

STATE OF MICHIGAN, DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

Nutrient Framework to Reduce Phosphorus and Nitrogen Pollution

Every year EGLE receives several reports about nuisance algal conditions in lakes (Figure 1). In 2020, EGLE received complaints for 102 different waterbodies throughout the state, likely due to elevated nutrients in the system. However, EGLE has not had a consistent method to track, monitor, and assess these conditions beyond blue-green algae blooms and algal toxins. Given the potential effects of nuisance algae on water quality, aquatic life, wildlife, and recreation, a more systematic monitoring and assessment is needed.

Water Resources Division recently developed updated guidance to support the state's narrative nutrient standard (Rule 323.1060 (2)), related to Clean Water Act Sections 305(b), 303(d), and 314. This guidance will be used to document and assess the extent, severity, and frequency of nuisance conditions related to nutrients in inland lakes to advance assessment methods for the Other Indigenous Aquatic Life and Wildlife designated use.



Figure 1. An example of a Michigan lake with extensive mats of green algae. Typically, these blooms do not produce toxins but will degrade habitat and impede recreation.

In 2020, EGLE used various types of data in a 'weight of evidence' approach to determine designated use support. Supporting information included a combination of Carlson's trophic status index (TSI), water chemistry results for various nutrients or cyanotoxins, reports of nutrient expression/blooms, aerial imagery showing visible blooms, aquatic nuisance plant control documentation, and aquatic macrophyte surveys.

Based on updated guidance, EGLE was able to list eight lakes as impaired by nutrients with existing data. Additionally, 12 lakes were targeted for additional sampling due to known nutrient issues but with insufficient information. These locations are shown in Figure 2 along with watersheds for impaired waterbodies that already have an EPA approved Total Maximum Daily Load (TMDL) for nutrients.

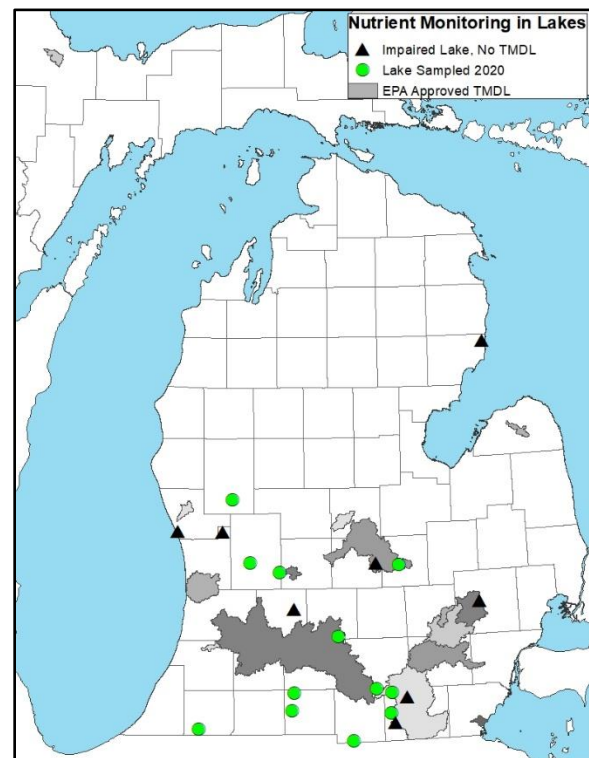


Figure 2. Locations of lakes that were sampled and/or listed as impaired in 2020. Additionally, locations of watersheds for waterbodies with EPA approved TMDLs.