

Report to
Legislative Council Rules Clearinghouse
NR 102, Wis. Adm. Code
Natural Resources Board Order No. WY-21-20

Wisconsin Statutory Authority

Section 281.15(1), Stats., requires the department to promulgate rules setting water quality standards and designated uses. In adopting or revising water quality standards, s. 281.15(2), Stats., sets forth requirements the department must follow, including the consideration of reasonably available information on the costs of attaining the water quality criteria, a description of the economic and social considerations used in the establishment of the criteria, the use of reasonable statistical techniques in interpreting the water quality data, and the development of a technical support document which identifies the data used to develop the criteria.

Federal Authority

The Federal water quality standards regulation at 40 CFR 131.11(b)(1)(ii) provides states with the opportunity to adopt water quality criteria that are “modified to reflect site-specific conditions.” Wisconsin has previously used this authority, as well as the authority under s. 281.15, Stats., to promulgate three numeric phosphorus site-specific criteria and related narrative language in s. NR 102.06(7), Wis. Adm. Code. The portions of 40 CFR 131 related to establishing water quality standards include:

- 40 CFR 131 Subparts A-C: Requirements for establishing state water quality standards.
- 40 CFR 131.4: States are responsible for establishing and revising water quality standards. The U.S. Environmental Protection Agency (U.S. EPA) approves or disapproves standards under 40 CFR s. 131.5.
- 40 CFR 131.6: Water quality standards consist of designated uses and criteria to protect the designated uses.
- 40 CFR 131.10: States must specify appropriate designated uses to be protected for waterbodies, and may adopt sub-categories of these uses.
- 40 CFR 131.11: States must adopt water quality criteria that protect designated uses. For waters with multiple uses, the criteria must protect the most sensitive use. 40 CFR 131.11(b)(1)(ii) authorizes states to adopt numeric water quality criteria that are “modified to reflect site-specific conditions.”
- 40 CFR 131.20: Revision of state water quality standards is subject to public participation procedures and U.S. EPA review and approval under 40 CFR 131.20.

Comparison of Adjacent States

Wisconsin has numeric phosphorus criteria for lakes, reservoirs, rivers, streams, and impounded flowing waters. Wisconsin’s phosphorus criteria for lakes and reservoirs vary by lake type with values ranging from 15 to 40 µg/L. Wisconsin statutes provide authority to develop site-specific criteria, and s. NR 102.06(7), Wis. Adm. Code, recognizes that site-specific criteria may be developed for phosphorus.

Minnesota has adopted phosphorus criteria for lakes, reservoirs, rivers and streams. Minnesota’s phosphorus criteria for lakes and reservoirs vary by ecoregion with values ranging from 12 to 90 µg/L. Minnesota allows specific water quality standards, referred to as site-specific criteria in Wisconsin, to be adopted if information is available to derive standards based on a waterbody’s specific characteristics. This process is outlined in Minn. R. 7050.0220, 7050.0222, and 7052.0270. Site-specific standards must maintain and protect a waterbody’s beneficial uses. Several site-specific phosphorus criteria have been approved in Minnesota.

Illinois has adopted partial phosphorus criteria for lakes and reservoirs. Illinois' phosphorus criteria for any lake or reservoir greater than 20 acres is set at 50 µg/L. Illinois does not have provisions for site-specific criteria.

Iowa and Michigan do not have statewide numeric phosphorus criteria. However, Michigan widely applies a method to derive appropriate site-specific phosphorus targets for waterbodies in the state. The targets set by Michigan are applied in permits and Total Maximum Daily Load (TMDL) analyses.

