Belleville and Ford Lakes	Wayne and Washtenaw	Phosphorus	4090005	2004	1,299	922
Brighton Lake	Livingston	Phosphorus	4090005	1999	973	900
Goose Lake	Marquette	Phosphorus	4030110	2011	2,438	798
Great Bear Lake	Van Buren	Phosphorus	4050002	2004	1,797	1,268
Kent Lake	Oakland	Phosphorus	4090005	2000	7,000	7,600
Lake Allegan	Allegan	Phosphorus	4050003	2001	155,508	111,600
Lake Macatawa (Watershed)	Ottawa	Phosphorus	4050002	2000	138,500	55,000
Lapointe Drain	Monroe	Oxygen and Phosphorus	4100001	2007	3,285	1,424
Maple River (Upper), Peet Creek, and Lost Creek	Shiawassee, Clinton, and Gratiot	Phosphorus	4050005	2009	12,833	3,127
Morrison Lake	Ionia	Phosphorus	4050006	2008	919	495
Ore Lake	Livingston	Phosphorus	4090005	2000	1,375	1,940
Pine Creek	Gratiot	Phosphorus	4050005	2007	14,856	5,366
River Raisin	Lenawee	Nitrate	4100002	2005		
Strawberry Lake	Livingston	Phosphorus	4090005	2000	14,822	17,100