Wisconsin, Minnesota, and Michigan are the main states in U.S. EPA Region 5 that have two-story fishery lakes supporting coldwater fish. Wisconsin's phosphorus criterion for two-story fishery lakes with cisco, whitefish, or lake or stream trout is 15 µg/L. Minnesota has a specified criterion for lakes with lake trout (the most sensitive species) of 12 µg/L, and for lakes with stream trout of 20 µg/L. Minnesota does not specify separate criteria for lakes with cisco or whitefish, although the Minnesota Pollution Control Agency has indicated that it is considering doing so in the future. Under current Minnesota standards, a lake such as Lac Courte Oreilles, which does not have lake or stream trout, would have a phosphorus criterion of either 30 or 40 µg/L under Minn. R. 7050.0222 (3) and (4). Therefore, Wisconsin's statewide phosphorus criterion of 15 µg/L for two-story fishery lakes and the proposed site-specific criterion of 10 µg/L for Lac Courte Oreilles are both more stringent than Minnesota's current criteria of 30-40 µg/L for non-trout lakes. Michigan does not have phosphorus targets specific to lakes with coldwater fish.

Court Decisions Directly Relevant

There are no court decisions directly relevant to this rulemaking.

Analysis of the Rule - Rule Effect - Reason for the Rule

This rule proposes a site-specific criterion of 10 µg/L total phosphorus for Lac Courte Oreilles (LCO), a lake in Sawyer County. The lake straddles both state land and Tribal lands of the Lac Courte Oreilles Band of Lake Superior Chippewa. LCO is a state-classified Outstanding Resource Water and one of a small number of "two-story fishery" lakes in Wisconsin that support a coldwater fishery within its deep basins. Cisco and whitefish, both members of the coldwater community, are present in the three main basins of LCO. Of these two species, whitefish are the most sensitive to low oxygen levels and warm temperature.

Coldwater fish require a cold, oxygenated layer of water to survive, referred to as the oxythermal layer. Cisco and whitefish kills have occurred in the main basins of the lake due to the combination of low dissolved oxygen and warmer water temperatures, which have reduced the size of the oxythermal layer during the late summer. LCO is currently listed on the state's impaired waters list as impaired for dissolved oxygen. The department's analysis confirmed that phosphorus is one of the factors contributing to low dissolved oxygen levels. Phosphorus fuels the growth of algae and aquatic plants, and when these die their decomposition process consumes oxygen. The department quantified how phosphorus concentrations ranging from low to high affect the available oxythermal layer.

Pursuant to s. NR 102.06(7), Wis. Adm. Code, and s. 281.15, Stats., the department has the authority to develop a site-specific criterion in place of the generally applicable phosphorus criteria in s. NR 102.06, Wis. Adm. Code, if site-specific, scientifically defensible data and analysis demonstrate a different criterion is protective of the designated use of the specific surface waterbody and the site-specific criterion is no more stringent than reasonably necessary to protect the designated use. The applicable statewide phosphorus criterion for two-story fishery lakes is 15 µg/L under s. NR 102.06(4)(b)1., Wis. Adm. Code.

The department first determined the site-specific characteristics of LCO and the set of stressors that underly the need for a site-specific phosphorus criterion. The department then developed a model based on over thirty years of extensive data from LCO to predict how oxythermal habitat would respond to reduced phosphorus concentrations in the lake. The department's analysis demonstrated that the statewide phosphorus criterion of 15 µg/L is not sufficient to protect whitefish in LCO—a lower criterion is necessary to enable whitefish survival. After modeling how oxythermal habitat conditions are expected to respond to varying levels of phosphorus in the lake, the department's analysis confirmed that a phosphorus criterion of 10 µg/L is appropriate and necessary to increase survival during the most stressful warm periods. Further, it demonstrated that a criterion of 10 µg/L is not more stringent than reasonably necessary for attaining that protection, as concentrations above this point would not provide sufficient habitat for the existing coldwater community. Achieving a criterion of 10 µg/L would also improve conditions for cisco.

Agency Procedures for Promulgation

The department will hold a hearing in a hybrid format both in-person and online on January 23, 2023, at 6:00 PM. The in-person location will be at the DNR office in Hayward, WI. The hearing will be followed by a request for board adoption, expected in May 2023, followed by a request for the governor's signature and legislative review.

Description of any Forms (attach copies if available)

N/A

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